REGULAR MEETING – PLANNING AND ZONING COMMISSION
AGENDA

MARCH 4, 2026, 6:00 PM
BY ZOOM VIRTUAL MEETING

To allow public access, anyone may access a meeting by telephone and/or Zoom, or a recording in the City of Norwalk YouTube channel. Specific instructions and links can be found at norwalkct.gov/meetings.

Members of the public may call in to participate. Callers will not be able to see the meeting participants. All participants will be muted upon entering the meeting. To speak, dial *9 on the phone and you will be called on by the host of the meeting during the public comment section. All speakers must state their name and address. Comments must be on a topic on the agenda, and are limited to three minutes. Anyone disrupting the orderly conduct of the meeting, including by using threatening, hateful, or sexually-explicit language, will be removed. Please find the information using the link above.

Members of the public who wish to provide "live comments" may also use the Zoom meeting platform. All participants will be muted upon entering the meeting. To speak, click the “raise your hand indicator” and you will be called by the host of the meeting during the public comment section. All speakers must state their name and address. Comments must be on a topic on the agenda. Anyone disrupting the orderly conduct of the meeting, including by using threatening, hateful, or sexually-explicit language, will be removed. Please find the information using the link above.

Members of the public who wish to provide public comment are encouraged to submit those via email in advance of the meeting. For these comments to be included into the record, they must be submitted by 12:00 p.m. the day of the meeting. Please email Steve Kleppin, Director of Planning & Zoning, at skleppin@norwalkct.gov with the subject line “Public Comment” to provide written public comment prior to the meeting.

I. CALL TO ORDER

II. ROLL CALL AND SEATING OF ALTERNATES

III. PUBLIC HEARINGS

A. #2025-91 POCD - Planning & Zoning Commission - Amendment to the 2019-2029 Plan of Conservation and Development (POCD) to adopt the Arts and Cultural Plan, dated 2025, as an addendum to the POCD - Public hearing, report & recommended action

B. #2026-05 SP/CAM – Spinnaker Acquisitions LLC – 108 Water Street (District 2, Block 84, Lot 18) – Special permit and coastal site plan review application for the construction of a 4.5-story mixed-use development - Public hearing, report & recommended action

IV. REVIEW AND ACTION ON APPLICATIONS

A. **#2026-14 8-24 Referral - City of Norwalk - 8-24 Referral to acquire drainage easement for purposes of maintaining newly installed storm drainage, per Drainage Easement Map 13 Heather Lane and Drainage Easement Map 15 Heather Lane - Report & recommended action**

B. **#2024-08 SP/CAM – Harbor Ventures, LLC and Plumbing Works, LLC – 18 Harbor Avenue (District 1, Block 25, Lot 7) – Extension of time request for construction of a new building and use of the entire property as an Earth Processing and Contractor Materials Storage Yard - Report & recommended action**

C. **#2025-84 CSPR – LandTech – 163 Gregory Boulevard – Retain a Shoreline Flood and Erosion Control Structure that was built without permits and construct a new residential dock - Report & recommended action**

D. **FY 2026-27 Capital Budget - Report and recommended action**

V. ACCEPTANCE OF MINUTES

A. **Regular Meeting: February 18, 2026**

VI. COMMENTS OF DIRECTOR

VII. COMMENTS OF COMMISSIONERS

VIII. ADJOURNMENT

UPCOMING MEETINGS

March 18, 2026

City of Norwalk
Arts & Cultural District Plan

DECEMBER 2025

CULTURAL PLANNING GROUP

I ♥ NORWALK

TABLE OF CONTENTS

Introduction.....1

- Why the Norwalk Arts District.....2
- Benefits of an Arts District.....4
- Planning Process.....5
- Norwalk's Creative Economy.....8
- Lessons from Other Districts.....13
- What We Heard: Needs and Opportunities.....16

The Plan.....21

- Introduction.....22
- Identity of the District.....23
- District Geography.....26
- Functions of the District.....28
- Management, Operations and Governance.....38
- Funding.....42
- Consolidated Recommendations and Implementation.....44
- Implementation Grid.....47

Attachments.....57

- Small Scale Activations.....58
- Resources for Wayfinding Programs.....62
- Cultural Districts Comparison Study.....63
- Group Event Engagement Input.....70
- Glossary.....82

INTRODUCTION

The Norwalk Art Space
Patrick Sikes, 2021

WHY THE NORWALK ARTS DISTRICT

Vibrant communities have those special places that draw people in with their distinctive cultural character. Arts and cultural districts serve as community anchors—destinations where people gather for memorable performances, discover unique finds, or simply enjoy the energy of a place that truly comes alive. While each cultural district has its own personality, successful ones share important elements:

Cultural districts are defined as well-recognized, labeled areas of a city in which a high concentration of cultural facilities and programs serve as the main anchor of attraction. They help strengthen local economies, create an enhanced sense of place, and deepen local cultural capacity. (Americans for the Arts).

Norwalk's Arts District, officially designated by the State of Connecticut in 2023, authentically embodies this definition. Artists, entrepreneurs, business owners, and residents are naturally drawn to the District's neighborhoods, particularly Wall Street and SoNo. Early momentum is already evident—the District is attracting fresh talent, generating investment, welcoming new residents, and gaining regional recognition. This foundation creates an exceptional opportunity to develop a fully realized arts and culture district.

With thoughtful stewardship, the District can become a driving force that strengthens local businesses and educational institutions, supports artists, builds cultural organizations, enhances tourism, and celebrates historic assets. It can establish Norwalk as a sought-after regional destination—a community recognized for its history, culture, and diversity. The District can improve perceptions of safety, accessibility, and livability while supporting the city's broader goals of sustainability, equity, economic growth, and quality of life.

For Norwalk's creative community—artists, cultural nonprofits, arts businesses, and creative professionals—strategic District management offers significant opportunities for growth. It promises greater visibility, expanded recognition, new collaborative possibilities, a creative hub, and strengthened community connections. Many in Norwalk's arts community have been working toward this moment and are ready to contribute to its success. The District also provides valuable support for the diverse small businesses that have chosen to locate here—restaurants, cafes, boutiques, services, and professional firms that give the area its character. Foot traffic along Wall Street and Washington Street is already growing, and focused District development can make it a compelling destination for both Norwalk residents and regional visitors.

For residents, the District offers the promise of more vibrant neighborhoods, engaging family destinations, stronger community connections, and improved public spaces.

All the elements are in place for the Norwalk Arts District to flourish. This plan provides a community-supported roadmap to realize that potential.

Norwalk Mural Park
Scott Chiappetta, 2021

BENEFITS OF AN ARTS DISTRICT

There are numerous direct and indirect benefits to fully realizing the Norwalk Arts District. Those benefits include:

Serving as an economic engine that increases property values, attracts new businesses, creates jobs, and boosts local spending through cultural tourism and increased foot traffic.

Becoming a hub for innovation and supporting entrepreneurship of creative businesses.

Serving as a community connector and community cross-roads, bridging diverse neighborhoods and demographics through shared cultural experiences and programming.

Supporting youth by connecting those seeking creative outlets and careers with mentorship opportunities, creative career pathways, and engaging activities that keep young talent in Norwalk.

Positioning Norwalk as a weekend destination, attracting visitors from surrounding communities, the NYC metro area and beyond.

Being a catalyst for historic preservation by incentivizing adaptive reuse of historic buildings while honoring Norwalk's architectural heritage.

Strengthening a sense of place by promoting walkability, outdoor programming, and a range of arts and creative engagement.

PLANNING PROCESS

The Norwalk Arts District plan was developed by the City of Norwalk in collaboration with stakeholders, the broader community, a Steering Committee, the Norwalk Arts & Culture Commission, and a consulting team. Preplanning began in January 2025, community engagement and additional research were conducted between April and September, and the first draft of the plan developed in September.

Community Engagement

Norwalk Arts District Plan Steering Committee

Composed of community leaders and stakeholders from diverse sectors and backgrounds – arts, city government, historic preservation, education, Arts Commission, and business. The committee met four times to advise on the planning process, provide information and input, and review the draft plan.

Marc Alan
Factory Underground/NACC Member

Brian Bidolli
Norwalk Redevelopment Agency

Anna Breault
City of Norwalk

Tod Bryant
Norwalk Preservation Trust

Alex Cross
City of Norwalk

Heather Dunn
Council Member/Arts Advocate

Sabrina Godeski
City of Norwalk

Danny Loftus George
Norwalk Conservatory of the Arts/NACC Vice Chair

Jay Habansky
City of Norwalk

Amy Holomakoff
Factory Underground

Stephen Ivan
Norwalk Redevelopment Agency

Diane Jellerette
Norwalk Historical Society/Mill Hill

Brian Kaspr
Flat Vernacular/NACC Chair

Steve Kleppin
City of Norwalk

Carly Kramer
Norwalk Redevelopment Agency

Duvian Montoya
Norwalk Art Space

Steve Rust
Theater Projects/NACC Member

Jalin Sead
Council Member/District Rep

Erika Wesley
Fairfield County Cultural Alliance

David Westmoreland
Mathews Mansion/Historical

Darlene Young
Council Member/District Rep

Stakeholder Interviews and Group Discussions

Interviews
Marc Alan, Factory Underground
Tod Bryant, Historic Preservation Trust
Danny Loftus George, President & Founder, Norwalk Conservatory of the Arts
Josh Goldstein, Common Council Member
Jay Habansky, Chief of Economic Development, City of Norwalk
Rabbi Yehoshua S. Hecht, Beth Israel Chabad of Westport/Norwalk
Brian Kaspr, Chair, Norwalk Arts &Cultural Commission
Steve Kleppin, Director, Planning and Zoning
Tom Livingston, Chief of Staff, City of Norwalk
Jason Milligan, Milligan Realty
Diana Muller, Director of Marketing & Development, Norwalk Conservatory of the Arts
Mayor Harry W. Rilling, City of Norwalk
Daniel Shlayen, AGW Partners
Robert Stowers, Director, Parks & Recreation
Darlene Young, Common Council Member

Group Discussions
Artist & Creatives Roundtable Mixer, Spacecat Whisker Room

Restaurant Roundtable Breakfast

Robert Lee, Dippin' Chicken
Alan Heron, Flying Scotsman
Chris Hickey, Spread
Blanca Restiano, Coals Pizza, Mr. Mango
Keith Mahler, District Music Hall

Developer/Property Owner Lunch & Chat

Clay Fowler
Todd McClutchey, JHM Financial
Kim Morque, Spinnaker
Emmy Sasaki, Tom Rich Co.
Daniel Schlayen, AWG

Arts and Cultural Businesses

Mark Alan, Factory Underground
Elizabeth Fort, Senior Administrator, Lockwood Matthews Mansion
Wendy Gerbier, Board Member, Norwalk Symphony Orchestra
Kimberly Henrikson, Executive Director, Center for Contemporary Printmaking
Amy Holomakoff, School Director, Factory Underground
Diane Jellerette, Norwalk Historical Society.
Keith Mahler, District Music Hall
Sandra Miklave, Executive Director, Norwalk Symphony Orchestra
Kyla Pitruzzello, District Music Hall
Zuri Soto, Director of Outreach and Media, Factory Underground
Robert Townes, Stepping Stones for Children Museum

Artists Discussion Group

Robert Abriola, Norwalk Arts & Culture Commission
Kimberley Henrickson, Executive Director, Center for Contemporary Printmaking
Kevin Huffman, Norwalk Arts & Culture Commission, Norwalk Film Festival
Duvian Matoya, Executive Director, Norwalk Art Space
Janay Sylvester, Norwalk Arts & Culture Commission
Oksana Tanasiv, Oksana Tanasiv Gallery

Staff Work Session/Business Development & Tourism

Anna Breault, Special Event Coordinator
Alex Cross, Business Development Manager
Sabrina Godeski, Director

Resident's Open House

The planning team produced an open, community drop-in session at the Norwalk SoNo Collection on July 29, 2025. Graphically displayed information on the Norwalk Arts District and questions regarding the plan were provided to stimulate and collect community members' ideas. An art-based table offered children and adults an opportunity to create paper leaves for a Wishing Tree, a creative mode of engagement in planning.

Business Mixer

The planning team produced a business mixer for business and property owners and other stakeholders at Space 67 Studios, co-hosted by Space 67, on July 31, 2025. Similar to the Residents' Open House earlier that week, the Mixer provided attendees opportunities to learn and register opinions about the Norwalk Arts District, as well as the art-based Wishing Tree table.

Community Survey

A bilingual community survey was distributed widely to city and partner agency lists between July 30 and September 15, 2025, garnering 390 responses. The survey introduced the Norwalk Arts District and asked what respondents would like to see in both the Wall Street and SoNo/Washington Street areas, what the District should strive to accomplish, how people would like to find out about cultural activities that interest them, and where they currently attend cultural events.

Community Tour

Walking and driving tours of the District and its subareas.

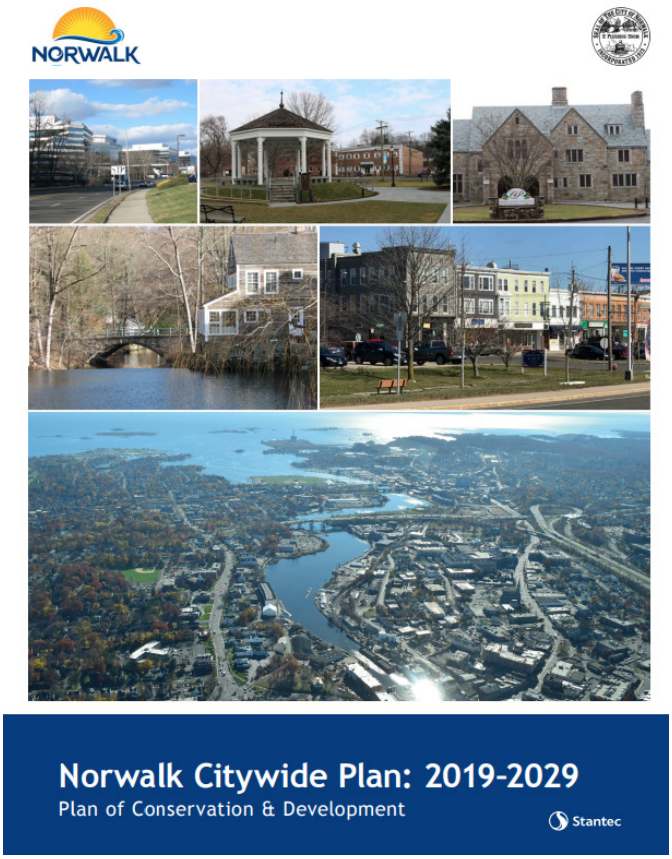
Background Document Review

Review of relevant plans, studies and other documentation, including:

- Norwalk Citywide Plan of Conservation and Development
- Wall Street/West Avenue Neighborhood Plan:
- South Norwalk TOD Plan
- Various additional planning efforts and redevelopment specific plans
- Norwalk Arts District Cultural District / Application to State of Connecticut

Comparison Districts Study

A comparison of six cultural districts in cities with specific relevance to Norwalk (see Appendix: Cultural Districts Comparison Study).



Norwalk Citywide Plan: 2019-2029 Title Page

Norwalk Cultural District Application Package Front Page

River Street Mural by Javier Eastman
Victoria Urso, 2025

NORWALK'S CREATIVE ECONOMY

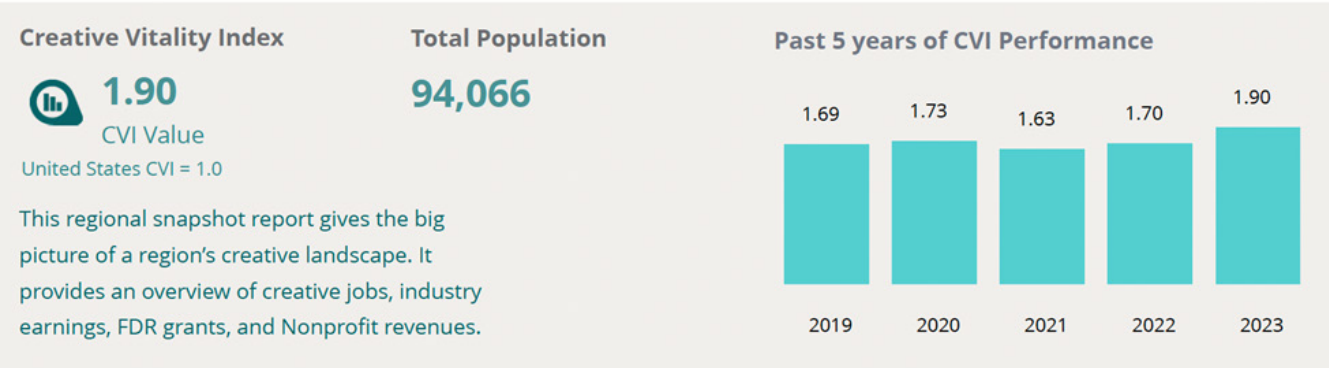
Understanding Norwalk's creative economy is essential to effective arts district planning and management. The creative sector represents a significant economic force in the city, encompassing creative occupations, cultural industries, and nonprofit arts organizations that collectively contribute to Norwalk's economic vitality and quality of life.

Economic Impact and Creative Vitality

Norwalk demonstrates strong creative vitality with a Creative Vitality Index (CVI)[1] of 1.90 in 2023—nearly double the national baseline of 1.0. This indicates that Norwalk has almost twice the per capita concentration of creative activity compared to the United States as a whole. The city's CVI has shown steady growth over the past five years, rising from 1.69 in 2019 to its current level, representing a 12% increase and signaling a strengthening creative economy.

This creative vitality translates into substantial economic activity. In 2023, Norwalk's creative sector generated:

- $328.3 million in creative industry earnings
- Nearly $985 million in creative industry sales
- $50.2 million in cultural nonprofit revenues (a 49% increase from 2022)
- 4,653 creative jobs



[1] *Creative Vitality™ Suite is an industry standard data solution for measuring the for-profit and nonprofit arts, culture, and creative sectors provided by Western States Arts Federation.*

Creative Workforce

Norwalk's creative workforce of 4,653 jobs in 2023 represents diverse occupations spanning technology, design, media, arts, and cultural management. The sector has shown modest but consistent growth since 2022.

The top five creative occupations by employment are

- Software Developers – 888 jobs (19% of creative workforce)
- Marketing Managers – 358 jobs
- Writers & Authors – 310 jobs
- Graphic Designers – 245 jobs
- Musicians & Singers – 179 jobs

Beyond these leading occupations, Norwalk's creative workforce includes significant concentrations in:

- Visual Arts & Design: Art directors (138), fine artists and illustrators (172), interior designers (115), craft artists (75), special effects artists and animators (63), and various specialized designers totaling over 600 jobs
- Media & Communications: Editors (147), interpreters and translators (150), producers and directors (134), public relations specialists (119), and broadcast/media technical positions
- Performing Arts: Musicians, singers, actors, dancers, and other performers totaling approximately 340 jobs
- Cultural Heritage: Curators (15), museum technicians (14), archivists (9), and librarians (42)
- Architecture & Related: Architects (73), landscape architects (20), and interior designers (115)

The creative workforce commands strong wages, with median hourly earnings of $29.80 and average hourly earnings of $39.95 across all creative occupations. High-wage occupations include marketing managers ($76.83 median hourly), public relations managers ($73.02), software developers ($66.06), and architects ($48.52).

Location Quotient Analysis

Several creative occupations show exceptional concentration in Norwalk compared to national averages, as measured by location quotient (LQ). An LQ above 1.0 indicates higher-than-average concentration. Occupations with the highest concentration include:

- Museum Technicians and Conservators (LQ 2.30)
- Advertising and Promotions Managers (LQ 2.28)
- Interior Designers (LQ 2.27)
- Lighting Technicians (LQ 2.24)
- Marketing Managers (LQ 2.10)
- Curators (LQ 2.11)
- Editors (LQ 2.03)
- Writers and Authors (LQ 2.01)
- Designers (various specializations, LQ 1.91-2.00)
- Film and Video Editors (LQ 1.95)
- Graphic Designers (LQ 1.91)
- Archivists (LQ 1.89)
- Special Effects Artists and Animators (LQ 1.71)
- Web Developers (LQ 1.68)
- Landscape Architects (LQ 1.61)

These concentrations suggest Norwalk has developed particular strengths in design, publishing, advertising/marketing, museum services, and digital media—sectors that benefit from and contribute to the arts district ecosystem.

Creative Industries

Norwalk's creative industries generated $985 million in sales and $328 million in earnings in 2023, supporting 4,038 industry jobs. The top five creative industries by earnings are:

1. **Advertising Agencies** – $71.3 million in earnings
   - 482 jobs
   - Location Quotient 4.65 (exceptional national concentration)
   - Average earnings per job: $148,003

2. **Content Providers (Media Streaming, Social Networks)** – $35.8 million in earnings
   - 209 jobs
   - $198 million in sales
   - Location Quotient 2.43
   - Average earnings per job: $170,714

3. **Motion Picture and Video Production** – $29.6 million in earnings
   - 159 jobs
   - $107.5 million in sales
   - Location Quotient 1.59
   - Average earnings per job: $185,490

4. **Graphic Design Services** – $23.0 million in earnings
   - 281 jobs
   - $37.6 million in sales
   - Location Quotient 3.52 (strong concentration)
   - Average earnings per job: $81,458

5. **Public Relations Agencies** – $17.4 million in earnings
   - 128 jobs
   - $41.0 million in sales
   - Location Quotient 3.08
   - Average earnings per job: $135,386

Cultural Nonprofit Sector

Norwalk's cultural nonprofit sector showed remarkable growth in 2023, with revenues reaching $50.2 million—a 49% increase from 2022 ($24.5 million growth). This surge indicates strong community support for arts and culture, increased programming, and potentially significant capital campaigns or major gifts.

The cultural nonprofit landscape includes balanced representation across theater companies, symphony orchestras, museums, arts education, visual arts, music organizations, historical organizations, and community cultural programming.

Economic Context for the Arts District

This creative economy data reveals several important considerations for arts district planning and management:

Established Creative Hub: With a CVI of 1.90 and high location quotients across numerous creative occupations and industries, Norwalk functions as an established creative economy hub. The arts district builds upon—rather than attempts to create—this existing foundation.

High-Wage Creative Sector: Creative occupations in Norwalk command above-average wages, with median hourly earnings approaching $30 and many positions significantly higher. This indicates the creative sector attracts and retains skilled professionals who contribute to the local economy as both producers and consumers.

Diverse Creative Ecosystem: Norwalk's creative economy spans traditional arts (visual arts, performing arts, museums), creative services (design, architecture, advertising), digital/media production, and cultural heritage. This diversity creates opportunities for cross-sector collaboration and innovation within the arts district.

Strong Commercial Creative Services: The concentration of advertising agencies, graphic design firms, public relations agencies, and marketing services indicates a robust business-to-business creative services sector that could engage with and benefit from arts district initiatives.

Growing Nonprofit Cultural Sector: The dramatic growth in cultural nonprofit revenues (49% in one year) demonstrates strong and increasing philanthropic support for arts and culture in Norwalk, providing a foundation for arts district programming and development.

Real Estate Considerations: The presence of 799 independent artists, writers, and performers, along with hundreds of other creative professionals, creates demand for affordable workspace, exhibition venues, performance spaces, and creative retail opportunities—all key components of successful arts districts.

Tourism and Cultural Economy Links: Industries such as museums ($2.1M earnings), theater companies, dance companies, and performing arts presenters ($3.2M earnings) directly support cultural tourism, complementing the district's potential as a regional cultural destination.

Retention and Attraction: Norwalk's high concentration of creative talent (nearly 5,000 creative jobs) represents both an asset to retain and a competitive advantage for attracting additional creative businesses and professionals. Arts district development should address workspace affordability, networking opportunities, and quality of life amenities that keep creative professionals in Norwalk.

Regional Positioning: Location quotients above 2.0 for advertising, marketing, design, publishing, and museum services indicate Norwalk serves regional and potentially national markets in these sectors—positioning the arts district as more than a local amenity but as a driver of regional creative economy development.
This economic foundation provides the arts district with an established creative workforce to engage and serve; strong commercial creative sectors that can partner in district initiatives; a growing cultural nonprofit sector with increasing capacity and resources; high-wage creative professionals who support local businesses and services; diverse creative specializations that enrich the cultural landscape; and regional competitive advantages in specific creative industries.

Effective arts district management should leverage these economic strengths while addressing the needs of creative workers and businesses for affordable space, networking infrastructure, business support services, and an enhanced quality of place that attracts talent and investment.

Washington Street
Jeff Klein, 2019

LESSONS FROM OTHER DISTRICTS

What lessons can we draw from cultural districts in other places? Cultural districts are distinct from one another, based on their unique characteristics, history, and arts presence. Nonetheless, comparisons demonstrate strong throughlines and models for the Norwalk Arts District. The planning team identified six US cities that share both similarities and differences to Norwalk and are aspirational (for full study report, see Appendix: Cultural Districts Comparison Study).

Boulder, CO Pearl Street District
Fort Worth, TX Cultural District
Knoxville, TN Arts District

New Orleans Warehouse Arts District
Philadelphia Avenue of the Arts
Portland, ME Arts District

Boulder Bookstore, Boulder, CO Pearl Street District

New Orleans Warehouse Arts District

Points of comparison include:

- Identity
- Area
- Goals
- Key Assets
- Programs
- Management
- Funding
- Population
- Observations

Overall Conclusion: The most successful cultural districts combine professional management, stable funding, consistent programming, and compact geographic scale. Norwalk's challenge will be adapting these proven models to work within its larger geographic footprint while leveraging its unique creative community, maritime heritage, historic properties, multicultural character and strong presence of residents to create a differentiated regional arts destination.

Observations

•**Goals and Functions**: All districts have marketing and promotion as a primary goal and an essential function. Most districts also focus on the visitor experience and physical environment - cleanliness, safety, and walkability. Also, most districts have a primary function to produce a wide variety of public programming, much of it free.

•**Management**: All but one district have a management entity with professional staff and ongoing operational funding. Boulder and Knoxville have two organizations that collaborate, dividing responsibility between an arts agency and a business improvement district.

•**Geographic Area:** Four districts have "compact, walkable areas" that are strongly associated with successful districts, since they provide a concentration of assets and visitor experience. By contrast, Norwalk is much larger, extending approximately 1.5 miles from Wall Street through West Avenue to Washington Avenue, and nearly 4.5 miles from its northern to southern boundaries. Philadelphia and Fort Worth were selected as comparable districts in part because they also have larger areas. Philadelphia extends approximately 1 mile and Fort Worth 2.1 miles.

•**Connectivity:** Larger geographic areas pose significant challenges with connectivity and coherence. The larger districts – Philadelphia and Fort Worth – have made specific efforts to enhance connectivity. Philadelphia has the advantage of a corridor (a ten-block area of Broad Street) served by a subway line; it has made long-term and ongoing efforts to improve the pedestrian experience and create public spaces with streetscaping and urban design improvements. Fort Worth has relied primarily on mixed use real estate developments to provide infill and connectivity.

•**Programming:** In every district, the arts organizations and businesses provide a rich array of public programming. In addition, the districts themselves produce regular and special event programs to provide consistent activation and define the character/attraction of the area. The most common program is a monthly art walk, which provides continuity and creates connections within the district. All districts produce large, signature events. Most also produce a range of smaller-scale activations, programs, and events throughout the year.

•**Residential Population:** Norwalk is distinguished in part by its large resident population. Several comparison districts also have significant residential populations and have supported residential/mixed use real estate development. Philadelphia has an active "Friends of" organization that produces networking, social, and community service events. The presence of residents – those who live in the district or in the city – influences the character of programming and marketing, as distinguished from districts focused primarily on tourism.

•**Key Assets:** Each district has a unique mix of cultural assets that help define its identity. That said, there are different emphases that inform programming and other activities. Philadelphia is focused primarily on performing arts and Fort Worth on its major museums and entertainment venues. Boulder, Knoxville and Portland rely on smaller-scale, community-oriented events, shopping,

restaurants, and arts venues. New Orleans is heavily influenced by its long history and NOLA cultural traditions that predated the formation of the district.

•**Funding:** All districts except New Orleans have ongoing sources of operating funds that support a level of organizational capacity for management, marketing, programming and other functions. Sources include business improvement district revenues, city funding, grants, contributions, sponsorships, fundraising events, program revenues, and state and federal funding.

Norwalk Oyster Festival
Patrick Sikes, 2021

"Welcome to Norwalk" Mural
Ernesto Maranje, 2024

WHAT WE HEARD: NEEDS AND OPPORTUNITIES

The Norwalk Arts District stands at a pivotal moment with the opportunity to fully capitalize on the recent formal designation by the Connecticut Office of the Arts Cultural Districts program. The success potential for the District is significant if built on clear strategies. Through extensive community engagement, a clear picture emerges of both the remarkable opportunities and pressing needs that will shape the District's future.

Connectivity: Bridging a Dynamic But Dispersed District

The District's expansive geography—spanning from the historic charm of South Norwalk through contemporary Waypointe development, to the emerging vitality of Wall Street and West Avenue—presents both its greatest asset and its most significant challenge. Engagement participants emphasized the critical importance of "connecting all areas under a unified identity" while maintaining each area's distinctive character. This geographic breadth requires intentional efforts to weave together sub-districts for both residents and visitors

The community has identified several promising solutions that address connectivity of each of the natural sub-district areas. Examples include an art trail along West Avenue that could create a cultural corridor, building on the existing Norwalk River Valley Trail infrastructure and streetscape improvements, and consistent wayfinding to help visitors navigate between the District's diverse offerings, from South Norwalk's restaurant scene to Wall Street's emerging creative spaces. The concept of a trolley or shuttle system was suggested, reflecting recognition that physical connectivity is essential for the District's success—particularly given that improved transportation ranked among top infrastructure priorities.

Programming and street-level activation would offer additional tools to enhance connectivity. The community's enthusiasm for

for "First Friday open house events" and art walks with QR codes linking to local businesses demonstrates appetite for experiences that naturally draw people across District boundaries. As one participant in the business mixer noted, the goal is to "distinguish Norwalk from other towns while ensuring all areas feel connected under one vibrant identity."

Infrastructure and Basic Needs: Foundation for Success

Across all engagement opportunities, three infrastructure themes emerged with striking consistency: cleanliness and maintenance, parking and wayfinding, and lighting and addressing safety perceptions. These logistical concerns are fundamental to creating the welcoming, safe environment that cultural districts require to thrive and were a top priority among engagement participants.

The universal concern about visibility and access reflects the District's current challenge in showcasing its assets. A consistent theme was the difficulty in communicating events to both residents and visitors, and the challenge in discovering events by the public, "especially for those not on social media." There is a need for strong promotion through multiple channels. This aligns directly with wayfinding needs—both physical signage and digital promotion that helps people find and navigate the District's offerings.

The community highly ranked the desire for "street performers and outdoor live arts," while indicating the success of this programming would depend on successfully addressing lighting and safety perceptions. The strong support for enhanced lighting isn't just about actual safety—it's about creating the comfortable atmosphere where families feel welcome to attend evening events and where the District can extend its activity hours.

There were numerous suggestions for consistent and reliable transportation infrastructure, particularly a trolley/shuttle concept. This was cited as both practical and an opportunity for branding or distinguishing boundaries of the District and addressing the large geography. Such a system could become a signature feature that sets Norwalk apart while solving real connectivity challenges between District areas.

Artist Support and Anti-Displacement: Sustaining Creative Community

The District's authenticity depends on supporting the artists and creative entrepreneurs who are essential to the purpose and character of the District, yet who face mounting pressure from rising rents and limited support systems to build and expand their practices. A range of issues were identified by engagement participants including the desire for city-owned affordable housing for artists—specifically noting it should not be "developer-controlled"—and rent subsidies for businesses that generate street traffic.

The need for affordable space extends beyond housing to include studio and workspace needs. The community's suggestion to "work with existing organizations like Space 67 Studio and Factory Underground to provide affordable creative spaces" recognizes that solutions should build on established creative infrastructure rather than starting from scratch. Live/work options emerged as particularly

important, reflecting artists' need for integrated spaces that support both their creative practice and residential needs within the District they help animate.

Artists need more than affordable space—they need economic opportunities that provide sustainable livelihoods, not just exposure. There is an opportunity for the District to take the lead on marketing, branding and promotion that stimulate work opportunities for artists.

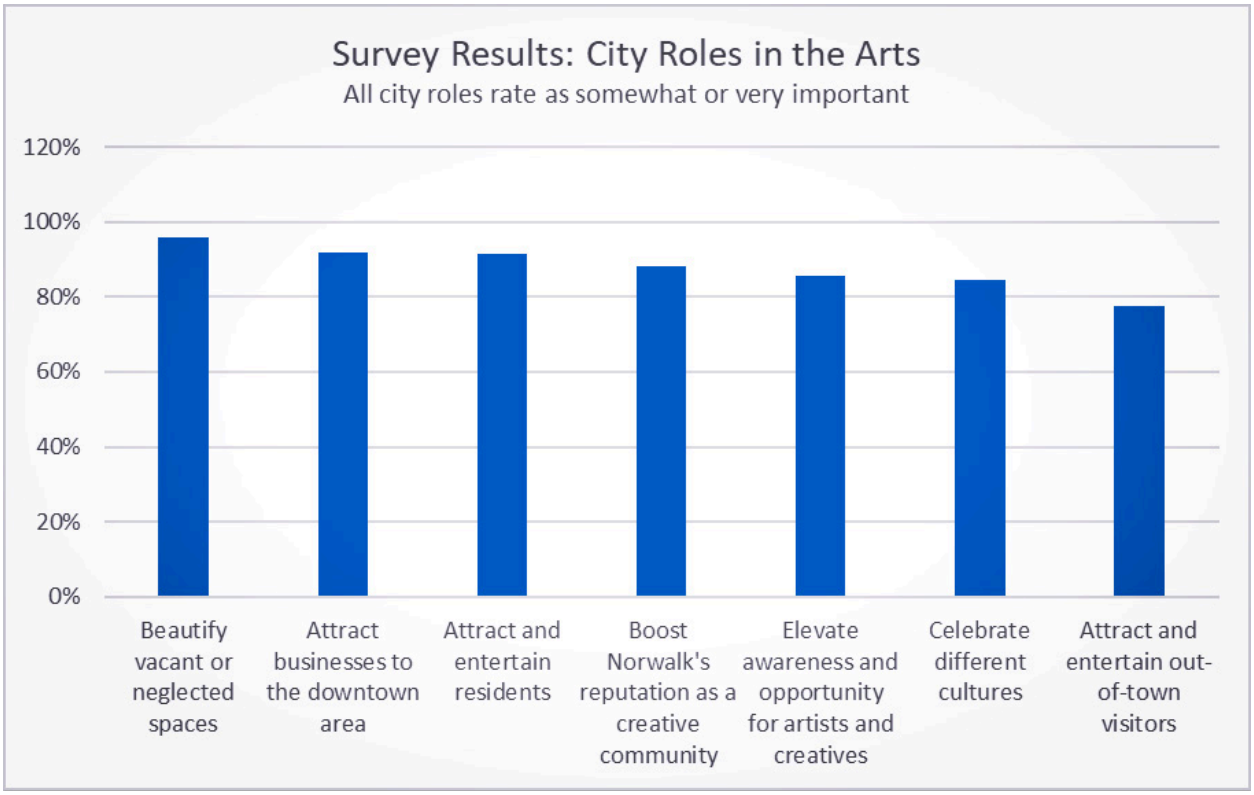


Figure 1 How IMPORTANT is it that Norwalk utilizes arts and cultural experiences and events to...

Historic Preservation

The District is distinguished by its major concentration of historic structures and accompanying history and heritage. Stakeholders consistently acknowledged with pride the city's history and historic building stock and view the District as a new way to promote preservation and maintain a sense of place. Preservation is a recognized function of the City through its Historical Commission and the nonprofit Historic Preservation Trust provides community leadership and advocacy in Norwalk. There are many opportunities for the District to support the work of preserving historic structures as well as legacy businesses, programs, and others that embody and reflect the city's remarkable history. Renovating the 1914 Palace Theater, now closed, is but one preservation opportunity. Supporting development of design standards for the District will also help assure that new construction is appropriate for its historic environment.

Arts & Culture

Norwalk's racial, ethnic, and economic diversity are celebrated as fundamental to the area's appeal and future potential. While the District is named the "Arts District," it must reflect Norwalk's culture as well as its arts community. This means producing and supporting cultural activities as well as arts events. It also means assuring diverse representation in District governance, leadership, management, community engagement, and programming.

Community Engagement

Stakeholders, many of whom work and/or live in the District, emphasize the need for ongoing stakeholder and community engagement in the workings of the District. They view engagement as necessary to assure District management and governance remain connected to community realities and opportunities, and to generate community support for District initiatives. There should be multiple channels for stakeholder and community engagement, such as elections, advisory bodies, feedback opportunities, and evaluations.

Organizational Structure: Building Management Capacity

The consensus on needing professional management reflects the District's readiness to evolve from organic growth to strategic development. The strong support for a Business Improvement District (BID) model among stakeholders indicates understanding that sustainable funding requires buy-in from property owners and businesses who benefit from District improvements

The recommended transition approach—beginning with the City Business Development & Tourism Office as manager before evolving to a BID—offers a practical pathway that builds capacity while developing community support. This model provides accountability through its revenue structure while ensuring community connection through its governance approach.

There was a strong theme of recognizing the importance of collaboration with existing organizations, suggesting that effective management should coordinate rather than replace current creative initiatives. The District management entity should serve as a connector and amplifier for the community's existing energy and expertise.

Navigating Areas of Tension

Several productive tensions emerged from community conversations, reflecting the District's complexity and the need for nuanced approaches to its development.

Geographic Scope and Identity: While some feel the current District boundaries are too expansive and unfocused, others recognize the economic development potential of the larger geography. A consistent theme to "connect all areas" while maintaining distinct identities suggests a both/and approach. The District can embrace its geographic diversity as a strength while developing sub-area programming that celebrates each neighborhood's unique character.

Development Balance: The tension between encouraging growth and preventing displacement requires careful attention to development scale and type. There were strong preferences expressed to focus on developing more opportunities for small "organic" businesses, particularly encouraging local entrepreneurs. This approach can distinguish and strengthen the local identity and appeal of the District.

Programming Philosophy: The community's top ranking of street performers and outdoor live arts, combined with their emphasis on community-focused events, suggests a preference for programming that serves residents first while naturally attracting visitors. However, their recognition of major signature festivals as important indicates openness to larger-scale programming when it aligns with community values.

Opportunities for Transformation

The identified needs point toward significant opportunities for positive change. The community's enthusiasm for programming, evidenced by detailed suggestions ranging from historical reenactments to community festivals and celebrations to programming that provides opportunities for all ages, reveals deep engagement and creative energy ready to be channeled.

The strong preference for family programming and youth offerings—particularly the call for "more offerings for children, especially young kids"—indicates opportunity to position the District as a multigenerational community asset. The suggested activities and programming for various age groups demonstrate an appetite for programming that brings different demographics together.

The community's vision extends beyond programming to encompass District identity, with calls for merchandise that lets residents show community pride. This reflects understanding that the District should be something residents claim and celebrate, not just a destination for outsiders.

The overwhelming sentiment from community engagement reflects a population ready for authentic, inclusive arts programming that celebrates Norwalk's unique character while supporting local businesses and fostering genuine connections. This readiness, combined with the District's official designation and existing creative infrastructure, creates a foundation for transformative development that honors community values while achieving ambitious goals.

THE PLAN

"Wall Street Is On the Rise" Mural
Victoria Urso, 2025

INTRODUCTION

This plan provides a comprehensive framework for developing the Norwalk Arts District into a thriving cultural and economic hub. Building on extensive community engagement, comparative research, and analysis of successful districts nationwide, the plan addresses the unique opportunities and challenges facing Norwalk's geographically expansive district. The following sections outline the strategic components necessary for the District's success:

Identity of the District establishes the authentic character and distinctive positioning that will differentiate Norwalk in the regional cultural landscape, building on its post-industrial heritage, diversity, and creative energy.

District Geography addresses the District's larger-than-typical footprint and presents strategies for organizing it as a collection of connected sub-districts—Wall Street, Waypointe, and Washington Street/SoNo—each functioning as walkable mini-districts within the larger whole.

Functions of the District defines four core strategic priorities that will guide management efforts: Connectivity and Unification, Marketing and Branding, Economic Development, and Programming and Activation. These interconnected functions create a comprehensive framework for cultural and economic development.

Management, Operations and Governance recommend a phased approach beginning with City-led management and transitioning to an independent Business Improvement District (BID) structure, ensuring professional capacity and sustainable operations.

Funding outlines diverse revenue streams necessary to support District operations, from special assessment districts to grants, sponsorships, and earned income.

Consolidated Recommendations and Implementation Grid provide a prioritized roadmap organized by timeline and function, with clear actions, priorities, and resource requirements to guide implementation over the coming years.

Together, these elements create a practical pathway forward that honors Norwalk's authentic character while building the infrastructure, programming, and community connections necessary for long-term success

Lockwood-Mathews Mansion Museum
Jeff Klein, 2019

IDENTITY OF THE DISTRICT

The Norwalk Arts District's identity emerges from a compelling blend of authentic realness and creative transformation that sets it apart in Fairfield County's cultural landscape. Unlike the polished affluence of neighboring communities, Norwalk embraces what stakeholders consistently describe as its "gritty, authentic" character—a post-industrial edge that artists and developers recognize as a genuine differentiator rather than a limitation to overcome.

Historic Foundation, Contemporary Vision

The District's identity is anchored in the historic authenticity of Wall Street and Washington Street, where stakeholders see opportunity to honor the past while boldly shaping the future. This isn't about museum-piece preservation but rather about leveraging historic character as a foundation for contemporary creativity. The area's industrial heritage, evidenced in its sturdy brick buildings and authentic urban texture, provides the kind of substantial creative spaces that artists seek and the atmospheric backdrop that makes cultural districts memorable.

Norwalk has evolved from its industrial origins into something new: a post-industrial landscape where, in early stages of redevelopment, "lower rents and commercial properties made it possible for extraordinary and unique assets like the Factory Underground" and similar creative enterprises to take root. This economic accessibility, rare in the region, has enabled organic artistic development that feels authentic rather than manufactured. There were strong sentiments expressed that though this was the basis for the current character, it will be challenging to expand given the rise in rents and realities of development occurring within the District.

Diversity as Distinguishing Strength

Perhaps most significantly, the District's identity is defined by Norwalk's racial, ethnic, and economic diversity—a characteristic that multiple community groups celebrated as fundamental to the area's appeal and future potential. This diversity isn't incidental to the District's cultural identity; it is the cultural identity. In a region where many communities struggle with homogeneity, Norwalk's

multicultural character provides both creative richness and market differentiation.

This diversity extends beyond demographics to encompass the range of artistic expression, business types, and community needs that the District must serve. The substantial and growing residential population ensures that the District's identity will always be shaped by people who call Norwalk home, creating natural balance against purely tourism-driven development.

Building on Established Assets

The District's identity builds on substantial existing assets that provide both credibility and momentum. The Norwalk Conservatory of the Arts, which is expanding its real estate footprint, student body, and degree programs, establishes the area's educational credentials while Factory Underground and associated music venues give it contemporary creative authenticity. The Maritime Aquarium serves as a proven regional draw, while the growing concentration of arts businesses on Wall Street demonstrates market validation of the District's creative potential.

The Norwalk River Valley Trail represents both literal and metaphorical connection—linking the District to broader regional recreation networks while embodying Norwalk's relationship with its natural environment. The area's historic architecture provides the substantial, character-rich spaces that creative enterprises require and that visitors find memorable.

The District has multiple transportation assets offer multiple current and future potential benefits. The South Norwalk station, which is served by the Metro-North Railroad and is an Amtrak stop, is located just two blocks south of Washington Street and provides walking access to the broader District. The station will also become a greater transportation hub, since the City plans to move its Norwalk Transit bus hub to the station in about two years. These connections will directly benefit connectivity within the District, linking rail and bus service in Norwalk. In addition, the station is the focal point of a Transit Oriented Development (TOD) Redevelopment Plan, which calls for mixed use development in the area that could encompass affordable artist housing, live/work, and arts spaces. The TOD Redevelopment Plan also calls for sidewalk, streetscape, and bike lane improvements to enhance mobility.

Regional Differentiation

In the competitive Fairfield County cultural landscape, the District's identity offers clear differentiation from more sanitized destinations. Where Stamford presents corporate sophistication and other regional communities offer suburban charm, Norwalk provides urban authenticity with genuine creative energy. The District's post-industrial character and economic accessibility attract artists and creative entrepreneurs who might be priced out of more gentrified areas, ensuring ongoing creative vitality.

Evolutionary Pathway

The District's identity will likely evolve along the trajectory from "gritty but changing" to "authentically creative"—maintaining its industrial character and economic accessibility while adding layers of artistic sophistication and cultural programming. This evolution should enhance rather than replace the characteristics that currently attract creative residents and businesses.

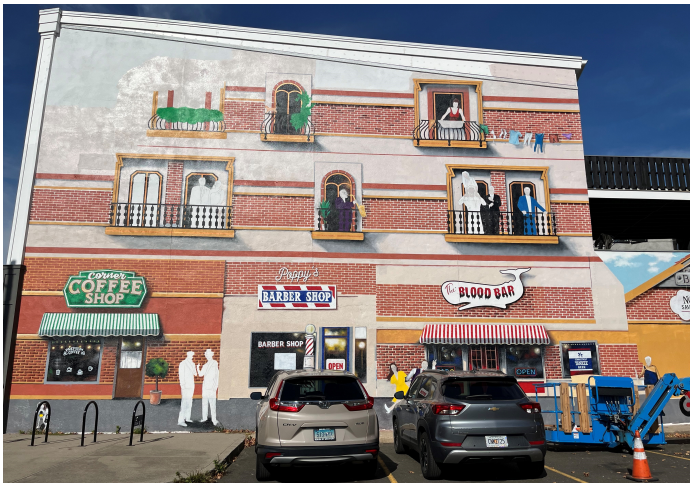
The key to successful identity evolution lies in celebrating what makes Norwalk distinctive rather than trying to

replicate what works elsewhere. The District's identity should amplify its diversity, honor its industrial heritage, and leverage its authentic urban character as assets that differentiate it in an increasingly homogenized regional market.

As the District matures, its identity will be measured not just by what it offers visitors but by how well it serves as a creative home for the diverse community that gives it life. This residential grounding ensures that the District's identity remains authentic and sustainable rather than merely performative—a crucial distinction that will determine its long-term success and regional significance.

"Art Capital of the World" Mural
Scott Chiappetta, 2021

South Norwalk
Patrick Sikes, 2021



Main Street Mural
Unknown, 2025

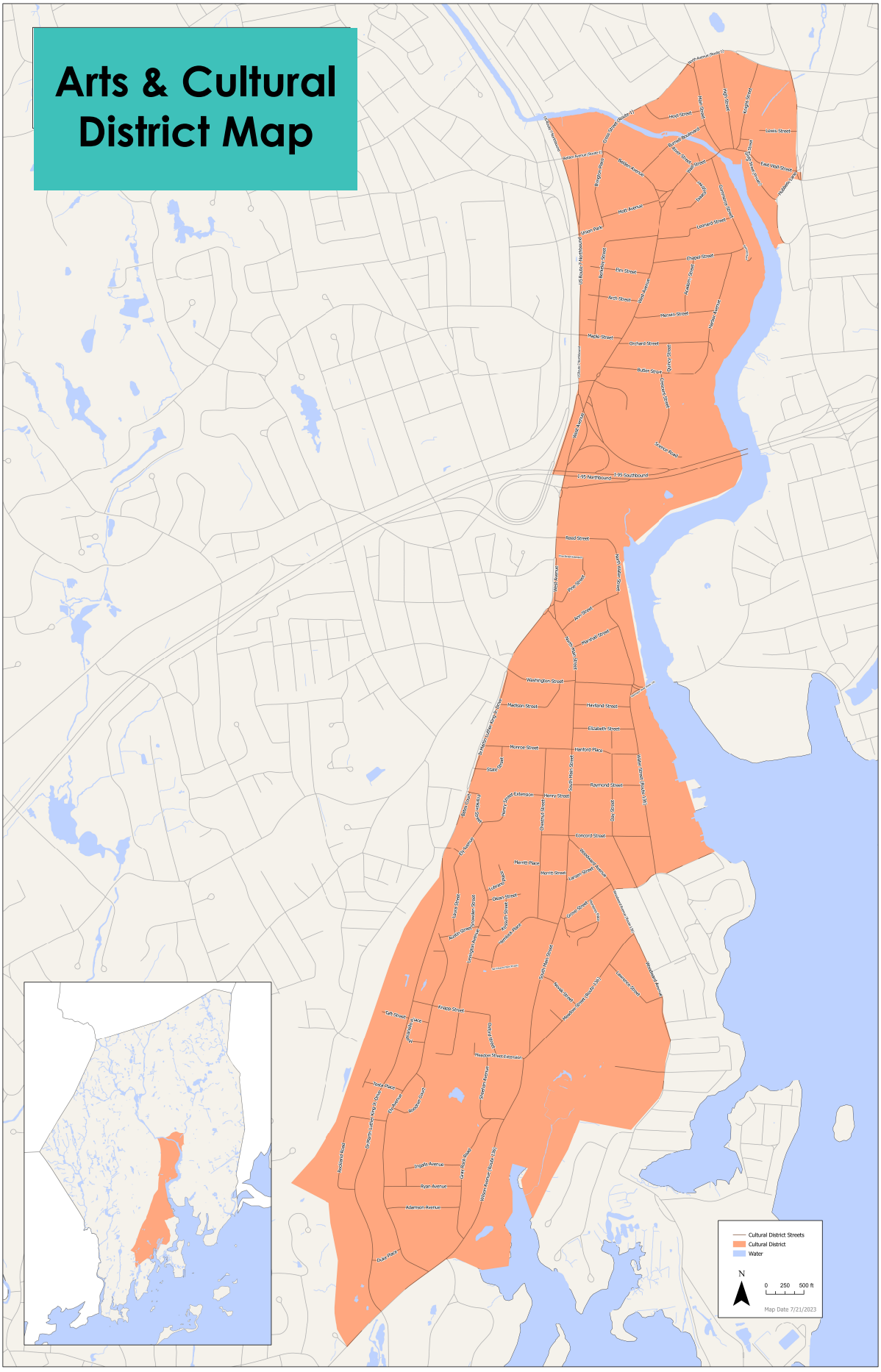
DISTRICT GEOGRAPHY

The Norwalk Arts District encompasses a larger-than-normal geographic area, offering both challenges and advantages. Its core area extends approximately 1.5 miles from Wall Street through West Avenue to Washington Street, and nearly 4.5 miles from its northern to its southern boundary with an average width of about a half-mile wide. In addition, the northern and southern areas are bifurcated by I-95. This does not match the classic definition for a district to be "compact and walkable." Smaller areas have the benefit of concentrating the visitor experience, encouraging strolling and exploration, and strengthening the sense of place. Accordingly, Norwalk's sprawling size is a distinguishing feature requiring specific adaptations to compensate but also to capitalize on its advantages.

For example, the large geographic area has multiple overlays with other districts and zones providing economic and other benefits. There are an Opportunity Zone and an Enterprise Zone offering incentives and other resources for targeted economic activity. There are also three historic districts that offer designation and incentives and . underscore the community's history and architecture: Washington Street, Whistleville, and Wall Street. In addition, the Redevelopment Area, encompassing a Transit-Oriented Development (TOD) District and the Lexington Avenue Neighborhood, is contained within the District boundaries in South Norwalk. See Building on Established Assets, above, for more information on transportation and connectivity related to the TOD and the South Norwalk train station

The Norwalk Arts District can best be seen and organized as a collection of sub-districts that each function as "compact and walkable" mini districts. The most recognizable are Wall Street, Waypointe, and Washington Street/SoNo. The District management can address the diversity and complexity of places and identity with clear programming and marketing that differentiates and promotes each. The District's size also underscores the need to provide connectivity among its sub-areas, through programs, public art, urban design, transportation, and wayfinding.

Arts & Cultural District Map



Halloween Nightfair
Lori Hillsberg, 2025

FUNCTIONS OF THE DISTRICT

The Norwalk Arts District serves multiple interconnected functions that together create a comprehensive framework for cultural and economic development. Through extensive community engagement, four core functions emerged with remarkable consensus, each addressing fundamental needs while building toward a unified vision for the District's future. The four core functions that should serve as the strategic priorities of a management entity are:

- Connectivity and Unification
- Marketing and Branding
- Economic Development
- Programming and Activation

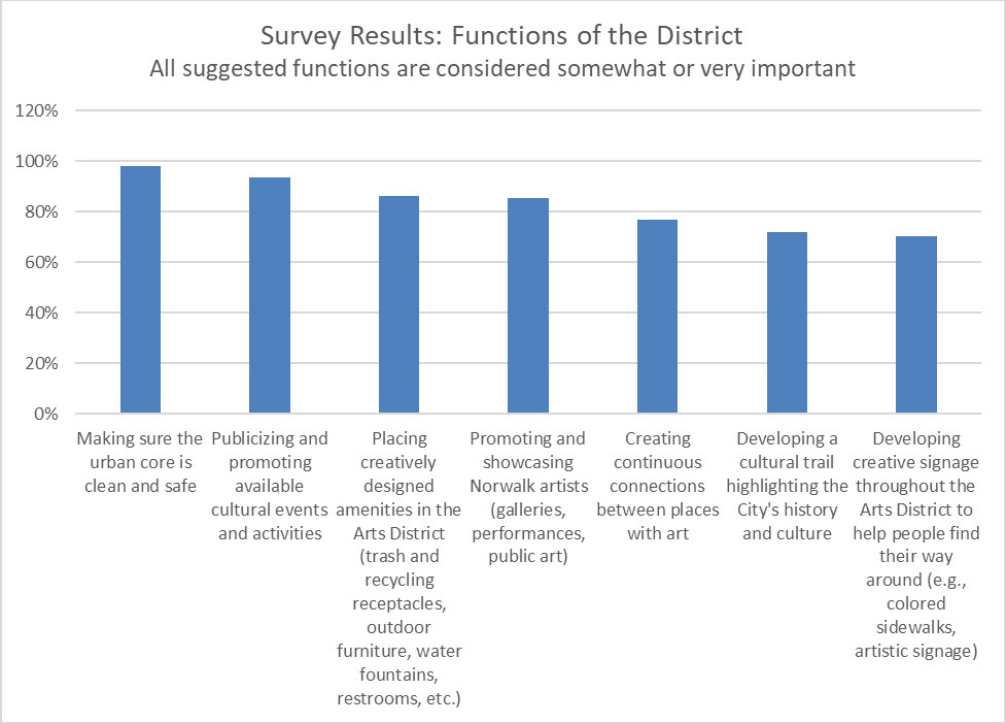


Figure 2 How IMPORTANT are the following to include in the Norwalk District plan?..

In addition to the four core functions, the District will need to address issues common to business improvement districts, such as street and sidewalk cleaning, safety patrols, lighting that promotes security, street concierge services, and the like.

Connectivity and Unification: Bridging Divided Communities

Perhaps the most critical function of the District is serving as a unifying force that connects its sub-areas, for example the Wall Street corridor and South Norwalk—communities historically divided by the I-95 barrier. This physical separation has created not just logistical challenges but psychological distance between neighborhoods that share common interests and complementary assets. The District functions as both a literal and symbolic bridge, creating reasons for residents to move fluidly between areas while developing a shared identity that transcends geographic boundaries.

This connectivity function extends beyond overcoming highway barriers to encompass the broader challenge of linking diverse neighborhoods, demographic groups, and economic sectors under one cultural umbrella. Three primary sub-areas are Wall Street, Waypointe and Washington Street/SoNo. The District also serves as common ground where East Norwalk residents can connect with South Norwalk businesses, where longtime residents can engage with newcomers, and where different cultural communities can find shared celebration and expression.

Marketing and Branding: Establishing a Unified Identity

The District functions as Norwalk's primary vehicle for developing and projecting a coherent cultural identity both locally and regionally. This branding function addresses the consistent community call for unified identity, comprehensive wayfinding, and coordinated promotion that helps residents and visitors alike understand what Norwalk offers and how to access it.

Wayfinding[2] : Wayfinding includes signage but, in an Arts District, may also express and augment the creative identity of the place. It is an opportunity to create distinction between each of the three sub-districts – Wall Street, Waypointe, SoNo – as well, that may include color coding, graphic images, and other tools in the design of a wayfinding 'brand book.' Wayfinding for the District should be about navigating the resources, venues, assets (e.g., murals, designated busker points, studios and galleries, etc.) and businesses in each sub district. One set of wayfinding issues concerns helping people find the District's assets – informing them about its different theatres, hotels, arts organizations, parks and other spaces, as well as its historic buildings, and directing people to them. A second set of issues is helping people coming for a performance or event navigate from parking or mass transit to their destination. A third set of issues relates to the entry and exit pathways to the District and guiding people into or through it. It is an opportunity to show intersection with the Norwalk River Valley Trail. A fourth is the creative possibilities of engaging people in an arts experience as they explore or navigate the District. It is recommended that a priority step when management is in place is to develop a wayfinding plan, in connection with the brand, that can explore and develop these ideas.

[2] *An example of a wayfinding project in Berea, KY, funded through the NEA's Creative Placemaking program*

Branding: Rather than simply promoting individual businesses or events, the District can develop an umbrella brand that elevates the entire area's profile. This includes developing visual identity systems, creating consistent messaging, and ensuring that the District's authentic character translates clearly to different audiences. The marketing function encompasses both digital promotion and physical wayfinding that makes the District's assets discoverable and accessible.

Marketing: There is a great deal of marketing "noise" in the environment and consumers now receive and seek out information in many more and distinct channels than in previous generations. The District's marketing task is more complex and must be nuanced and nimble to be effective. This suggests a robust digital and social media effort supplemented by advertising in traditional media, printed materials (e.g., flyers, postcard, posters), a word-of-mouth effort, and other tactics. District management should partner with and build on current marketing efforts for Norwalk, and supplement its work with research to measure and refine the outcomes of its marketing. District marketing should be based on a comprehensive marketing plan and program that is developed as an initial step once management is in place. Key issues and opportunities for the marketing plan and program are to:

- Establish a brand and identity for the District
- Develop an audience for the District that builds upon existing efforts for each sub area of the District (Wall Street, SoNo and Waypointe).
- Establish partnerships and clarify roles with marketing partners, such as the Wall Street Business Alliance.
- Create a process for achieving consensus on and coordination of marketing messages and approaches beginning with the Advisory Board and in directing marketing efforts with constituents across the District
- Create promotions and cross-promotions with businesses and other entities within the District.
- Create promotions for Norwalk residents that "invite" the community to experience the District.
- Create promotions and experiences designated for the large population of residents of the District.
- Create and maintain a District website.
- Create a mobile app to support district marketing and activities, perhaps with a geolocation function.
- Establish and manage an ongoing and robust social media program.
- Create an internal communications platform for District stakeholders.
- Establish communications with street ambassadors (clean-and-safe staff), concierges and other people in the District.
- Establish success metrics and an assessment program to monitor progress and adjust the plan as appropriate and in relation to assessment findings.

Economic Development: Catalyzing Sustainable Growth

The District should function as an economic engine that supports existing local businesses while attracting new investment, visitors, and residents. Economic development here operates on multiple levels: generating foot traffic for retail businesses, creating market conditions that support creative enterprises, and establishing Norwalk as a destination that retains educated workforce and attracts creative professionals. The District contains overlapping zones for Enterprise, Redevelopment, Opportunity and Transit, each of which offers economic benefits and incentives that can align with District objectives.

This function recognizes that cultural districts succeed economically when they create authentic value for multiple stakeholders. Local businesses benefit from increased visibility and customer base, property owners see enhanced values, and the broader community gains from increased tax base and job creation. The District's economic function balances support for existing enterprises with attraction of new businesses that complement rather than displace established community assets.[3]

Programming and Activation: Creating Continuous Vibrancy

"In creative placemaking, partners from public, private, non-profit, and community sectors strategically shape the physical and social character of a neighborhood, town, city, or region around arts and cultural activities. Creative placemaking animates public and private spaces, rejuvenates structures and streetscapes, improves local business viability and public safety, and brings diverse people together to celebrate, inspire, and be inspired."

The District functions as a platform for regular programming that keeps public spaces active and provides ongoing reasons for people to visit, linger, and return. This activation encompasses everything from street-level performers (buskers), weekly farmers markets, to annual signature festivals, creating a calendar of activities that serves different demographics and interests while maintaining consistent energy throughout the District. It also serves to tie each sub-district together as a coordinated geography.

Programming serves multiple subfunctions: providing performance and exhibition opportunities for local artists, creating family-friendly activities that build community connections, generating economic activity for local businesses, and establishing Norwalk's reputation as a place where interesting things happen regularly. Programming should build on community preferences for street performers, outdoor live arts, and community-focused events while creating space for larger signature festivals that attract regional attention.

SoNo Saturday Market
VisitNorwalk.com, 2025

[3] *Examples of economic development, programs to support creative practices and businesses will be referenced here. An example of professional development opportunities is Assets for Artists – A4A.*

[4] *Creative Placemaking, Markusen, Ann; Gadwa, Anne; National Endowment for the Arts White Paper; 2010.*

Scott Chiappetta, 2021

Creative Experiences: Providing creative experiences on the street expresses the identity and heart of the District. The field of possibility is substantial, with opportunities to activate public spaces throughout Wall Street, Waypointe, and Washington Street/SoNo. These experiences celebrate Norwalk's post-industrial character, maritime heritage, and diverse creative community. Note that these experiences overlap with and support the programming priorities discussed earlier in this section.

Lori Hillsberg, 2025

Performance Activation Outside Venues: Creative opportunities exist to extend performances beyond traditional venues. This might include lunchtime performances in parks and public spaces near cultural institutions like the Norwalk Conservatory of the Arts, Factory Underground, and District Music Hall, as well as pre- and post-performance activities that encourage audiences to linger and explore the District. Outdoor spaces like Irving Freese Park and areas along the Norwalk River Valley Trail offer natural gathering points for these activations.

Biking in Norwalk, *John Vorhees III, 2025*

Art Trail and Wayfinding Integration: The Norwalk River Valley Trail and West Avenue corridor provide natural pathways for an art trail concept that could include permanent and temporary installations, performance spaces, and interactive elements. This art trail could connect the District's sub-areas while celebrating Norwalk's industrial heritage and natural environment. QR codes at installations could link visitors to artist information, local businesses, and digital content, creating an integrated physical and virtual experience.

capitoloutdoor.com

Electronic Information Points: As the District develops its wayfinding system, consideration should be given to including digital information kiosks at strategic locations. These could serve the dual purpose of providing promotional content about upcoming events and venues while also displaying rotating digital art pieces by local artists. Integration with the District's broader digital marketing strategy would ensure consistent messaging and user experience.

Lori Hillsberg, 2023

Parks and Public Spaces: The District contains several parks and public gathering spaces that can serve as venues for regular programming. Irving Freese Park, spaces along the Norwalk River Valley Trail, and pocket parks throughout the District offer opportunities for yoga and fitness sessions, mini-performances, noontime concerts, and community gatherings. Programming these spaces approximately 60% of daytime hours would provide consistent activation while maintaining their character as public gathering places. Collaborative festivals and events produced in partnership with District organizations could activate larger areas seasonally.

Scott Chiappetta, 2021

Street Activation Throughout the District: The District should embrace street-level creative experiences including busking, temporary art installations, food trucks, and pop-up performances on sidewalks, parks, and other public spaces. Multiple walls and buildings throughout the District could serve as canvases for murals, digital projections, and temporary artworks. The District management should work with the City to develop streamlined permitting processes that encourage rather than restrict creative expression, building on the successful mural policy advocated by the Arts and Culture Commission. Designated busking points with clear guidelines could provide performance opportunities for local musicians and artists while enhancing the District's vibrancy.

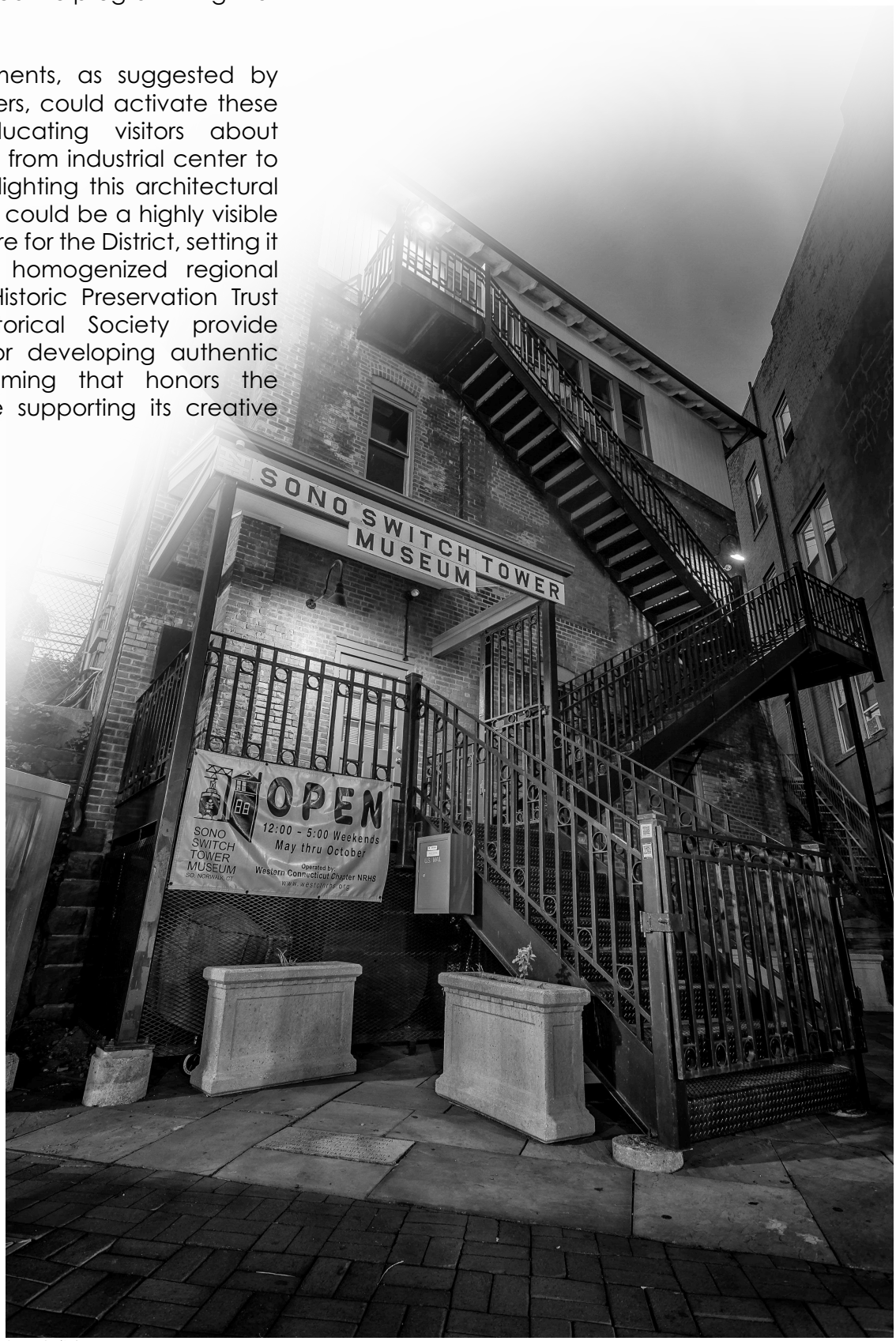
Patrick Sikes, 2021

Digital and Virtual Experiences: While the District focuses on authentic, in-person creative experiences, digital components can enhance visitor engagement and accessibility. The District's mobile app and digital presence could include self-guided tours of historic buildings, public art walks, and location-based storytelling experiences. Geolocation services could serve as a digital docent for visitors exploring the District. Some public art installations might incorporate augmented reality components that reveal additional layers of meaning or historical context.

Historical Experiences and Heritage Activation: The District is distinguished by significant historic structures including the Lockwood-Mathews Mansion, historic buildings along Wall Street and Washington Street, and the currently closed Palace Theater. Maritime heritage sites and industrial-era buildings throughout the District provide rich opportunities for historical interpretation. These assets offer

possibilities for engaging visitors through digital storytelling, interpretive signage, architectural tours, historic lighting installations, and creative programming that brings history alive.

Historical reenactments, as suggested by community members, could activate these spaces while educating visitors about Norwalk's evolution from industrial center to creative hub. Highlighting this architectural and cultural history could be a highly visible distinguishing feature for the District, setting it apart from more homogenized regional destinations. The Historic Preservation Trust and Norwalk Historical Society provide natural partners for developing authentic historical programming that honors the District's past while supporting its creative future.



SoNo Switch Tower Museum
Jeff Klein, 2019

Public Art Integration: Enhancing Visual Identity: The District functions as a canvas for public art that enhances visual appeal while expressing community character and values. This function can operate through multiple mechanisms: requirements or incentives for private developers, expansion of existing city programs, and individual project opportunities that arise organically.

Public art serves both aesthetic and practical functions—creating landmarks that aid wayfinding, generating social media content that promotes the District, providing platforms for local artist expression, and contributing to the authentic creative atmosphere that differentiates Norwalk from more sterile destinations.

The development of public art guidelines and processes ensures that artistic interventions align with community values while maintaining high quality standards.

The District's public art can build on existing storefront improvement programs, supporting small-scale temporary interventions like creative signage and storefront exhibits that allow individual businesses to contribute to the District's overall creative character while expressing their own identity.

'Welcome to Norwalk" Mural
Ernesto Maranje, 2024

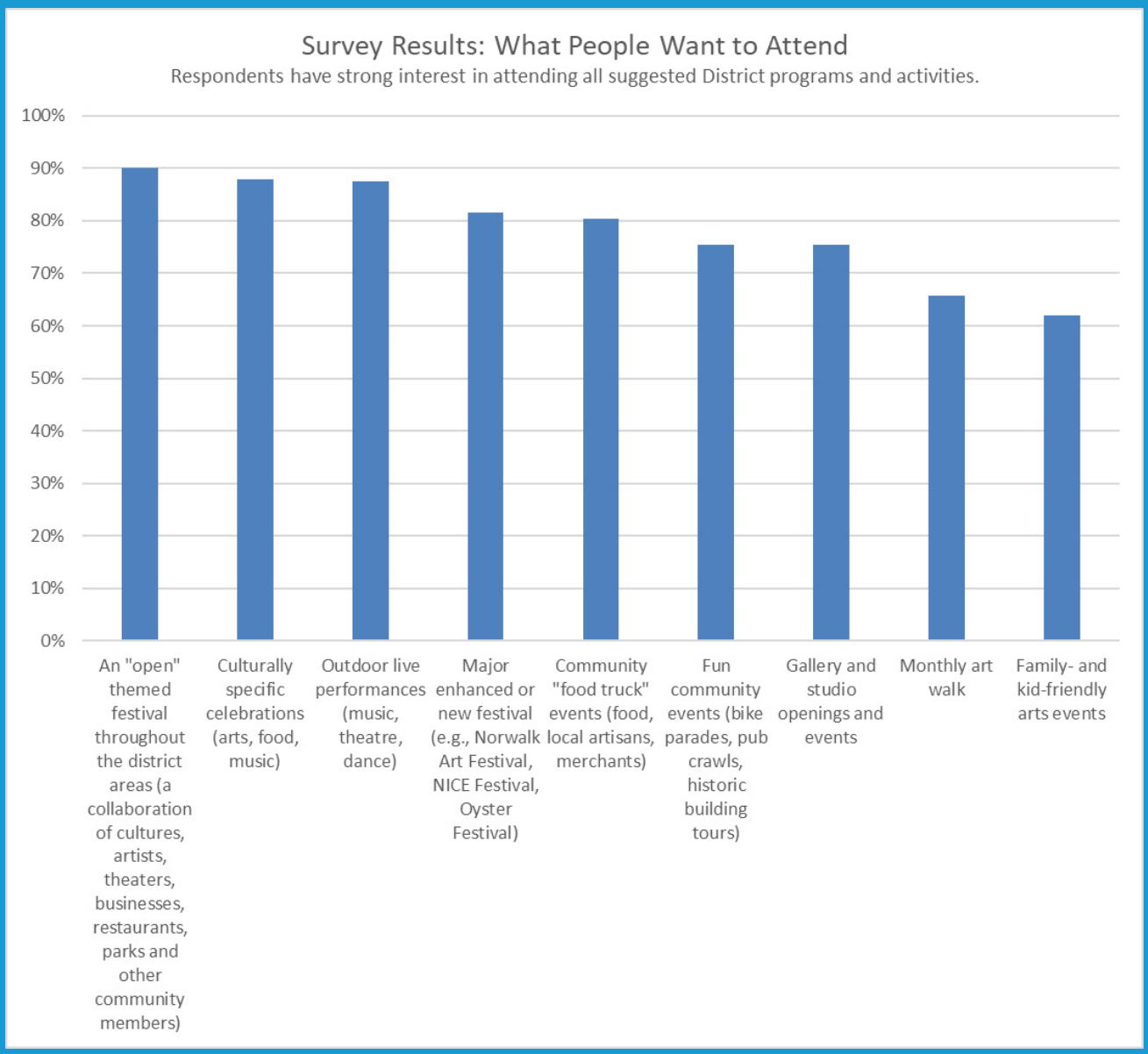


Figure 3 How interested would you be in visiting the Wall Street/West Avenue and South Norwalk districts to attend each of these events or activities?

Festival and Signature Events: Establishing Regional Presence: The District functions as host for major festivals and signature events that establish Norwalk's regional cultural presence while celebrating its unique identity. These larger-scale events complement regular programming by creating annual moments of concentrated activity that attract visitors, generate media attention, and provide economic impact that supports year-round operations.

Signature events should emerge from and express Norwalk's distinctive characteristics —its diversity, maritime heritage, post-industrial character, or creative community. Rather than importing generic festival concepts, the District's signature event function should develop programming that could only happen authentically in Norwalk, creating competitive advantage in the regional cultural marketplace.

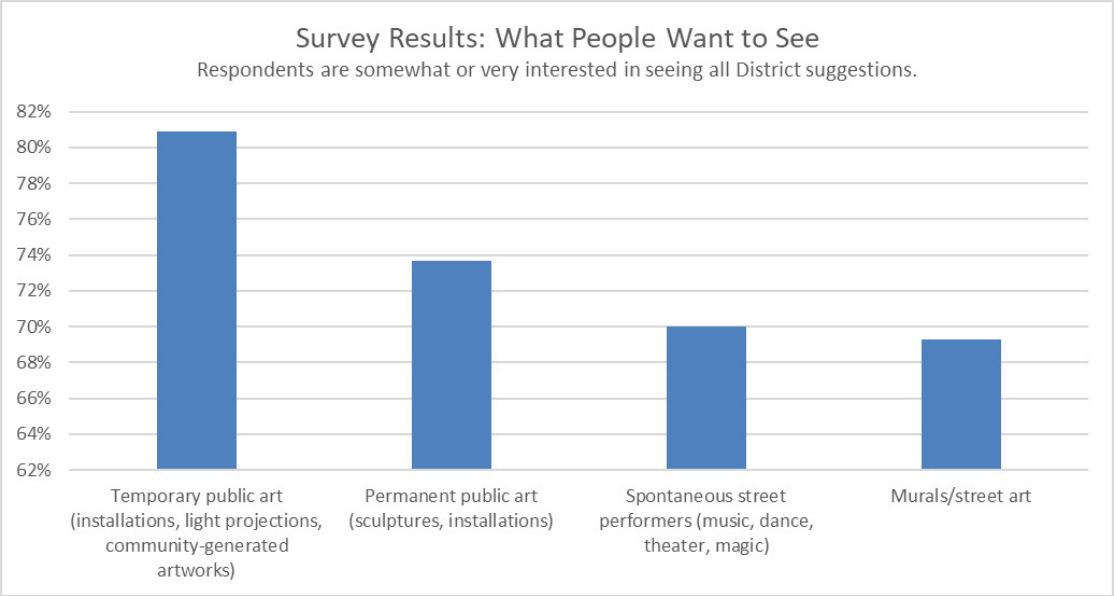


Figure 4 How interested would you be in visiting the Wall Street/West Avenue and South Norwalk districts to see the following?

Integrated Function Framework

These core functions work synergistically rather than independently. Connectivity enables more effective marketing by giving visitors coherent experiences to promote. Economic development provides resources for programming and public art. Programming creates content for marketing while generating economic activity. Public art enhances the District's marketability while providing venues for programming.

The District's success will be measured not by excellence in any single function but by how effectively they reinforce each other to create a comprehensive cultural and economic development platform that serves residents, supports businesses, and attracts visitors while maintaining the authentic character that makes Norwalk distinctive.

The Norwalk Art Space Performance
Patrick Sikes, 2021

MANAGEMENT, OPERATIONS, AND GOVERNANCE

To fully realize the potential of the District will require establishing a governance structure that reflects the range of stakeholders and creating a management structure for comprehensive operations that has the authority, capacity and resources necessary for implementation of this plan.

Management

Stakeholders agree that an effective and efficient management structure for the District is critical and must be led by a capable, consolidated organization. There are several options that emerged through the planning process that include integrating management within the City or creating a new entity whose sole purpose is District management. While the option of embedding District management within an existing organization was suggested, no clear or obvious organization was identified through the planning process.

It is recommended that for the greatest impact and efficiency that a sequential approach be considered, beginning with integrating management within the City, and transitioning over a period of three to five years to a structure under an independent business improvement district (BID).

Step 1: The Business and Tourism Development Office (BTDO) already manages most arts and cultural initiatives within the District and has demonstrated community-oriented effectiveness. There will be considerable effort needed to create and manage the District, requiring dedicated staff whose sole function is District management and development.

It is important that this not be seen as simply an extension of existing city services but a distinct function within BDTO. It would be best for the City to commit to multiyear funding for District operations and activities during start-up, while the BID is being planned, to provide a more stable base of implementation of this plan. BDTO would act as the District's initial fiscal agent and would provide policy direction, personnel management, programmatic oversight and organizational direction during the startup phase. BDTO has the existing relationships and experience to launch the District effectively. This initial phase would minimally take two to three years but may be up to five years. The department will need

qualified staff to oversee all aspects of District formation and initial programming. The first step in launching the District is for the Common Council and Economic and Community Development Committee to review this recommendation and authorize the department to serve as the incubating agency.

Step 2: Based on stakeholder input, there is strong interest in establishing a special services district, more commonly termed a Business Improvement District (BID), covering the District area. Property owners have expressed willingness to participate in such a structure. The BID should be a single entity that manages the Arts District, along with other BID responsibilities, for efficiency and minimal duplication of effort. This organization would be responsible for maintaining the brand and vision of the District, working with appropriate City departments regarding development and programming, and building capacity to raise private funds to support operations. The BID model would provide sustainable funding through property assessments while allowing for additional revenue through grants, sponsorships, and earned income. As it matures, this entity might also play a role in raising capital dollars to develop needed cultural facilities and artist housing.

Given the scale and geographic scope of the District, it may be advisable to establish two subdistricts within the BID – one from Wall Street to I-95 and a second in SoNo. The BID can be structured from the start to accommodate subdistricts and serve their differing interests..

The BID would assume the Arts District functions initiated by the BDTO but could continue to partner on specific initiatives. City staff or contract positions could transfer to the BID, in a negotiated process becoming employees of the BID.

For more detail on creating a BID, please see Business Improvement District section.

Priorities

When District management is established, it is recommended that their work plan include:

- Establish design standards for the District and serve as steward of the brand, including public art guidelines, streetscape improvements, economic development priorities, marketing and promotion, and signage/wayfinding systems.
- The management entity should work closely with Planning and Zoning, the Arts and Culture Commission, and the Historic Preservation Trust to ensure that development and improvements enhance the District's authentic character while supporting arts and cultural uses. This includes developing guidelines that encourage rather than restrict creative expression, as demonstrated by the successful mural policy advocated by the Arts and Culture Commission.
- District staff should maintain formal liaison relationships with the Arts and Culture Commission, Planning and Zoning, the Special Events Committee, Parks and Recreation, Historic Preservation Trust, and business associations whose work directly affects the District.

The success of the District will depend on high levels of communication, coordination and collaboration among the various stakeholders that operate within the District boundaries. The District Manager can provide a key coordination point that supports the activities of each partner while advancing the overall vision for the arts and culture District. Regular quarterly meetings should be established to ensure ongoing alignment and collaborative problem-solving.

The District should prioritize hiring staff with demonstrated experience in arts administration, economic development, marketing/promotion, and community engagement.

Given Norwalk's diversity and the District's commitment to authentic community representation, staff should reflect the community's demographics and have proven ability to work across cultural and economic differences. Initial staffing should include a District Manager and a Programming Coordinator, with expansion based on revenue growth and programming success. There will eventually be need for marketing, development, and other positions.

Business Improvement District

Since a Business Improvement District, known technically as a Special Services District, is the recommended management and governing entity for the Arts District, following a start-up period, it's useful to outline how a BID is formed and what it can do. A BID provides substantial authority and capacity, which will greatly assist the Arts District to fulfill its goals and promise. A BID has taxing authority, can own property, borrow money, provide municipal services, and/or own and operate public improvements.

BIDs in Connecticut are governed by state as well as municipal law. Creating a BID involves significant planning and preparation, plus voter approval by a majority of property owners in the district.

Steps to create a BID are:

1. Municipal ordinance: Norwalk's Common Council formally initiates the process by adopting an ordinance establishing the district. While, Norwalk has designated the Arts District, the BID would require a separate action. Note that while the common Council must take action, a BID is typically initiated by property owners seeking extra public services and willing to pay for them through higher property taxes.
2. Property owner approval: The ordinance takes effect only if the affected property owners vote within 60 days to approve it.
3. Voting requirements: A district is formed if a majority of the taxpayers within each grouping approves it in a referendum and the assessed value of their property exceeds half the assessed value of all property within their grouping.

Different types of properties and property owners can be treated differently within a BID, to reflect the benefits they receive. The BID can define groupings of properties, such as by land use (commercial, residential, industrial) and/or subdistrict within the overall geography of the district (Wall Street, SoNo). These groupings may be taxed at different rates, or at a zero rate, since they may receive different levels of benefits. This means, for example, that individual residential properties (houses, condos) can be effectively included in the BID but not taxed or taxed at a lower rate. Voter approval in forming the district is adjusted accordingly, so each grouping of property owner must approve the district formation with a majority of taxpayers and at least half of the assessed value of all property in the grouping.

It is important to note that a BID formed under Connecticut law is a public entity with governmental authority, not a nonprofit organization. State law requires that a BID be governed by an elected Board of Commissioners, elected every two

years. There may also be ex officio Board members. Board composition and selection is set by the municipality within certain state guidelines but, for example, can include tenants as well as property owners in elections of Commissioners. This provides an important mechanism for community responsiveness and political accountability.

A BID clearly provides a powerful platform for Arts District leadership and management, while facilitating community engagement and accountability.

Governance

The City should establish a District Advisory Board to assist in the formation and ongoing guidance of the District. This advisory body should be drawn from the existing Steering Committee that participated in this planning process, augmented by additional stakeholders who can bring resources, policy knowledge, and community representation. It is recommended that the Advisory Board be initiated as a sub-committee of the Arts and Culture Commission. The board should include members from the Arts and Culture Commission, Wall Street Association, business and property owners, artists, cultural organizations (such as the Norwalk Conservatory of the Arts, Factory Underground, Art Space), and community representatives. This advisory body can transition at a later date into an oversight Board of a Business Improvement District (BID) when launched, as a sub-committee of the BID Board of Commissioners..

Miracle on Wall Street
Scott Chiappetta, 2022

FUNDING

Successful districts require a management structure with strong organizational capacity. Capacity is necessary for the myriad tasks of District management, to lead, program, and market the District, develop and promote its identity, manage relationships, and fulfill the District's goals. All of this, of course, requires sufficient operating funds and human resources. In addition, having diversified revenues is desirable, providing greater financial stability and buffering downturns in one or more sources of revenue.

Norwalk is in the process of considering creation of a special services district (SSD or business improvement district) for areas within the Norwalk Arts District. SSDs require a majority of property owners in the district to agree to an additional property tax to fund agreed-on benefits. This is a strong possibility for providing at least some of the needed funding and management for the Norwalk Arts District. There is strong precedent for this approach. A number of Connecticut cities, including Stamford, New Haven, New Britain, Danbury, and Manchester have special services districts, although none are organized to fund an arts district. Several of the comparison cultural districts elsewhere in the U.S. rely on business improvement districts at least in part for funding and management. The key advantages are that an SSD provides a stable source of basic operating support, organizational capacity, and direct accountability to property owners. An SSD for Norwalk would presumably encompass valuable functions in addition to the arts, such as clean and safe streets, marketing of local businesses, and programming, all of which would align with and benefit the Norwalk Arts District.

It will clearly be important to integrate funding for the Norwalk Arts District into planning for a potential SSD in Norwalk. Also, the larger geographic area of the Norwalk Arts District suggests considering a similarly large geographic area for an SSD, which would generate substantially more revenues and benefit a larger group of stakeholders. It will also be imperative to articulate the benefits of the Norwalk Arts District for property owners to justify their support for including it in an SSD.

In addition to potential SSD property tax revenues, the Norwalk Arts District can cultivate diversified funding. Sources include sponsorships, contributions, City funding, program revenues, private grants, state and federal funding, fundraising events, and memberships.

City Funding

The City can finance the cost of launching the District for an initial period of time, while an SSD is developed and a managing organization stood up. In the future, the City be a funding partner for ongoing operations and special projects. The City can also continue to leverage its infrastructure improvements, as it has been doing in the Wall Street area, and other City spending to benefit the District.

Program Revenues

These can be generated through vendor fees, admissions, concessions, and other income generated by District activities involving sales.

Private Grants

Grants from foundations and corporations will be dependent on an alignment of the donor's fields of interest with District needs.

State and Federal Grants

These grants are currently in a state of disruption and uncertainty but have in the past been valuable sources for arts projects, capital projects, and other initiatives (as opposed to general operating support).

Fundraising Events

Events generally require a large outlay of resources, human and financial, but can generate significant community support.

Memberships

A "Friends of" organization can generate membership fees and contributions to support the District, particularly among District residents.

Diversifying funding will require the Norwalk Arts District to have an active fund development office with qualified staff and to manage multiple donor and grantor relationships.

Norwalk Art Festival
Patrick Sikes, 2021

CONSOLIDATED RECOMMENDATIONS AND IMPLEMENTATION

The Norwalk Arts District is at a pivotal moment, ready to capitalize on the recent designation from the State of Connecticut, with significant potential to become a driving force for economic development, cultural vitality, and community connection. This plan, built on extensive community and stakeholder engagement, and an analysis of successful district models nationwide, identifies a clear pathway forward that builds on Norwalk's distinct character while addressing its unique challenges as a geographically expansive district.

The recommendations prioritize establishing professional management capacity, creating sustainable funding mechanisms, and implementing programming that serves both residents and visitors while supporting local artists and businesses. Success will depend on taking a phased approach that builds momentum through early wins and lays the groundwork for long-term sustainability and growth.

Foundation Building (Years 1-3)

IMMEDIATE MANAGEMENT STRUCTURE

- **ESTABLISH CITY LED MANAGEMENT**: THE BUSINESS DEVELOPMENT AND TOURISM DEPARTMENT SHOULD SERVE AS THE INITIAL DISTRICT MANAGEMENT ENTITY, HIRING DEDICATED STAFF WHOSE SOLE FUNCTION IS DISTRICT DEVELOPMENT AND OPERATIONS. RECRUIT A DISTRICT MANAGER AND PROGRAMMING COORDINATOR WITH DEMONSTRATED EXPERIENCE IN ARTS ADMINISTRATION, ECONOMIC DEVELOPMENT, AND COMMUNITY ENGAGEMENT. IDEALLY, THE DISTRICT MANAGER (AND OTHER DISTRICT STAFF) IS IN PLACE AS A CITY EMPLOYEE IN THE FIRST PHASE AND TRANSITIONS TO WORKING FOR THE BID WHEN ESTABLISHED.
- **COMMIT MULTI-YEAR CITY FUNDING**: A COMMITMENT OF MULTI-YEAR FUNDING WILL BE NECESSARY TO BUILD THE MANAGEMENT SYSTEMS AND INFRASTRUCTURE FOR THE DISTRICT. THE CITY SHOULD PROVIDE STABLE FUNDING FOR DISTRICT OPERATIONS DURING A 3-YEAR STARTUP PHASE WHILE A BUSINESS IMPROVEMENT DISTRICT (BID) IS DEVELOPED AND IMPLEMENTED, AND THERE IS A RAMP-UP OF RESOURCES TO OPERATE THE DISTRICT.
- **CREATE A DISTRICT ADVISORY BOARD**: FORM AN ADVISORY BODY DRAWING FROM THE CURRENT STEERING COMMITTEE, AS WELL AS IDENTIFYING OTHER REPRESENTATIVES FROM THE ARTS AND CULTURE COMMISSION, BUSINESS OWNERS, PROPERTY OWNERS, ARTISTS, CULTURAL ORGANIZATIONS, AND COMMUNITY MEMBERS THAT WOULD PROVIDE GUIDANCE IN DISTRICT DEVELOPMENT.
- **ESTABLISH A BUSINESS IMPROVEMENT DISTRICT**: WHEN IN PLACE, A PRIORITY FOR MANAGEMENT IS TO LAY THE GROUNDWORK FOR AN INDEPENDENT BID STRUCTURE WITH SUSTAINABLE PROPERTY ASSESSMENT FUNDING.
- **DIVERSIFY REVENUE STREAMS**: DEVELOP THE CAPACITY IN THE FIRST THREE YEARS FOR SEEKING GRANTS, SPONSORSHIPS AND PROGRAM REVENUES. THIS WILL CREATE A PLATFORM THAT CAN TRANSITION TO THE BID.

Essential Infrastructure Improvements

- **Commission Design of a Comprehensive Wayfinding System**: Install consistent signage and digital wayfinding that connects Wall Street, Waypointe, and Washington Street/SoNo sub-districts, establishes a system for geographic differentiation and enhances the brand of the District.
- **Address Basic Infrastructure Needs**: Focus on cleanliness and maintenance, improved lighting for safety perceptions, and enhanced parking solutions.
- **Develop Transportation Connectivity**: Explore development of a trolley or shuttle system to physically connect District sub-areas and serve as a branding opportunity. Consider building on the City's existing Wheels 2U on-call transportation service as an alternative to a dedicated trolley/shuttle. Leverage the upcoming relocation of the City's Norwalk Transit hub to the South Norwalk train station as an opportunity to address District transportation needs. Support increased mobility improvements called for in the South Norwalk TOD Redevelopment Plan (sidewalks, streetscape, bike lanes, arts spaces)

Quick Win Programming

- **Launch Monthly Art Walks**: Establish First Friday or similar regular programming to create consistent District activation and visitor expectations.
- **Initiate Public Art Projects**: Begin small-scale, temporary public art installations and expand existing mural programs. Consider community-involved projects to increase public engagement.
- **Activate Street-Level Programming:** Establish a program to encourage and support street performers (e.g., create designated areas with guidelines or policies for permitting, hours, use of electronic amplification, etc.), outdoor live arts, and pop-up activations that

enhance liveliness throughout the District.

- **Considerations in Programming:**
  - Maintain a regular programming calendar that serves multiple demographics and interests.
  - Create family-friendly activities that build community connections while attracting visitors.
  - Provide performance and exhibition opportunities for local artists.
  - Balance community-serving events with larger signature festivals for regional attraction.

Ongoing Priority Considerations

Expanded Programming and Identity

- **Develop Signature Annual Events**: The process of developing one or more signature events should begin in Phase 1. It may be an opportunity to build upon/expand existing events that have the potential for growth. Large-scale festivals would ideally celebrate Norwalk's unique identity—diversity, maritime heritage, and post-industrial character and leverage the distinct nature and geography of the District.
- **Strengthen Sub-District Programming**: Develop distinct programming for Wall Street, Waypointe, and Washington Street/SoNo while maintaining a unified District brand.
- **Support Artist Community**: Address the needs of Norwalk's artist community, such as facilitating opportunities to increase or maintain affordable space and live/work projects. Also, developing artists' funding programs and work opportunities, promoting local artists and productions, and incentivizing artist residencies. Artists should be engaged in leadership and decision making for the District on an ongoing basis. The District can also set standards to assure professional compensation for artists' work in the District.
- **Expand Public Art:** Continue and expand the initial focus on temporary, community-engaged, and mural projects to include add larger and iconic artworks. Look for opportunities to use public artworks to reinforce connectivity (on trails, as wayfinding, and for gateways).

Marketing and Branding

- **Implement Design Standards:** Establish District design guidelines in collaboration with Planning and Zoning and the RDA that enhance authentic character while supporting arts and cultural uses and establish a cohesive visual identity and messaging that authentically represent Norwalk's character.
- **District and Event Marketing:** Implement a multi-channel marketing strategy including digital, traditional media, word-of-mouth, and other creative efforts that reflect the multiplicity of ways people now access information. Partner with existing marketing efforts while developing District-specific promotional capacity.

Community Centered Approach

- **Prioritize Residents:** Prioritize programming and development that serves residents first while naturally attracting visitors.
- **Build on Norwalk's Authenticity:** Maintain authentic character by building on the existing creative community and preventing displacement.
- **Community Representation:** Ensure diverse community representation in governance and programming decisions.

The success of these recommendations depends on recognizing that the Norwalk Arts District's geographic scale and diversity are assets to be leveraged rather than problems to be solved. By embracing its authentic character, supporting its existing creative community, and building professional management capacity with sustainable funding, the District can become a unique regional destination that genuinely serves its community while driving economic development and cultural vitality.

Implementation Grid

Year 1 focuses on establishing the management foundation; establishing the District brand and a master marketing plan; launching quick-win programming and beginning the BID development process.

Year 2 emphasizes building momentum through infrastructure improvements including installation of wayfinding and geographic demarcation of the District and subdistricts, expanding programming, and formalizing the BID structure.

Year 3 centers on completing the transition to independent BID management, launching major signature programming, and achieving marketing maturity.

Years 4-5 target sustainable operations, physical development projects, and regional leadership.

Each phase builds logically on the previous one, with early actions creating the foundation for later developments. The plan balances immediate visible wins (like First Friday events) with longer-term capacity building (like BID establishment), and includes specific metrics for tracking progress.
The structure allows for flexibility while maintaining clear priorities and accountability timeframes.

Function/Strategy	Action	Resources
YEAR 1: Foundation Building (Months 1-12)		
Immediate Priority Actions (Months 1-3)		
Establish Management Structure		
	Common Council Economic and Community Development Committee reviews and authorizes ECDD to serve as incubating agency	Staff and committee time
	Secure multi-year City funding commitment (minimum 3 years)	Funding required for specific line items below. Focus is on city supporting the District operations for a period of up to 3 years until the BID (special services district) is established and providing operating funds.
	Hire District Manager (full-time position)	Est. $100-125K annually for salary, benefits and related costs
	Establish District Advisory Board drawing from Steering Committee and additional stakeholders	Staff and committee time

Launch Quick Win Programming		
	Initiate monthly First Friday Art Walk (or similar regular event)	Staff time in organizing along with resources invested in promotional materials
	Begin street performer/busking pilot program with designated locations and guidelines. Additionally, identify infrastructure improvements to create designated busking areas/zones.	Establish guidelines and review with Advisory Board and internal city departments as required
	Activate existing public spaces with small-scale temporary programming	See appendix section on links to small-scale activation examples and suggestions and approaches and budget ranges to consider.
Begin Infrastructure Planning		
	Identify priority lighting and safety improvement locations	Coordinate with public works and develop a capital needs budget
	Survey parking and transportation connectivity challenges	Staff time and potential consultant cost
Short-Term Actions (Months 4-12)		
Build Management Capacity		
	Hire Programming Coordinator	Estimate salary and related costs of $75-85,000 annually.
	Establish formal liaison relationships with Arts & Culture Commission, Planning & Zoning, Historic Preservation Trust, Parks & Recreation	Staff time
	Create quarterly stakeholder coordination meetings	
	Develop District operations manual and brand guidelines framework	

Initiate BID Development Process		
	Convene property and business owners to introduce BID concept	Staff time
	Present benefits analysis and funding projections	
	Begin informal polling of property owner support	
	Research Connecticut BID models and legal requirements	
Develop Brand and Marketing Foundation		
	Issue RFP for brand identity and marketing plan development	Staff time and research
	Commission brand identity system (logo, visual standards, messaging)	Est. consulting and related costs in a range from $40,000-$60,000. Refer to the appendix section for resources for branding and wayfinding design firms
	Launch basic District website and social media presence	Design and consulting fees
	Create initial promotional materials and event calendar system	Design and consulting fees
	Conduct comprehensive wayfinding needs assessment	Consulting fees for design firm specializing in wayfinding and placemaking. Estimate fees in the range of $30,000-$50,000 for assessment. Refer to section the appendix on resources for wayfinding design firms.
Expand Programming		
	Establish 2-3 additional recurring programs (outdoor concerts, family activities, etc.)	Refer to appendix section on examples and approaches to activation
	Launch small-scale temporary public art projects	
	Pilot weekend street activation in one sub-district	

Community Engagement		
	Host quarterly community forums to build resident and business connection to and a sense of ownership of the District	Staff time
	Establish artist/creative community advisory group	
	Create business owner networking events	
	Survey residents and visitors on programming preferences to establish ongoing assessment and evaluation processes of District activities	
YEAR 2: Building Momentum (Months 13-24)		
Priority Actions (Months 13-18)		
Complete Essential Planning		
	Finalize and adopt comprehensive wayfinding plan	Consulting fees for design firm specializing in wayfinding and placemaking. Estimate fees in the range of $50,000-$90,000 – this may include the assessment indicated above. Refer to section the appendix on resources for wayfinding design firms.
	Complete marketing strategy and implementation roadmap	Engage a marketing firm to develop a comprehensive marketing master plan. Estimate fees in the range of $50,000 - $75,000
	Develop public art guidelines and installation procedures	Engage a firm specializing in public art master planning and program design to develop procedures and program guidelines. Estimate range of $40,000 - $70,000.
	Create design standards for District development	Integrated with branding and/or wayfinding design projects

Implement Infrastructure Improvements - Phase 1		
	Install priority wayfinding signage at major entry points and key intersections	Capital expenditure. Costs will depend on design, fabrication and materials costs
	Complete lighting improvements in highest-priority areas	Capital expenditure, to be determined
	Launch improved parking information system (signage, digital, maps)	Capital expenditure, to be determined
Formalize BID Structure		
	Develop BID petition and secure property owner signatures	Staff time, legal and professional costs of BID approval and formation
	Common Council adopts ordinance establishing special services district	
	Plan and advocate for, and conduct, the required property owner voter referendum	
	Designate District Advisory Board as BID oversight body	
	Establish BID operational budget and assessment structure	
Expand Marketing and Promotion		
	Launch comprehensive digital marketing campaign	Staff time and expenses to be determined with marketing plan
	Develop partnerships with regional media outlets	Staff time
	Create District mobile app or enhanced digital presence	Engage app design firm. Cost and fees to be determined
	Implement multi-channel event promotion system	Staff time

Ongoing Actions (Months 13-24)		
Programming Expansion		
	Develop first signature annual festival concept and plan	Year one is likely to require significant investment in key components and testing revenue models to build into an annual event. Recommend budget up to $300,000 for initial event
	Expand monthly programming to all three sub-districts	To be determined. Utilize guide on small scale activation for budget development
	Launch public art installation series	Staff time plus project costs TBD
	Establish artist-in-residence or artist showcase program	Establish an annual budget for artist in residence fees with a range of $12,000 - $18,000 annually per residency plus allocation for project costs (materials, etc.)
Artist and Creative Community Support		
	Identify and catalog affordable space opportunities	Staff time
	Launch small grant or microgrant program for artists	Budget to be determined based on the number of microgrants available in the program. Recommend minimum microgrants of $5,000 with 10-12 available annually
	Create artist directory and promotional platform	Staff tome

Revenue Development		
	Hire or contract for development/fundraising capacity	Costs will vary depending on if engaging hourly or on standing retainer. Anticipate hourly minimum of $50 - $75 an hour for grant writers
	Secure first major corporate or business sponsorships	Staff and/or contract time
	Apply for state and federal grants	Staff and/or contract time
	Launch "Friends of Norwalk Arts District" membership program	Staff time for program design, launch and ongoing management
Community Engagement		
	Host quarterly community forums to strengthen resident and business connection to and a sense of ownership of the District	Staff time
	Continue artist/creative community advisory group	
	Continue business owner networking events	
	As needed, survey residents and visitors on programming preferences to establish ongoing assessment and evaluation processes of District activities	

YEAR 3: Consolidation and Growth (Months 25-36)		
Priority Actions (Months 25-30)		
Complete BID Transition		
	Transfer District management from City to independent BID structure	Staff and Advisory Board time
	Transition District Manager and staff to BID employment	
	Establish BID Board of Commissioners with formal governance structure	
	Implement full BID revenue collection and operations	
Infrastructure Improvements - Phase 2		
	Complete comprehensive wayfinding system installation	Capital expenditure budget to be developed as needed
	Implement additional lighting and safety improvements	
	Launch trolley/shuttle feasibility study or pilot program	
	Complete streetscape improvements in priority areas	
Major Programming Launch		
	Debut first major signature annual festival	Staff time and program budgets for each item as developed during planning
	Establish full calendar of recurring monthly/weekly programs	
	Launch substantial public art commissions (temporary or permanent)	
	Implement historical interpretation/heritage activation projects	

Ongoing Actions (Months 25-36)		
Organizational Capacity Building		
	Add Marketing Director position	Estimate salary and related costs between $90,000 - $110,000
	Expand programming and operations staff as needed	To be determined based on available fund through newly established BID
	Develop volunteer program structure	Staff time
Evaluate and Refine		
	Conduct comprehensive program evaluation	Staff time
	Survey stakeholders, residents, and visitors	
	Assess economic impact and foot traffic data	
	Refine strategies based on performance data	
Long-Term Planning		
	Develop 5-year strategic plan for BID	Staff time if managed internally. Estimate $45,000 - $70,000 if consulting/external planners are engaged
	Identify capital project priorities (Palace Theater, public spaces, etc.)	Staff time
	Plan affordable housing/live-work space development strategies	Staff time. Integrate with strategic planning
	Expand artist support programs and anti-displacement initiatives	Staff time. Integrate with strategic planning
Deepen Community Integration		
	Expand multicultural programming reflecting Norwalk's diversity	Staff and Advisory Board time
	Strengthen youth and family programming	
	Enhance accessibility and inclusion across all programs	
	Build neighborhood-specific programming in each sub-district	

Community Engagement		
	Host quarterly community forums to strengthen resident and business connection to and a sense of ownership of the District	Staff time
	Continue artist/creative community advisory group	
	Continue business owner networking events	
	As needed, survey residents and visitors on programming preferences to establish ongoing assessment and evaluation processes of District activities	
YEARS 4-5: Maturation and Expansion. - Strategic Goals for Measuring District Success		
Sustainable Operations		
Achieve stable diversified revenue streams (BID assessments, grants, sponsorships, earned income)		
Demonstrate measurable economic impact (property values, business growth, job creation)		
Maintain robust programming calendar year-round		
Physical Development		
Support adaptive reuse of historic buildings (Palace Theater priority)		
Facilitate artist housing and live-work space development		
Implement major public space improvements		
Complete connectivity improvements between sub-districts		
Program Excellence		
Establish signature events with regional/national recognition		
Maintain diverse programming serving multiple demographics		
Support thriving local artist community with opportunities and resources		
Create model for equitable cultural district development		
Regional Leadership		
Position Norwalk as Connecticut cultural district model		
Share best practices with other communities		
Attract state and national attention/awards		
Generate cultural tourism economic impact		

ATTACHMENTS

SMALL SCALE ACTIVATIONS

Following are examples of small-scall activations and approaches to placemaking for consideration in developing a program for the Norwalk Arts District.

Examples:

- Sebastopol, California's temporary parklets using plywood and OSB walls, customized by adjacent businesses for a successful one-day activation
- Nashville's Civic Design Center using PARK(ing) Day parklets to demonstrate value of public space before transitioning to permanent installations
- Minneapolis' Cultural Districts Pop-up Art & Cultural Activations Program providing grants up to $5,000 for temporary projects including dance, drumming, performance, interactive installations, and hands-on activities
- Seattle's Arts in Parks program commissioning site-specific outdoor temporary artworks lasting 45 days to eight weeks
- Three New York City BIDs partnering to display art in vacant storefronts and create gallery walks
- Downtown Orlando's activation program expecting over 850 experiences programmed annually with $1.189 million in funding
- Boston's Neighborhood Activation Grant program supporting community-focused arts activations in public spaces
- Covington, Kentucky's themed parklets including a life-size xylophone outside a toy shop and a boxing ring near a barber shop

Quick Win Programming: Small-Scale Temporary Activations

Street-Level Pop-Up Installations

Parklets (Temporary Public Spaces) Parklets transform one or two parking spaces into vibrant community gathering places, typically measuring 8 feet by 18 feet, with elevated platforms that create seating areas, greenery, and bike parking. In Sebastopol, California, community members constructed three temporary parklets using plywood floors and OSB walls, which were then customized by adjacent businesses with seating and artwork for a one-day activation that demonstrated strong community interest. Nashville's Civic Design Center used temporary parklets on PARK(ing) Day to advocate for permanent public space, eventually leading to their first permanent parklet installation.

For Norwalk: Wall Street and Washington Street could host temporary parklets outside restaurants, galleries, or music venues like District Music Hall, creating instant gathering spaces that test community interest before committing to permanent installations.

Pop-Up Parks and Play Spaces Moveable and pop-up installations can be deployed flexibly, including locating freestanding play installations on sidewalk corners, creating "pop-up parks-within-parks" at existing parks, or housing installations in repurposed shipping containers that transport between locations. The Bethel Revitalization Initiative hosted a two-day "Bethel Better Block" event with multiple pop-ups in the downtown area, incorporating a temporary multimodal lane for walking, bicycling, and wheelchairs.

For Norwalk: Irving Freese Park or spaces along the Norwalk River Valley Trail could host weekend pop-up play installations or interactive art experiences, particularly family-friendly activations that address community requests for more children's programming

Community Arts Activations

Temporary Art Installations and Interactive Projects Minneapolis' Cultural Districts Pop-up Art & Cultural Activations Program provides grants up to $5,000 for temporary projects including dance, drumming, songwriting, performance, improv theater, poetry, puppetry, interactive installations, hands-on activities for youth and families, and storytelling through film and visual art. Seattle's Arts in Parks program commissions artists to create site-specific outdoor temporary artworks or social practice activities lasting 45 days to eight weeks, with projects designed to activate spaces, engage pedestrians, and create unique sense of place through creative practice.

For Norwalk: District management could launch a small grants program (starting with $1,000-$3,000 awards) for local artists to create temporary installations at rotating locations throughout the three sub-districts, building on Norwalk's existing creative community at spaces like Space 67 Studios and Factory Underground.

Vacant Storefront Activations Three New York City BIDs partnered with an arts nonprofit to display art and create gallery walks in vacant storefronts, creating themes, putting together calls for submissions to artists, and recruiting property owners. Downtown Orlando's activation program, managed by United Arts with $1.189 million in funding, focuses on public spaces, sidewalks, storefronts, and buildings, expecting over 850 experiences programmed throughout the year.

For Norwalk: Empty storefronts along Wall Street could become rotating artist showcases or community exhibition spaces, with simple window installations visible 24/7 and occasional open-studio hours on First Fridays.

Performance and Cultural Programming

Street Performance and Busking Programs Minneapolis Downtown Improvement District produced live streaming shows from street performers and specially recorded "Street Show Gems" taped at quintessential downtown locations, with artist payments matched by contributions to social justice organizations.

For Norwalk: Launch a designated busking program with permitted performance spots at key locations (outside Factory Underground, along Washington Street restaurant row, at the Waypointe plaza) with clear guidelines for hours, amplification, and tip collection. Start with weekend programming and expand based on community response.

Social Practice and Community Engagement Activities Boston's Neighborhood Activation Grant program supports community-focused arts and cultural activations including site-specific performance art, immersive arts installations, community celebrations, interactive theater productions, film screenings with conversation, cultural festivals, and community dialogues that center the arts. Funded activations emphasize community engagement and site-specific responsiveness, incorporating hands-on activities that respond directly to community needs while centering community-driven cultural practices.

For Norwalk: Host monthly community art-making events in public spaces (similar to the successful "Wishing Tree" engagement used during planning), outdoor film screenings on building walls, or storytelling circles that celebrate Norwalk's diverse immigrant communities and multicultural heritage.

Tactical Urbanism and Demonstration Projects

Quick-Build Street Transformations Pop-up designs and activations use a "do-it-yourself" approach to temporarily transform public space, using examples like converting parking spaces into parklets and using alleys for community events, with planning consisting of engaging community members, building demonstration projects, and hosting events. In Covington, Kentucky, a group called Curb'd created temporary parklets as fun reflections of neighboring areas—including a life-size xylophone outside a toy shop, a boxing ring themed parklet near a barber shop, and a huge igloo where visitors could hang personal handwritten wishes.

For Norwalk: Create themed temporary installations that reflect neighborhood character—maritime-themed parklets near the waterfront in SoNo, music-themed installations near District Music Hall, or industrial-heritage designs along Wall Street's historic corridor.

Pilot Programming Before Permanent Investment Pop-up parklets in Sebastopol used lightweight, moveable furniture that residents could easily reconfigure for different group sizes, and umbrellas that could be repositioned for shade, demonstrating that flexible design elements invited more visitors and led several businesses to express interest in permanent parklets.

For Norwalk: Test concepts like the proposed trolley/shuttle with a weekend pilot using rented vehicles before committing to permanent infrastructure. Try temporary protected bike lanes with paint and cones before permanent installation. Host a one-day "open streets" event closing part of Wall Street or Washington Street to cars.

Implementation Strategies for Quick Wins

Low-Cost Materials and DIY Approach Start with simple, affordable materials: plywood platforms, potted plants, folding chairs, string lights, paint, and chalk. Partner with local businesses, artists, and community volunteers for design and construction.

Lending Library of Materials Communities can reduce expenses associated with pop-ups by creating a lending library of materials that community members can use to host events, and by creating resources to help build safer pop-up installations including guidance for quick-build parklets and pedestrian plazas.

Streamlined Permitting Work with the City to develop expedited permit processes for temporary activations lasting one day to several months, similar to approaches used during COVID-19 for outdoor dining.

Seasonal and Event-Based Timing Launch initial activations during warmer months (May-October) and tie them to existing events (farmers markets, First Fridays, festivals) to build on existing foot traffic.

Evaluation and Documentation Photograph all activations, count participants, gather informal feedback, and track social media engagement. Use data to demonstrate impact and build support for permanent installations or expanded programming

Budget Considerations

Micro-Activations: $500-$2,000
- Chalk art installations
- Temporary window displays
- Small pop-up performances
- Community art-making stations

Small-Scale Activations: $2,000-$5,000
- Simple parklets (one weekend)
- Temporary mural projects
- Pop-up artist showcases
- Interactive installations

Mid-Scale Activations: $5,000-$15,000
- Multi-day events
- Multiple simultaneous activations
- More substantial temporary structures
- Artist residencies or extended programming

These quick wins generate immediate visibility, test community response, demonstrate District momentum, and create content for marketing—all while building toward more substantial long-term programming and infrastructure investments.

Norwalk Mural Park
Scott Chiappetta, 2021

Washington Street
Jeff Klein, 2019

RESOURCES FOR WAYFINDING PROGRAMS

MIG is a comprehensive multidisciplinary firm offering Environmental Graphic Design and Wayfinding as part of broader planning and design services including Cultural Places, Downtown Planning and Design, Placemaking, and Public Art Consulting.

RSM Design specializes in well-designed wayfinding systems that add value to cultural centers, galleries, museums, and entertainment districts.

Corbin Design has proven experience with Fort Worth's Cultural District, creating systems that differentiate districts while trailblazing between them using color logic incorporated into signage

Two Twelve is a minority- and women-owned New York firm with extensive performing arts experience including the Perelman Performing Arts Center and David H. Koch Theater at Lincoln Center

Mijksenaar has 35 years of experience with museums and cultural environments, focusing on creating identity through wayfinding

Gensler is a global architecture, design, and planning firm with extensive wayfinding experience with MoMA, Cedars-Sinai Hospital, San Francisco Airport, and other clients.

Sheffield Island Ferry
Patrick Sikes, 2021

CULTURAL DISTRICTS COMPARISON STUDY

The purpose of the comparison study is to inform planning and management choices for the Norwalk Arts District. Six districts were selected based on having one or more relevant characteristics to Norwalk: mixed arts/history focus; significant residential population; nearby competition; strong business/property owner presence; and/or similar city population size (~92,000). To be clear, arts and culture districts are highly individualized and distinct from one another, reflecting their unique mix of cultural assets, history and culture, objectives, and many other factors. Therefore, this comparison is best viewed as a collection of insights from across places that share both similarities and differences to Norwalk.

Boulder CO Pearl Street District
Fort Worth TX Cultural District
Knoxville TN Arts District
New Orleans Warehouse Arts District
Philadelphia Avenue of the Arts
Portland ME Arts District

A table with data for each district on the following is attached:

- Identity
- Area
- Goals
- Key Assets
- Programs
- Management
- Funding
- Population
- Observations

Overall Conclusion: The most successful cultural districts combine professional management, stable funding, consistent programming, and compact geographic scale. Norwalk's challenge will be adapting these proven models to work within its larger geographic footprint while leveraging its unique maritime heritage, historic properties, and multicultural character to create a differentiated regional arts destination.

SONO Sign
Patrick Sikes, 2021

Overall Observations

- **Goals and Functions**: All districts have an objective of marketing and promotion. Most focus on cleanliness, safety, and walkability – the visitor experience. Also, most produce a wide variety of public programming, much of it free. Districts with a strong presence of arts institutions rely less on district-produced programs and more on programming offered by the institutions.
- **Management**: All but one district have a management entity with professional staff and ongoing operational funding. Boulder and Knoxville have two organizations that collaborate, dividing responsibility for arts and a business improvement district. The Arts District of New Orleans is the outlier, being a small budget and all-volunteer nonprofit.
- **Area:** Four districts have "compact, walkable areas" that are strongly associated with successful districts, since they provide a concentration of assets and visitor experience. By contrast, Norwalk is larger, extending approximately 1.5 miles from Wall Street through West Avenue to Washington Avenue, and nearly 2.5 miles to its southern boundary. Philadelphia and Fort Worth were selected as comparable districts in part because they also have larger areas. Philadelphia extends approximately 1 mile and Fort Worth 2.1 miles.
- **Connectivity**: Larger geographic areas pose significant challenges with connectivity and coherence. The larger districts – Philadelphia and Fort Worth – have made specific efforts to enhance connectivity. Philadelphia has the advantage of a corridor (a ten-block area of Broad Street) served by a subway line; it has made long-term and ongoing efforts to improve the pedestrian experience and create public spaces with streetscaping and urban design improvements. Fort Worth has relied primarily on mixed use real estate developments to provide infill and connectivity.
- **Programming:** Apart from the programming provided by the arts organizations and businesses in the district, districts themselves produce regular and special event programs to provide consistent activation and define the character/attraction of the area. The most common program is a monthly art walk, which provides continuity and help creates connections within the district. All districts produce large, signature events. Most also produce a range of activations, programs, and events throughout the year.
- **Residential Population:** Several districts have significant residential population and have supported residential/mixed use real estate development. Philadelphia has an active "Friends of" organization that produces networking, social, and community services events. The presence of residents – those who live in the district or in the city – influences the character of programming and marketing, as distinguished from districts focused primarily on tourism.
- **Key Assets:** Each district has a unique mix of cultural assets that help define its identity. That said, there are different emphases that inform programming and other activities. Philadelphia is focused primarily on performing arts and Fort Worth on its major museums and entertainment venues. Boulder, Knoxville and Portland rely on smaller-scale, community-oriented events, shopping, restaurants, and arts venues. New Orleans is heavily influenced by its long history and NOLA cultural traditions that predated the formation of the district.
- **Funding:** All districts except New Orleans have ongoing sources of operating funds that support a level of organizational capacity for management, marketing, programming and other functions. Sources include business improvement district revenues, city funding, grants, contributions, sponsorships, fundraising events, program revenues, and state and federal funding.

Considerations/Options for Norwalk

BID or Dual Management Structure (Boulder & Knoxville)
- Business Improvement District managing infrastructure/services
- Potentially partnering with separate Arts Alliance for cultural programming and advocacy
- Professional staff with volunteer board governance
- Stable special assessment funding from property owners

Portland's Nonprofit Partnership Model
- Creative Portland Corporation as official nonprofit arts agency
- City partnership with grant funding leverage
- Professional management with community engagement focus

Programming Success Patterns

Monthly Programming Anchors: Every successful district features **First Friday/Saturday Art Walks** as their cornerstone:
- Consistent 5-8 PM timeframe across all districts
- Free, self-guided format with 15-30 participating venues
- 1,000-30,000 attendance depending on district size

Annual Signature Events: Large summer festivals (20,000-30,000 attendance) serve as economic drivers:
- New Orleans: White Linen Night (August) - 20,000-30,000 attendees
- Knoxville: Recognized as #2 "Best Arts District" nationally
- Portland: First Friday model operating since 2000

Unique Positioning: Norwalk can leverage its distinctive assets:
- Annual Art Festival
- Maritime heritage (Oyster Festival model)
- Multicultural population (NICE Festival approach)
- Historic architecture and waterfront location

Promotion of Programs Produced by Arts Organizations and Venues in the District: Coordinating and promoting programs without having to produce them.

Additional Programs, Projects & Activities: Provide ongoing, continuous activity and granularity:
- Gallery openings, small-scale music performances
- Street performers/busking
- Public art, temporary installations, and community-involved arts projects
- Bike parades, dog events

Program Norwalk as Two Areas: Brand and program Wall Street and SoNo as distinct areas.

CULTURAL DISTRICT DATA TABLE

DISTRICT	BOULDER CO PEARL STREET DISTRICT	PORTLAND ME ARTS DISTRICT	NEW ORLEANS WAREHOUSE ARTS DISTRICT	KNOXVILLE TN ARTS DISTRICT	FORT WORTH TX CULTURAL DISTRICT	PHILADELPHIA AVENUE OF THE ARTS
IDENTITY	40+ year old historic district with strong mix of arts venues, retail, and dining in pedestrian-friendly environment. Not a formal arts district, rather a de facto arts district within the downtown area.	Designated in 1995, it is a formal arts district within downtown Portland.	THE AREA DATES TO THE 19TH CENTURY AS STORAGE AREA FOR THE PORT BUT WAS DESIGNATED IN THE 1990S FOR REVITALIZATION AND REMAINS AN AUTHENTIC NOLA CULTURAL DISTRICT. GROWING RESIDENTIAL POPULATION	Not a formally designated arts district, rather a downtown managed by a business improvement district with a strong arts partner.	State-designated cultural district west of downtown Fort Worth. Strong residential population (4,000+) and significant growth and mixed-use real estate development.	Philadelphia's premier performing arts and mixed-use downtown district with a substantial residential population (4,000+). Major urban design improvements are underway to increase connectivity and pedestrian experience and create new outdoor and pop-up performances and public art.
AREA	Compact 3- by 6-block area straddling Pearl Street.	Highly walkable area centered on Congress Street in downtown Portland, a few blocks from the waterfront and approximately 10-15 square blocks total	LOCATED ON THE 300-600 BLOCKS OF JULIA STREET AND THE IMMEDIATE SURROUNDING AREA, THE DISTRICT ENCOMPASSES A HISTORIC SECTION OF DOWNTOWN NEW ORLEANS.	0.67 square-mile, walkable historic downtown district (Volunteer Landing to the Southern Railway tracks north of Jackson in the Old City, and 11th Street west of the Knoxville Art Museum to Hall of Fame Drive).	While the museum area is 120 acres, the entire geography is much larger, extending 2.1 miles wide and including residential, entertainment, and mixed-use areas.	A one-mile stretch of Broad Avenue, extending alongside into the neighborhoods.

GOALS	To engage both visitors and locals through arts, culture, innovation, and inclusive, community-driven experiences in downtown Boulder	To promote Portland's cultural community and creative economy	To connect, promote and support the architecturally distinctive historic area and its diverse businesses.	To ensure a vibrant, flourishing downtown. The mission of the Arts & culture Alliance of Greater Knoxville is to serve and support a diverse community of artists, arts organizations, and cultural institutions.	To invest in the success of the district; promote a cohesive and identifiable district; maintain the safety, security, and mobility of the district; and participate in dialogue with key stakeholders about promotion and preservation of the district.	To encourage cultural and economic development in the district.
KEY ASSETS	200+ stores, restaurants, galleries, public art, public spaces	Galleries, theatres, Main College of Art & Portland Museum of Art, dance studios, music venues, bars, cafes, restaurants and specialty shops	Contemporary art galleries, National WWII Museum, Ogden Museum of Southern Art, jazz clubs, a rotating outdoor public sculpture collection, numerous cafés, bars and restaurants, including James Beard award-winning restaurants.	Knoxville Museum of Art, Emporium (Arts) Center, UT Downtown Gallery, Old City (historic area), Blount Mansion, James White Fort, Curio at Maker Exchange, Museum of East Tennessee History, Women/s Basketball Hall of Fame, additional art galleries, studios, murals & performance spaces.	Amon Carter Museum of American Art, Kimbell Art Museum, Modern Art Museum of Fort Worth, Fort Worth Museum of Science and History, and National Cowgirl Museum and Hall of Fame. Will Rogers Memorial Complex, Dickies Arena, and Casa Manana, and the Fort Worth Community Arts Center. Fort Worth Botanical Garden and Will Rogers Memorial (equestrian) Center, public art throughout.	The district is anchored by major institutions on and near Broad Street: Kimmel Center for the Performing Arts, the Academy of Music, Miller Theater, Wilma Theater, Liacouras Center, Suzanne Roberts Theatre, and the Pennsylvania Academy of Fine Arts. There are 73 restaurants and 10 hotels.

PROGRAMS	Annual Pearl Street Arts Fest, "Bands on the Bricks" outdoor performances, street performers, galleries, artisan shops, public art. Programming continues in winter including a series of holiday events.	First Friday Art Walk, digital A/R V/R public art walk, Movies in the Park, Alive at Five Music Series, ongoing arts programs and activations, holiday events, dog events.	Monthly free gallery receptions, three major annual fundraisers (Jammin' on Julia, White Linen Night & Art for Arts' Sake), plus programming in the institutions and businesses located in the district.	First Friday ArtWalk, programming by the organizations, venues, institutions and businesses in the district.	Programming is provided primarily by the institutions in the district.	Programming is provided primarily by the institutions in the district.
MANAGEMENT	Shared management structure: 1) the City manages public spaces and provides arts support, and 2) Downtown Boulder Partnership (BID) manages the overall district. In addition, the Downtown Management Commission has an advisory role.	Creative Portland Corporation, a nonprofit designated as the city's official arts agency.	Arts District of New Orleans Association, a small-budget volunteer-run nonprofit organization.	Downtown Knoxville Alliance is a business improvement district managing the historic downtown area. The Arts & Culture Alliance of Greater Knoxville is the designated local arts agency supporting the arts community and producing programming.	Managed by the Fort Worth Cultural District Alliance, a nonprofit which operates as a membership-based organization. The organization manages both the cultural programming and advocates for district development and improvement.	Managed by Avenue of the Arts, Inc., a nonprofit that focuses on marketing, promotion, coordination, and development. In addition, Friends of the Avenue of the Arts, an associate organization of the district, is a community of residents and those who work in and around the Avenue of the Arts district. The group supports the businesses and arts organizations in the area through social, networking and community service events.

FUNDING	1) city funding, 2) business improvement district revenues, 3) sponsorships & contributions	City funding, grants & contributions.	Fundraising events, grants, sponsorships & partnerships.	The Downtown Knoxville Alliance relies primarily on special assessment district revenues. The Arts & Culture Alliance is a nonprofit with government funding, grants, contributions, and other revenues.	The Fort Worth Cultural District Alliance operates through a membership-based funding model. The district also benefits from major private development investments, as evidenced by several luxury mixed-use projects that have opened or are under construction.	Avenue of the Arts, Inc. operates through a project-based funding model, with state grants, private donations, foundation grants, and project-specific allocations from the city. It is currently requesting a five-year funding commitment form the city to stabilize operating support.
CITY POPULATION	106,000	66,000	364,000	198,000	978,000	1.55 million
OBSERVATIONS	Strength comes from well-established and -integrated visitor experience in concentrated area: shopping, restaurants, arts, activation, community events, historic preservation, etc.	A well-established destination in a compact historic downtown area with strong arts character and activity.	This district does not have a well-funded management organization but provides a limited amount of programming and marketing.	Knoxville's arts ecosystem operates through a collaborative network of organizations within the broader downtown improvement district framework.	The district stands out as an organization focusing on and benefitting from strong partnerships with the private sector. The district is currently exploring, in partnership with the City and area business owners, the establishment of a Public Improvement District.	The district has strong connectivity along its one-mile corridor, with a subway line under Broad Street and strong walkability. Density of assets, infrastructure improvements, and infill developments have contributed to this, with a major streetscape project underway.

GROUP EVENT ENGAGEMENT INPUT

Artist & Creatives Roundtable Mixer

Spacecat Whisker Room
57 Chestnut Street
4/15/25

Overview of the event: Approximately 40 individual artists and creatives attended an evening open house session that included food and drinks, networking/socializing, and comments relevant to the Norwalk Arts District Plan. Posterboards provided information and posed questions to attendees.

What should be the purpose of the Arts District (Wall Street and SoNo)? What should the district try to accomplish?

Help make a name for Norwalk - will attract visitors!

To act as a hub for artists to collaborate/showcase their art/work, 2) provide activated space for the community to gather that isn't eating/drinking, 3) allow a space for the community to express itself.

Create space for celebration of the arts.

Make Norwalk the arts capital of Fairfield County.

Inclusivity and inspire, let people know art is for everyone.

To make art (ripple, ripple).

To educate the values of culture and curiosity.

To improve quality of life through regular exposures, access to art as both consumers and creators.

Purpose: engage the community, educate, and inspire. Aim: have workshops, musical performances, dance performances and classes, affordable opportunities to learn.

Accomplish what schools leave out. Anyone can make art. Music is for everyone. Arts and culture fill in the gaps.

To create the best environment where people feel they can best express themselves.

Should accomplish unity. Community. Spark interest. Create space that fosters expression. Partner with local businesses interested in showcasing local artists.

What should the Arts District (Wall Street and SoNo) do? What should its functions be? What should it not do?

Do more events all year long!!

Do not limit the district to one type of media/medium.

Bring live theatre back!

Do: 1) celebrate the arts year round through event., 2) draw in visitors, 3) create a safe space for artists.

Don't: 1) encourage unaffordability and gentrification, 2) create barriers to entry, 3) be exclusive to one type of business/media/medium.

More events. Be open to all artforms. Affordable open studios.

I echo my support for other comments to do more events like pop-ups, showcases and collaborations with schools, but i would also like to see more community-focused events that incorporate local artists. For example, having an art studio bring supplies for an ornament-making station at the Wall Street Xmas event.

Keep doing events, get involved in Manresa Lab Corp, offer pop-up workshops at local events and schools.

It should not drive out lower income citizens.

Improve facilities.

Operational and marketing support for arts orgs.

Provide grants.

Focus on spaces to create and connect rather than galleries which can feel inaccessible.

Showcase local creatives, host an event or events where creatives can submit event ideas or create a platform where ideas can be submitted. Possibly a forum where other creatives can see and reach out.

Create a forum where ideas can be seen by investors or people who want to sponsor ideas.

Offer grant programs and partner with local creatives who are willing to take out permits for events in public places and spaces but can't cover funds for insurance policies.

Hosting community and creative events where artists, musicians, and all others can share their gifts and talents. Awareness creates opportunities.

What would a successful arts district (Wall Street and SoNo) look like 5-10 years from now?

A successful and revitalized Palace Theater.

Affordable artist live/work areas/opportunities.

Cohesive hub for art and artists to thrive and bloom.

The arts are essential for the town, the community and the world; especially these days.

Artist resource spaces, collaboration, educational information, grants, funding opportunities, open calls, renting space.

Look at communities that have this already. Ridgefield CT, Palo Alto CA, S. Bend, Miami. What do they have?

Create a great community environment that promotes people who share ideas and explore different opportunities.

Occupied spaces that are currently empty. Collaborative spaces that partner to share with the community.

Regular events where artists can perform and ? Do pop-ups!

Featured artist pop-ups! Healthy kick-starts for up and coming artists.

Physical space to convene, collaborate, and showcase.

How can the arts district (Wall street and SoNo) benefit Norwalk's creative sector? Your organization/business or creative practice?

Create opportunities for grant programs to support business and artists and events.

Help local creatives with similar events connecting different creatives.

Help creatives connect through events, social media.

Among the obvious, it could allow for collaborations among artists, businesses, schools, and city officials.

Second this! Make connections between working artists and businesses in need of art.

Demand generation.

Have multiple interviews on local channels and highlight Wall Street artists to show what we can do!

Develop a platform in which creatives can share ideas on collaborations, make connections, and have more events like these. :)

Providing financial opportunities for creatives and entrepreneurs to stay funded is always appreciated

Continue to host events like today. Spread the word of this event as much as possible. Offer suggestion boxes for ideas/events and sponsor one or more.

How can the arts district (Wall Street and SoNo) benefit the community?

Gives the community an accepting space to explore their interests and childlike side.

Cohesive marketing and identity with a focus on arts and cultural assets and businesses.

Be fearless when sharing art with the people.

Lots more marketing! Many freelance marketers in the area that could help with that :)

Not only multicultural but multigenerations. Bring populations together.

It would be beneficial for the community in many ways. Positively effecting our youths and OG artists. Creating mentorships and connections.

Art benefits the community because art heals. Art has been proven to boost economies.

More independent cinema.

Diverse events downtown can bring our very diverse city together.

What are the strengths of the arts district (Wall Street and SooNo)? What makes it special and what should we be building on?

Diversity of cultures and diversity of arts assets.

FAM Art Studios lead by 5ivefingaz consists of a group of diverse artists. We host quarterly open studios and regular workshops. Wall Street.

Supporting local artists and all types of art. These events are great.

Open Mic Night @ EcoEvolution

Ask local businesses to host artists. Give them a place to show their art for a short time.

A strength of the Wall st. area in particular is that it already has some stablished corner stores in the community including Factory Underground and the District Music Hall.

Geographic location.

Norwalk Film Festival

Free music in Irving Freese Park!

I haven't heard much about the arts here and I've been here six years. More exposure!!

There's an abundance of local talent, skilled artists, and arbiters of taste. I don't want to be a hidden gem - artists and neighborhoods need money and exposure.

Great representation for visual arts - needs more space for local (original) music!

Celebrate immigration! N.I.C.E Festival.

Great music @ District Music Hall.

Business Mixer

Space67 Studio
7/31/25

Overview of the event: Approximately 35 stakeholders from the business and creative community attended an evening open house session that included food and drinks, networking/socializing, and comments relevant to the Norwalk Arts District Plan. Posterboards provided information and posed questions to attendees.

Do the observations and thoughts on identity, strengths and purpose of the District resonate with you?

Norwalk is an amazing place to live. It just is!

How can we celebrate our history? Who are our heroes?

Love the history and diversity of Norwalk.

It's too easy to be anonymous these days. Give folks every excuse to feel like Norwalk is home and they're proud of it!

How can the Arts District support and promote businesses in the District?

Educational nature walks & foraging to raise awareness and incorporate art into nature

Art walk or murals and pieces sponsored by local businesses. QR code and optional donation to the Norwalk Public Schools.

Help us develop the local audience.

Advocate for the removal of limited commercial kitchen licenses that are driving up the restaurant rents in South Norwalk.

Welcome more shops. Les restaurants and bars.

Figureout ways to subsidize rent for businesses that will draw street traffic.

Have Norwalk Chamber website be better organized to separate businesses by industries to make it easy to reach others in similar fields.

Highlighting businesses during community events to increase awareness for businesses.

Provide funding (low rent) to local shops.

Keep highlighting us and our events online and on local flyers, etc.

Small business saturday/sunday highlighting different one each week - a portion of profits to go to local community nonprofit or education education health access, etc.

We need a place to get a healthy lunch!

City-owned - not developer - housing for artists at affordable rents.

How can the Arts District benefit the community?

Generating a feeling of connection, belonging and pride to be in a great community

By differentiating Norwalk from other towns

Connect all of Norwalk (including East Norwalk)

Show what smart development looks like - arts, nature, responsible housing, culture - balanced

The Art District makes Norwalk a wonderful place to live, work, and visit! It helps install a sense of pride of place.

Recognize people in the community who have had a large impact.

Prevent soul-less development/architecture. We don't need more Waypointes.

Don't trash Norwalk institutions for short-sighted development gains

Develop a brand and identity and offer merch so folks can show their pride

Work with Space 67 and Factory Underground and other spaces to offer affordable/free spaces for clubs

Provide residents and guests with a safe space to share their creativity and promote collab oration

Tell the stories of the amazing people who live here

Support local gathering spaces

Promote clubs and groups people can join

Youth programs and education

Access to arts and education for low income families

Programming Ideas (a sticky dot exercise to indicate approval

All choices received at least 4 dots

Street performers and outdoor live arts (10 dots)
Gallery, studio and art walk events (9 dots)
Community-focused events (8 dots)
Major signature festivals (6 dots)
Pop-up and temporary art activations (5 dots
Family-friendly arts programming (5 dots)
Cultural-specific celebrations (5 dots)
Permanent and temporary public art (5 dots)
Historic events and heritage resources (4 dots)

Do the suggestions on programming resonate with you? Any thoughts or additions?

More music, opportunities for local music artists

Make it easier for people to find out about events

They are all wonderful ways to celebrate Norwalk

Historical reenactments

Would love to see all of these - be sure to distribute activities and involve existing organizations in these areas

More offerings for kids! Especially for little kids!

Roundtables for local business owners

Yes to all of this! Plus more ways for citizens to get involved and volunteer

Connect with people who aren't on social to promote these events

Free classes/workshops (art, featured speaker events) - working with local businesses to sponsor

Long table community dinners

More international touring groups

Find some Norwalk -centric way to install multiple outdoor art projects with a musical component, artist-painted ?, chimes, etc.

First Friday open house events

What activities, programs, events and projects would you like to see in the South Norwalk area?

We used to have a paint bar that was so cool. I miss that! I think it would be really cool to see again.

Bring back the Palace Theater!

One hour segments during the week and weekend for adults and kids to have some kind of activities, scavenger hunt, experience, pass the ball.

Group dance meeting for different ages in a community

Farmers market, art festival, halloween block party, more winter-based events

1st Nights in Norwalk with art vendors, food vendors, and live music

Sip and paint in the park for adults and teens

Something like the St. Kate Hotel in Milwaukee – art and lodging

More community-involving events

More closed street events with music and vendors

Thrown Stone CT Short Play Fest

What activities, programs, events and projects would you like to see in the Wall Street/West Avenue area?

Live theater please!!!

More outdoor theater!

Rec area: ping pong, space for people to learn to paint, draw, sewing, art space, small business pop-ups, laser tag, go karts, riding bicycles, group rides

Book club

Small businesses

Immersive museums

Full moon events

Block party event on Orchard

Skate nights

Film, theater

Working artists

More connections to nature - clean ups, tree plantings, invasive plant removal

Street Fair, Halloween parade, tree lighting, small concerts in the park

More social events where different professionals can connect

Art events or exhibits that tie in with wellness

Tree of Hope and Connection

Creative engagement alternative provided at the Business Mixer. Paper and art materials provide to create "leaves" to attach to a freestanding tree. Prompts: Write or draw one of the following, 1) a hope or wish you have for this community, 2) a word, symbol, or image that represents your culture, identity, or roots, 3) decorate your leaf with color, pattern, or texture."

4th of July / Halloween doggy parade

Art to benefit our schools

Attraction lights for event lighting / theme lights

Community communication

Expand library for more gallery / meeting space

Extend rail trail to Wilton

Free dance lessons

Get rid of interstate lights on Wall Street

Historical art

Historical stuff

Incorporating proceeds to benefit our schools

Jazz club

Lunch service for visiting boaters, better access to SoNo restaurants

Mardi Gras parade with help from troop 429 & jazz musicians

More buildings converted to dorms

More free gatherings

More guest ships at marinas along harbor

More kids' activities

More public art

Norwalk conservatory to expand to have bachelor's & masters degree in visual arts

Play game nights festivals

Support for women artists

VR Experiences / art scene

Wish: a place to try something new

Wish: everyone in Norwalk feels like they belong

Wish: to see Norwalk thrive

Wish: want Norwalk to be recognized for all of the talent and deep-rooted community history it has

GLOSSARY

Arts District – A well-recognized, labeled area of a city in which a high concentration of cultural facilities and programs serve as the main anchor of attraction, helping to strengthen local economies, create an enhanced sense of place, and deepen local cultural capacity.

BID (Business Improvement District) – A defined area within a municipality where local businesses and property owners agree to pay an additional assessment or fee to fund improvements and services that benefit the district. These services typically include enhanced cleaning, security, marketing, beautification, events, and infrastructure improvements that go beyond what the local government provides. BIDs are managed by a nonprofit organization or public-private partnership and are designed to revitalize commercial areas, attract customers, and increase property values.

Busking – Street performance by musicians, artists, or other entertainers in public spaces, often in designated areas with established guidelines for permits, hours, and amplification.

Creative Placemaking – A process where partners from public, private, nonprofit, and community sectors strategically shape the physical and social character of a neighborhood, town, city, or region around arts and cultural activities to animate public spaces, rejuvenate structures, improve business viability and public safety, and bring diverse people together.

Cultural District – See Arts District.

Enterprise Zone – A designated geographic area that offers economic incentives and tax benefits to encourage business development and investment.

First Friday/Art Walk – A recurring monthly event (typically held on the first Friday of each month) where galleries, studios, and cultural venues open their doors for extended evening hours, often featuring new exhibitions, performances, and special programming.

Opportunity Zone – A federally designated area offering tax incentives to encourage long-term investments in low-income communities.

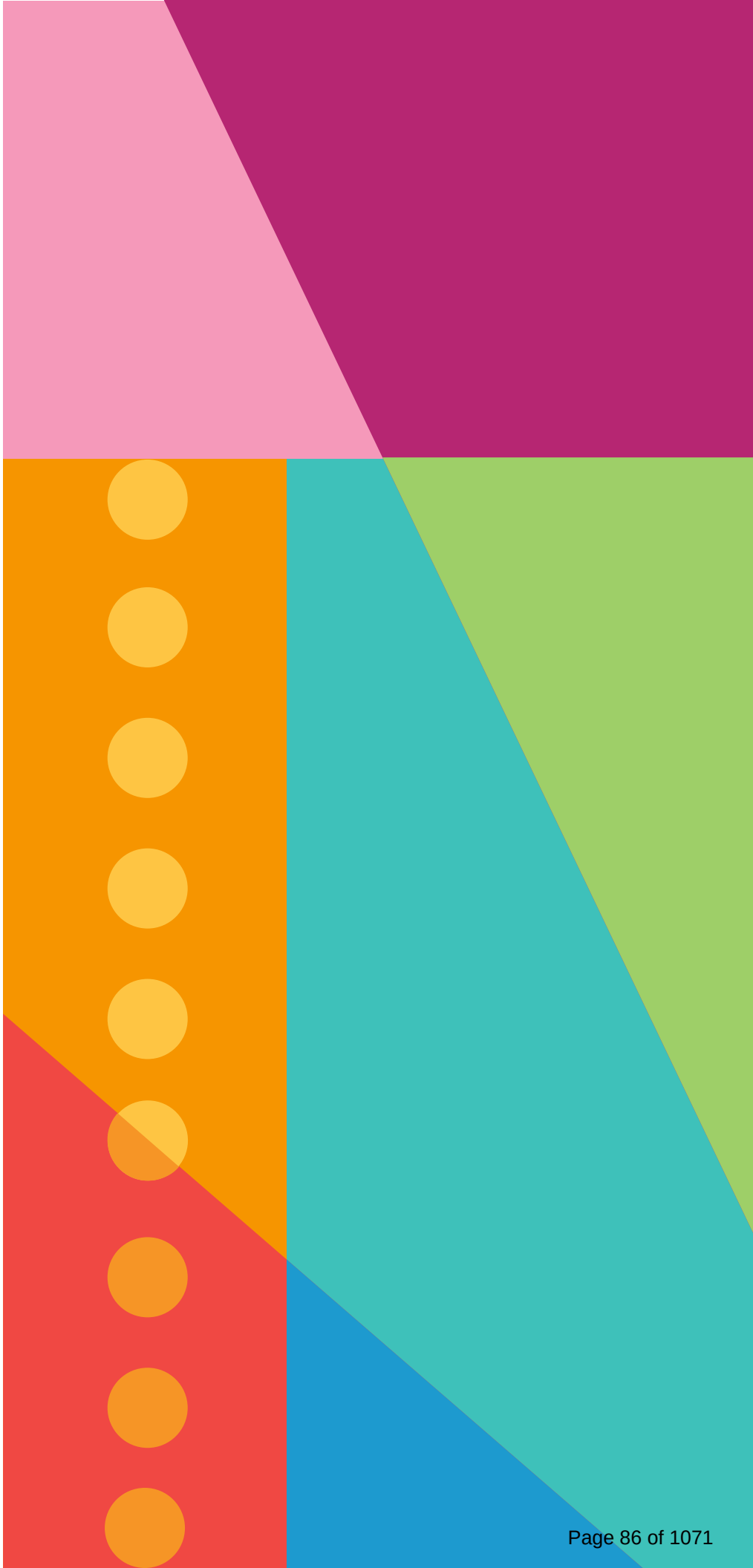
Public Art – Artwork created for and displayed in public spaces, including sculptures, murals, installations, and interactive pieces accessible to the community.

SSD (Special Services District) – See Business Improvement District (BID). In Connecticut, this term is often used interchangeably with BID.

Sub-district – A smaller, walkable area within the larger Arts District that has its own distinct character and identity. In Norwalk, the three primary sub-districts are Wall Street, Waypointe, and Washington Street/SoNo.

TOD (Transit-Oriented Development) District – A designated area focused on mixed-use residential and commercial development within walking distance of public transportation, designed to increase ridership and reduce car dependency.

Wayfinding – A comprehensive system of signage, maps, digital tools, and design elements that help people navigate and discover assets within a district, including venues, public art, historic sites, and businesses.



Memorandum

March 4th, 2026

To: Planning & Zoning Commission – Chapin Bryce, Chair

From: Michelle Andrzejewski, Senior Planner

Re: #2025-91 POCD – Planning & Zoning Commission – Amendment to the 2019-2029 Plan of Conservation and Development (POCD) to adopt the Art and Culture District Plan., dated 2025, as addendum to the POCD.

Dear Commissioners,

The City has completed an Arts and Culture Plan and would like to include the plan within the Citywide Plan (POCD). Since this Plan has recommendations and direct impacts to city planning, it is good practice to amend the Citywide Plan to "adopt" the Plan as part of the Citywide Plan. An amendment to the Citywide Plan requires numerous referrals such as Common Council, WestCOG and Harbor Management Commission. The proposed amendment was posted for viewing on January 6th, 2025 at the City's Town Clerks office per state statute requirement. Legal notices posted twice in the Norwalk Hour within required time frame of public hearing.

Proposed Amendment:
Page 112, Chapter 6, Preserving & Promoting Our Historic Heritage, Arts & Culture.
iv. Implement the recommendations of the Arts and Cultural Plan (2025, as amended). The City will further evaluate, modify as necessary and implement recommendations within the plan. ~~Develop a strategic plan for arts and culture that is focused on enhancing Norwalk's identity as destination for arts and culture. This plan should include an analysis of the current and potential economic contribution of arts and culture to Norwalk.~~

When: 2025-2029
Who: Economic and Community Development Department; Arts Commission
Resources: Staff Time; consultant

The draft Plan can be view at: https://www.norwalkct.gov/DocumentCenter/View/37942/City-of-Norwalk-Arts--Cultural-District-Plan-1

For your convenience, I have attached the full page 250 of the Citywide Plan. The Citywide Plan can be viewed at: https://www.norwalkct.gov/DocumentCenter/View/36676/Norwalk-Citywide-Plan-2025-amend-signed

Draft Resolution to APPROVE

WHEREAS, a committee to oversee the Plan was comprised of members of the Planning and Zoning Department, Common Council members, Norwalk Redevelopment Agency, industry experts and City Staff;

WHEREAS, the Plan provided recommendations on five core themes; programing & activation, artist support, marketing & branding, economic development, and connectivity & unification;

WHEREAS, the proposed amendments to the Citywide Plan were also formally referred to WestCOG on December 16th, 2025 and the Harbor Management Commission on January 29th, 2026;

WHEREAS, the proposed amendments to the Citywide Plan were formally referred to Common Council on January 21st, 2026;

WHEREAS, the Economic and Community Development Committee of Common Council approved the Plan to be amended to the Citywide Plan, on February 5th, 2026;

WHEREAS, the Common Council approved the amendment to the Citywide Plan, on February 10th, 2026;

WHEREAS, the Commission conducted a public hearing on the proposed amendment on March 4th, 2026 and considered all testimony presented;

BE IT RESOLVED by the Norwalk Planning and Zoning Commission, that the amendment to page 112 of the Citywide Plan be **APPROVED**; and

BE IT RESOLVED that the reasons for these actions are to implement the Citywide Plan:

1. Chapter 6, Goal A. iv. *Develop a strategic plan for arts and culture that is focused on enhancing Norwalk's identity as destination for arts and culture.*
2. Chapter 6 Goal B. i. W*ork with stakeholders, including property owners, to identify and zone an appropriate area in Norwalk Center to provide incentives for artists' studios, livework options, gallery spaces, performance spaces, and so on.*
3. Chapter 6, Goal B. v. *Promote arts, entertainment and cultural activities and venues to cities and towns outside of Norwalk.*

BE IT FURTHER RESOLVED that the effective date of this action shall be March 14th, 2026.

108 WATER STREET - NARRATIVE DESCRIPTION OF SPECIAL PERMIT REVIEW & COASTAL AREA MANAGEMENT (CAM) APPLICATIONS

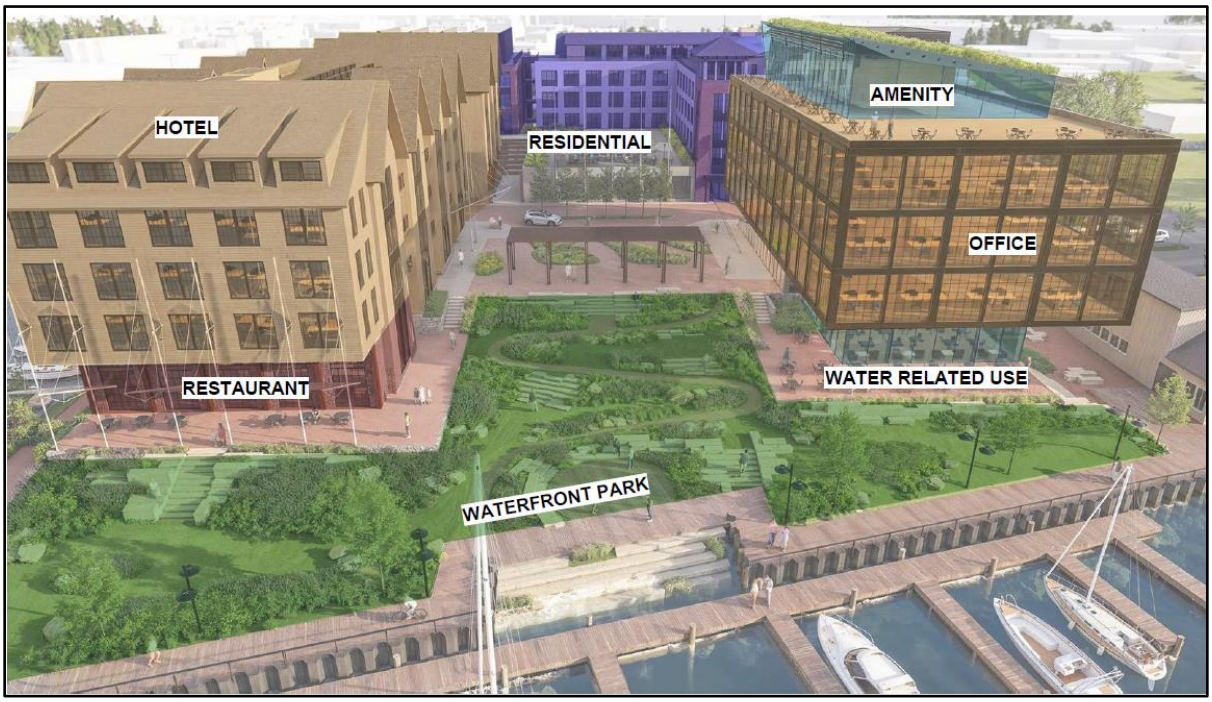
Spinnaker Acquisitions LLC (the "Applicant") is the contract purchaser of 108 Water Street, MBLU: 2/84/18/0 (the "Property"). The property is approximately 2.72 acres (118,483.2 square feet). As this Commission is aware, the Applicant previously obtained approval to construct a mixed-use development at the Property consisting of boat slips, a boardwalk, office space, personal service establishments at street level, apartments, a restaurant, and a water dependent use (in addition to the boat slips) at the waterfront (the "Existing Zoning Approval"). Without abandoning or otherwise changing the status of the Existing Zoning Approval, the Applicant now seeks this new approval to give it the flexibility to utilize a portion of the approved office space as a hotel. No meaningful substantive changes are proposed to the exterior of any of the approved structures, all that is proposed is to allow the southern office building on the site's use to be approved as a hotel use.

Since it obtained the Existing Zoning Approval the Applicant has engaged with brokers, prospective office tenants as well as potential lenders who would provide financing

to construct the development. The general feedback is highly favorable and has reinforced the Applicant's thesis regarding demand for well located, highly designed and abundantly "amenitized" new commercial office space despite the overall malaise in the local commercial office market., That said, as a result of those conversations the Applicant believes that it is unlikely to lease up the entire 83,000 sq. ft. of approved office building in a commercially reasonable period. Additionally, due to the vacancy risks associated with such a massive amount of office space, lenders are hesitant to provide the financing necessary to move forward with construction. At the same time, we believe demand exists for additional hotel space in the area and since receiving the Existing Zoning Approval we have been made aware that a proposed hotel nearby that was slated to satisfy that demand may no longer be viable. Obtaining approval for hotel use for a portion of the approved office space will not only give the Applicant flexibility moving forward, it will allow it to more easily obtain financing and begin construction.

While the existing site provides no public access to the waterfront, the redevelopment proposes a publicly accessible and inviting landscaped park and boardwalk along the Norwalk Harbor. The applicant hopes this public access will serve as a catalyst for a continued public walkway along the harbor for connectivity and greater access to the waterfront for Norwalk's residents. The public access and walkway will be further activated by the hotel users. This application proposes the conversion of a private, exclusive, primarily non-water dependent use site to a tremendous asset available for all of Norwalk to enjoy, at no cost to the City.

The Property is zoned SD-MC, and the uses identified above are all permissible uses in a mixed-use building by Site Plan Review under Norwalk Zoning Regulations (the "Zoning Regulations") except for the newly proposed hotel use which is a Special Permit use.



For purposes of the Zoning Regulations, since the structures are all connected, they are considered a single building; however, in this narrative they are described as if they are separate buildings which is how they will present to the public. The upper levels of the building fronting Water St. will be used for apartments, including an amenity space and a pool. At street level in that building, various personal service establishments will line the street. As stated in the Norwalk Plan of Conservation Development, there is a need for housing in Norwalk, including affordable housing. This project will help make modest gains in that regard.

On the north-side of the property, a 4.5 story, 28,800 sq. ft. office building is proposed. At its ground level, at the waterfront, the use will shift to a large space dedicated to a water-dependent use.[1] The project will also offer a 4.5 story tall, 130 key/room hotel on the south-side of the Property connected to a restaurant of just under 4,000 sq. ft. at the ground level fronting the waterfront with ample room for outdoor dining. The exterior of the hotel

[1] The Applicant is currently exploring several potential water dependent uses to occupy this space.

structure is virtually identical to the previously approved office space. The project includes a total of 242 parking spaces, nearly all of which will be garaged, which satisfies the requirements under the Zoning Regulations. In addition to complying with Norwalk's parking regulations, we have also provided an ITE Shared Parking analysis which includes a breakdown on the maximum daily parking demand for the various uses, and shows the times of day that the greatest amount of parking is needed. The ITE Shared Parking analysis demonstrates that, as a practical matter, the parking provided is more than will be required by the mix of proposed uses. In fact, the shared parking analysis for the Existing Zoning Approval demonstrated, at the peak parking demand hour, a parking demand of 227 spaces. This application, with a hotel replacing a portion of the office space decreases the parking demand during the peak hour from 227 spaces all the way down to 178 spaces. Similarly, the updated traffic report demonstrates that the hotel use will generate less traffic than the approved office use.

The traffic report submitted demonstrates that the project will not have an adverse impact upon the adjacent roadway network. Some intersections/movements will continue to experience minor delays during the peak hour without or with the Project, which is typical for this type of area and the traffic engineer makes a few signal timing recommendations to improve delays.

There will be a total of 59 units of housing, consisting of 25 1BR, 17 2BR, 13 3BR, and 4 4BR units. A workforce housing plan is submitted with this application describing the allocation of the affordable units. As set forth in the POCD, Norwalk has a growing number children and most new developments fail to provide market or affordable units for families. There is an urgent need for developments that offer 2BR and 3BR units, and there should be attention to "family-sized housing units for lower income households." Norwalk's Affordable Housing Action Plan also recognizes the undersupply of 2BR apartments, which can serve both as a housing option for seniors whom seek to reduce overhead expense and live with other family members and caretakers, or "young couples and starter families without the means to purchase a home." One of the key findings based on the Housing

Needs Assessment, as reflected in Norwalk's Affordable Housing Action Plan: "All kinds of rental housing are needed but there is an especially acute need for affordable 2BR rental apartments and family sized units." As part of this project one 1BR unit and two 3BR units will be deed restricted affordable helping to fill the need for larger affordable units. Further, both the Affordability Plan and the POCD emphasize the importance of re-working existing paved areas and underutilized lots, such as parking lots that are no longer necessary pursuant to the recent Zoning changes or vacant building space, before developing open green space. This application is in line with these considerations, as the current gravel lot consists primarily of unused space. It is more environmentally friendly to re-use this underutilized existing space, and is also in line with Norwalk's commitment to "expand affordable housing opportunities." Further, due to the mixed-use nature of the development, it is the applicant's hope that many of the office and other employees working within the new development will also reside at the property, which also has the benefit of reduced traffic congestion.

The intent of the project is to create a community of complimentary uses in a park-like setting where residents can live, eat, work, play and stay connected to the harbor, and play, right in the heart of downtown South Norwalk. To create the park-like feel the property will contain various open-air walkways, patios and inviting green spaces.

Creating substantial public access in a park-like setting is an overarching goal of the project. Integrated into the site is a is a landscaped walkway serving as public realm space and allowing direct water front access for the South Norwalk community including an expansive boardwalk. At the waterfront a restored bulkhead is proposed that includes a grand staircase down to the water so the public literally has access to the water. The space will be a hub of activity for the residential tenants, office users, restaurant patrons, those docking their boats, as well as members of the public.

In the SD-MC Zone no public realm space is required nor has any historically been provided at the Property. However, the Applicant proposes to **include a whopping 37% of the entire site as public realm (that translates to over one acre of public realm space).**

The Property is in the Coastal Area Management (CAM) Zone, and the property lies partially within both the AE (AE-12) and VE (VE-14) regulatory flood zones. Although the Property sits on the Norwalk Harbor, all living areas are above the 12.0 Base Flood Elevation, making the living areas unlikely to flood, even in the event of a 100-year storm. A Flood Preparedness Plan has been submitted which sets forth a set of procedures to be followed to ensure people can safely relocate their vehicles before a severe flood, and includes notifying residents of spaces that will potentially be affected by flooding, permanent signage noting flood risk, and monitoring weather conditions by management so notifications can be sent via email, text, or posted.

The property will feature various sustainability improvements including a solar panel array and green roof. The development will be certifiable at LEED Silver or higher. Currently the site has no green area and there are no formal drainage systems in place with runoff discharging either directly into the Norwalk Harbor or into the city storm drain and then to Norwalk Harbor at 130 Water Street. Impervious coverage is proposed to decrease by over 12,000 sq. ft. Water quality will be improved from existing conditions by placing most of the parking in a covered garage, by installing infiltration systems to collect about 70% of the disturbed impervious coverage, through installation of green roof trays, and through permeable walkways with crushed stone reservoirs below. In total, approximately 79% of the

site area runoff will be treated (which more than complies with your regulations). The project is consistent with the Coastal Area Management Act as detailed in our application materials.

Historically, the Property operated as a material storage distribution yard. More recently, however, the Property has been used for two purposes. Predominantly, it has been used for winter boat storage. That use accounts for about 88% of the site. The small remainder of the site has been used by a dock building business. While the site has predominately been used for boat storage, that use is notable not truly a water dependent site. The current site has no boat slips for public use and the boats that are stored at the site are trailered to the Property from off-site locations outside of South Norwalk. Those boats could be trailered to any site on the water, near the water, or anywhere inland. It is common for boats in Connecticut to routinely be trailered to inland locations for storage.

Although boat storage is no longer contemplated for the Property, the development plans include substantial space for a water dependent use and the Applicant is seeking the

maximum number of boat slips that the Department of Environment Protection (DEEP) will permit given the water frontage and width of the harbor at the frontage (we are currently anticipating approval allowing for 14 slips).

Further, the POCD recognizes that Norwalk's "coastal location and miles of water front land" provides opportunities for "recreation, boarding and waterfront restaurants." This application is in line with the POCD in this regard, and helps to develop Norwalk's waterfront space to best serve the Norwalk community, while still incorporating water-dependent uses.

The Application complies with Norwalk's Special Permit Criteria.

(a) ***Density of use and bulk of buildings.***

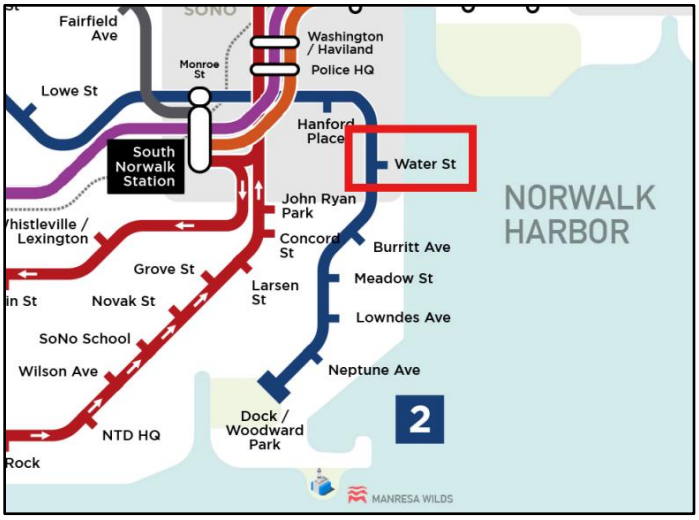
The density of use of the proposed buildings, as well as the bulk of buildings, comply with Norwalk's Zoning Regulations and the density and bulk mirrors the Existing Zoning Approval.

(b) & (c) ***Safe ingress/egress that does not adversely impact normal traffic flow***

This proposal will not have a substantial effect on traffic. It will have less of an impact than the Existing Zoning Approval. This helps to create a more stable flow of traffic, since the hotel patrons have different trip times compared to the office patrons.

(d) ***Availability of mass transit facilities***.

The Property is ½ mile from the south Norwalk railroad station garage, and is surrounded by several bus stops, including a Norwalk transit stop directly across the street at 121 Water Street & Hanford, and several stops within walking distance as shown below on the Norwalk Transit Map.



(e) ***Availability and compatibility of utilities.***

The Property served by the public city water system, and public sewer system.

(f) ***Adverse impact from noise, odor, fumes, dust and artificial lighting***.

The proposed use will generate minimal fumes, odor, and dust.

(g) ***Signs of size and design that are in harmony with the neighborhood***.

No signage is proposed currently.

(h) ***Adequacy of yards, open space, screening, and buffering.***

The proposed plan is consistent with all setbacks, and provides ample open green space, with 37% of the Property proposed a public realm.

(i) ***Impact on neighborhood properties, as compared to uses and structures permitted as a matter of right.***

This use is like those uses that are permitted as of right, and comparable to the impact on neighboring properties that the Existing Zoning Approval would have, as the only use change is the substitution of the hotel use for a portion of the office space. Compared to office, the hotel will have less impact on neighboring properties

due to the overall reduction in traffic flow during weekday hours.

(j) ***Existing land use in the area***.

Both the Affordability Plan and the POCD emphasize the importance of re-working existing paved areas and underutilized lots, such as parking lots that are no longer necessary pursuant to the recent Zoning changes or vacant building space, before developing open green space. This application is in line with these considerations, as the current gravel lot consists primarily of unused space. It is more environmentally friendly to re-use this underutilized existing space, and is also in line with Norwalk's commitment to "expand affordable housing opportunities." Further, the existing use provides no public water access. Finally, the existing land use of the site is approved with essentially the same structures as proposed by this application.

(k) ***Proximity of community facilities*.**

This property lies across the river from two community facilities as identified on Norwalk's Parks & Recreation site: Veterans Memorial Park & Marina and Norwalk's visitors docks. The transient slips proposed combined with the proposed restaurant and water-dependent facilities and the ample public realm (over 1/3 of the Property), inviting green space, boardwalk, water access and ample outdoor infrastructure proposed functions akin to a community facility in and of itself.

(l) Compliance with the Norwalk Zoning Regulations and Norwalk POCD.

The proposed use complies with the Norwalk Zoning Regulations and with the Norwalk POCD, as described above.

***(m) Utilization of green infrastructure and other sustainability measures*.**

The Property is in the Coastal Area Management (CAM) Zone, and the property lies partially within both the AE (AE-12) and VE (VE-14) regulatory flood zones. Although the Property

sits on the Norwalk Harbor, all living areas are above the 12.0 Base Flood Elevation, making the living areas unlikely to flood, even in the event of a 100-year storm. A Flood Preparedness Plan has been submitted which sets forth a set of procedures to be followed to ensure people can safely relocate their vehicles before a severe flood, and includes notifying residents of spaces that will potentially be affected by flooding, permanent signage noting flood risk, and monitoring weather conditions by management so notifications can be sent via email, text, or posted. See also ***(p)*** below.

(n) Conservation of wetlands, watercourses, and other ecologically-viable lands.
Creating substantial public access in a park-like setting is an overarching goal of the project, and the integrated landscaped walkway serving as public realm space that allows direct water front access for the South Norwalk community (including an expansive boardwalk) remains as part of this application. At the waterfront a restored bulkhead is proposed that includes a grand staircase down to the water so the public literally has access to the water. The space will be a hub of activity for the residential tenants, office users, tourists, restaurant patrons, those docking their boats, as well as members of the public. In the SD-MC Zone no public realm space is required nor has any historically been provided at the Property. Under the Existing Zoning Approval, a whopping 37% of the entire site as public realm (that translates to over one acre of public realm space), and the same amount of public realm space (43,710 sf) is proposed pursuant to this application.

(o) No zoning violation exists on the Property. N/A.

(p) LEED Certifiable & Sustainable Building Requirements
As detailed above, the property will feature various sustainability improvements including a solar panel array and green roof. The development will be certifiable at LEED Silver or higher. Currently the site has no green area and there are no formal drainage systems in place with runoff discharging either directly into the Norwalk Harbor or into the city storm drain

and then to Norwalk Harbor at 130 Water Street.

By incorporating various uses permitted in the SD-MC zone that are complimentary to one another, coupled with ample public realm space and contextual architecture that brings a maritime connection to the Property, the application includes all the features the City sought to encourage when it established this new Marine Commercial District compromised almost exclusively of similar properties along Water Street.

We believe this Application fully complies with your regulations and that the project represents a wonderful addition to Water Street. We hope this Commission will look favorably upon it.

Respectfully submitted,
Spinnaker Acquisitions LLC

By: Adam J. Blank

Adam J. Blank, Esq.
Wofsey, Rosen, Kweskin & Kuriansky, LLP
600 Summer Street—Seventh Floor
Stamford, CT 06901-1490
Tel: (203) 327-2300; Fax: (203) 967-9273

Special Permit Application

City of Norwalk Planning & Zoning Commission
Phone: 203-854-7780
www.norwalkct.gov

Date Received:

Per Section 8.4.8 of the Norwalk Zoning Regulations, Special Permits are for Uses, Buildings, or Structures that are considered to be generally appropriate in the applicable District, but because of their potential for impacts with Adjacent Uses, Buildings, or Structures, require individual review for specific locations.

1. **Address of Subject Property(s):**
   108 Water Street, Norwalk, CT
2. District: 2 Block: 84 Lot(s): 18
3. Zone: SD-MC, Overlay/Village District: _____
4. Historic Structure(s): ☑ No ☐ Yes
5. Flood Hazard Zone: ☐ No ☑ Yes, Flood Zone(s) AE & VE
6. Coastal Area Management Zone: ☐ No ☑ Yes If yes, include application for Coastal Site Plan Review or specify Section allowing exemption: _____
7. Existing Use of Property:
   Principal use is Boat Storage
8. Proposed Use of Property as Identified per **Table 4.3.9.A:** Building, Lot & Building Site Principal Uses:
   Office, Hotel, Personal Service Establishments, Multi-Family Dwelling Units, Restaurant, Marine Supply, Boat Slips

Applicant Information

Applicant Name: Spinnaker Acquisitions LLC (contract purchaser & applicant)
Billing Address: 1 North Water Street, Suite 100, Norwalk, CT 06854
Phone Number: 203-354-1550 Email: henry@spinrep.com
Signature: See attached authorization form

Property Owner Information and Authorization

Owner of Record: 108 Water Street South Norwalk, LLC
Billing Address: PROSPECT ENTERPRISES LLC, 231 Farmington Avenue, Farmington, CT 06032
Phone Number: 860-424-4365 Email: billings@theprospectco.com; egersten@pullcom.com
Signature: See attached Owner authorization form

**By signing, the property owner confirms that the Applicant has been authorized to apply for Planning & Zoning approval, and attests that all information provided is true and accurate.*

Application Information and Requirements

Sections 8.4.5 and 8.4.8 of the Norwalk Zoning Regulations detail items that are required for a Special Permit Application to be considered complete. All application requirements listed in Section 8.4.5.I. of the Norwalk Zoning Regulations may be required and are the responsibility of the Applicant to provide to the satisfaction of the Planning & Zoning Commission, for a decision to be made. The following items listed are considered minimum requirements for a Special Permit Application submission:

1. Three (3) copies of all applicable application materials shall be submitted at the time of application. One copy shall be the original, which shall include scalable plans and drawings as required within the Regulations. 11"x17" drawings and plans shall be included within the two remaining application sets. Hard copies of any additional or revised documents, plans or drawings shall be delivered to the Planning and Zoning Department. Any revised plans or drawings shall be scalable as required within the Regulations.
2. All application materials must also be submitted electronically in PDF format by the applicant. All information shall be sent in a singular package. Any additional or revised documents, plans or drawings shall also be sent electronically in PDF format.
3. Site Plan, prepared, signed, and sealed by an architect, landscape architect, engineer, or land surveyor licensed to practice by the State of Connecticut, per Section 8.4.5.I of the Norwalk Zoning Regulations:
    a) Each Site Plan shall be, include, show, or demonstrate, as applicable, the following:
        i. Detailed, fully dimensioned, and presented at a scale no smaller than 1" = 50' except as otherwise specifically provided for within the Zoning Regulations or except as otherwise approved in writing by the Planning and Zoning Director.
        ii. The actual shape, location and dimensions of the overall project site and each Lot or Building Site.
        iii. The shape, location, and materials of all Buildings or other Structures to be Constructed, demolished, Altered, or moved, and of any Building or other Structure already on the project site and each Lot or Building Site.
        iv. The existing and intended Use of each Lot, Building Site, Development Parcel, and other project land, and of all Buildings or other Structures upon it, including, for Residential Uses, the number of Dwelling Units each Building is intended to accommodate and the number of bedrooms and for all Non-Residential Uses, the number of square feet of each such Use.
        v. Include if regulated in the applicable District, the Density of each Community District within the Site Plan area and the Density of each Building and Lot or Building Site.
        vi. Show and include the following:
            a. Lot or Building Site Width and Lot or Building Site Yards.
            b. Percentage of Building and Wall at Frontage Line-to-Lot or Building Site Width (Frontage Buildout).
            c. Principal Building(s), Accessory Building(s) and other Accessory Structure(s).
            d. Setbacks or Setback Areas.
            e. Encroachments.
            f. Impervious Surface Coverage of each Lot or Building Site and the overall Development Parcel.

g. Building and Lot Principal Uses, Accessory Uses, and Temporary Uses.
h. Vehicular Parking Lots, Parking Areas and Parking Structures including Parking Spaces and their dimensions within the Lot or Building Site, layout design and if applicable, landscaping of Parking Lots, Parking Areas, and Parking Structures, and if applicable, Loading Area Locations, Location(s) of Garage(s), Driveways to Parking, Passenger Drop-off Locations, Driveway/Vehicular Entrance Widths, any Parking Screens, and points of vehicular ingress and egress to and from each Lot, Building Site, and overall project site, including cross-access Easements.
i. Driveway(s) and widths.
j. Exterior public and private lighting plan including photometric plan, location, pole height, luminance/head type, pole/standard type, shielding, manufacturer's specifications and hours of operation for all exterior light fixtures.
k. Refuse Receptacles, Utility Boxes and service meter accommodations and locations.
l. All Screens & Streetscreens, including vegetative, Fence, and Wall Screens & Streetscreens and their dimensions.
m. Ground Floor Elevation above grade for each Building.
n. Existing Tree and Vegetation Plan and Survey:
    i. Showing all groupings of trees and how they will be incorporated into the proposed project.
    ii. Showing the locations, numbers, species, and diameters (dbh) of all existing trees to be removed and to remain.
    iii. Identifying tree preservation and protection measures, specifically identifying all Specimen Trees and other significant trees with a dbh of 8" or more.
    iv. Otherwise evidencing compliance with all applicable tree requirements of these Regulations.
o. Erosion and Sedimentation Control measures for the Development.
p. Topographic excavation and grading plans.
q. Stormwater Pollution Prevention Plan and Stormwater drainage plan.
r. Detailed Utilities plan, showing the locations, design, and specifications of all proposed sanitary sewage and water supply systems, electric, telecommunications, cable television, gas, and other utility facilities, together with "Capacity and Will Serve" letters from each applicable utility provider.
s. Detailed Parking plan.

vii. Such other information concerning the Lot, Building Site, or other project land all Adjacent Lots, Building Sites, or other land as may be deemed necessary by the Planning and Zoning Director, Director of Public Works, or City Engineer for determining whether the provisions of the Zoning Regulations and other applicable provisions of the City Codes are being met.

4. Certified Class A-2 survey of existing conditions of the applicable property, prepared and sealed by a licensed Connecticut surveyor within 6 (six) months of the Plan submission, as detailed in Section 8.4.5.I.7.g.
5. Architectural Plans/Drawings:
    a) Full color architectural renderings and preliminary architectural plans, showing all Facades and Elevations of each exterior Wall and all exterior materials to be used, keyed to the project description and project illustrative plan.
    b) Building Type(s).

   c) Floor Area, Dimensions, Floor Elevations, Floor-to-Floor Ceiling Heights, and Height of each Building.
   d) Private Frontage(s) and Façade Elements.
   e) Building Roof Type(s) & Pitch.
6. Project Description and illustrative plan showing each Development and Building element regulated by the Zoning Regulations (i.e. Use, Building Type, Private Frontage Type, etc.):
   a) Including the demonstration to the satisfaction of the Planning & Zoning Commission that the Site Plan complies with all applicable sections of the Norwalk Zoning Regulations.
7. If required by the Planning & Zoning Commission, a Traffic Impact Analysis:
   a) Including a Site Access and Circulation Plan, indicating access and circulation routes for all vehicular and pedestrian movement.
8. If required by the Planning & Zoning Commission, an Environmental Impact Assessment.
9. If required by the Planning & Zoning Commission, any other information necessary to the satisfaction of the Commission for a decision to be determined.

Fees

The Applicant shall pay to the City the fees established in the Fee Schedule Document available from the Planning & Zoning Department in order to cover a portion of the costs associated with the administration of the Norwalk Zoning Regulations. Failure to the pay the application fee at the time of submission of the Special Permit Application shall render the application incomplete and delay the scheduling of the application to be heard by the Planning & Zoning Commission. Please find the Fee Schedule Document on the City of Norwalk's website, www.norwalkct.gov.

In addition to the administrative application fee, it is the responsibility of the Applicant to pay for all required legal notice fees, who will be billed for such fees directly by the publisher of such notice(s).

Public Notification

Per the Connecticut General Statutes, a public hearing is mandatory for all Special Permit Applications. Notice shall be provided per Section 8.4.4.D of the Norwalk Zoning Regulations.

1. The Applicant shall notify all property owners that are within one hundred (100) feet of the subject property(s) (including owners of individual condominium units), as indicated on the Assessor's records, that a Special Permit Application has been submitted to the Planning & Zoning Department within ten (10) business days from the date of submission by mailed notice.
   a. The letter shall be sent by the Applicant using certified U.S. Mail, with certificate of mailing.
   b. The letter shall specify the street address, phone number, and website address for the Planning & Zoning Department.
   c. The letter shall contain the proposed action and street address for the property in question, including:
      i. The current zoning of the subject property.
      ii. A summary indicating the nature of the application.

iii. Notification that once a public hearing date has been established, another letter will be sent via certified U.S. Mail, with certificate of mailing, to the property owner alerting them of when and where the public hearing will be held.
iv. Notification that once a public hearing date has been established, that a physical sign will be posted on the subject property(s) detailing when and where the public hearing will be held.

2. After a public hearing date has been established, the Applicant shall post a physical sign on the subject property(s) which:
   a. Shall be constructed of a rigid waterproof material, such as plastic board or metal.
   b. Shall have a minimum dimension of thirty-six inches (36") tall by forty-eight inches (48") wide and legs of sufficient length to raise the top of the sign thirty-six inches (36") above the Adjacent grade.
   c. Shall be set back no more than ten feet (10') from the Front Lot Line or on the front face of any building or structure that is closer to the Front Lot Line.
   d. Shall be placed at the mid-point of along the Frontage Line from which the site is addressed. If signs are not clearly visible at such mid-points, then they shall be placed at the clearest point of visibility as determined by the Planning & Zoning Director.
   e. Shall be visible to the public and composed of letters with a minimum height of four inches (4").
   f. Shall be supplied, installed, and maintained by the Applicant, securely fastened or staked.
   g. Shall be posted at least fifteen (15) days prior to the hearing and may be removed the following day after the close and decision on the public hearing.
   h. Shall state the following:

> NOTICE OF PUBLIC HEARING
>
> A Public Hearing for a Special Permit Application for this Site is pending before the City of Norwalk's Planning & Zoning Commission on:
>
> [INSERT MEETING DATE AND MEETING TIME]
>
> Hearing information can be found at:
>
> https://apps.norwalkct.org/meetingboard/meetinglist
>
> For further information contact the Norwalk Planning & Zoning Office: (203) 854-7780

   i. The Applicant shall notify and submit a photograph to the Planning & Zoning Department when the sign has been installed.
   j. Failure of an Applicant to comply with this requirement may be grounds for denial of the Special Permit Application.
   k. Properties fronting on more than one (1) Street must have one (1) single-faced sign placed parallel to the property line fronting on each Street.

3. After a public hearing date has been established, the Applicant shall notify all property owners that are within one hundred (100) feet of the subject property(s) (including owners of individual condominium units), as indicated on the Assessor's records, by mailed notice, subject to the following requirements:
    a. The letter shall be sent by the Applicant using certified U.S. Mail, with certificate of mailing.
    b. The letter shall specify the street address, phone number, and website address for the Planning & Zoning Department.
    c. The letter shall contain the proposed action and street address for the property in question, including:
        i. The current zoning of the subject property.
        ii. A summary indicating the nature of the application.
    d. The letter shall include the date, time, and location of the meeting and the body before which the hearing shall take place.
    e. The letter shall be mailed at least ten (10) days prior to the scheduled meeting, hearing, or other action.

Minor defects in notice shall not impair the notice or invalidate proceedings pursuant to the notice if a bona fide attempt has been made to comply with applicable notice requirements.

In addition to the requirements listed above, it is the responsibility of the Applicant to pay for any required Legal Notice fees.

end

Planning & Zoning Commission

APPLICATION FOR COASTAL SITE PLAN REVIEW

Application must be accompanied by two (2) printed and one (1) digital set of all documents, and appropriate filing fee. Filing Fee: $310.00 for single or two family use; $810.00 for all other uses.

Date Stamp

Application Completion Date: Official Receipt Date: Fee Paid:

1. Property Address: 108 Water Street **2.** D/B/L/U: 2/84/18/0

3. Proposed Work: Proposed Mixed-Use Development **4.** Zone: SD-MC

5. Applicant Identification:

Applicant Name: Spinnaker Acquisitions LLC

Address: 1 North Water Street, Suite 100, Norwalk, CT 06854

Phone Number: 203-354-1550 Email: henry@spinrep.com

Interest in Property: ☐ fee simple ☐ option ☐ lessee ☐ easement ☑ other (specify): contract purchaser

List primary contact for correspondence *if other than applicant* (Agent or Attorney):

Name: Adam Blank, Esq.

Address: 600 Summer St., Stamford, CT, 7th Floor

Business Phone: 203-318-6936 Email: ablank@wrkk.com

6. Property Owner, if different than applicant:

Owner Name: 108 Water Street South Norwalk, LLC

Address: PROSPECT ENTERPRISES LLC, 231 FARMINGTON AVENUE, FARMINGTON, CT, 06032

Phone Number: 860-424-4365 Email: billings@theprospectco.com; egersten@pullcom.com

7. Project Information:

Please check the appropriate box to identify the plan or application that has resulted in this Coastal Site Plan Review:

- ○ Coastal Site Plan for Zoning Compliance/Zoning Permit
- ○ Subdivision or Resubdivision Application
- ◉ Special Permit or Special Exception Application
- ○ Site Plan Review Application
- ○ Variance Application
- ○ Municipal Project (CGS Section 8-24)

6. Project Site Plans:

Please provide project site plans that clearly and accurately depict the following information, and check the appropriate boxes to indicate that the plans are included in this application:

- ☑ Project location
- ☑ Existing and proposed conditions, including buildings and topography
- ☐ **All** coastal resources on and contiguous to the site
- ☐ High tide line [as defined in CGS Section 22a-359(c)] and mean high water mark elevation contours (for parcels abutting coastal waters and/or tidal wetlands only)
- ☑ Soil erosion and sediment controls
- ☑ Storm water management & treatment practices
- ☑ Ownership and type of use on adjacent properties
- ☑ Reference datum (i.e., National Geodetic Vertical Datum, Mean Sea Level, etc.)
- ☑ Landscaping and planting plan (existing & proposed)
- ☑ Utility Plan (existing & proposed: water, drainage, sanitary sewers, electric & gas lines)
- ☑ Easements (utility, sight preservation, conservation, pedestrian)

7. Site Information:

a) Street Address or Geographical Description:
108 Water Street

b) Is project or activity proposed at a waterfront site (includes tidal wetlands frontage)? ◉ YES ○ NO

c) Name of on-site, adjacent, or downstream coastal, tidal, or navigable waters, if applicable:
Norwalk Harbor

d) Identify and describe the existing land use in and adjacent to the site. Include description of any existing structures and significant features on the project site:
Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

e) Indicate the area of the project site: 2.72 acres **or** _____ square feet

f) Check the appropriate box below to indicate total land area of disturbance of the project or activity (please also see Question #9 regarding proposed stormwater best management practices):

- ○ Project or activity will disturb five (5) or more total acres of land area on the site. *Registration for CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities required.*
- ◉ Project or activity will disturb land, but less than five (5) total acres of land area would be disturbed. *A soil erosion and sedimentation control plan must be submitted.*
- ○ Project or activity will not disturb any land area.

g) Does the project include a shoreline flood and erosion control structure as defined in CGS section 22a-109(d)? ◉ Yes ○ No

8. Description of Proposed Project or Activity:

Describe the proposed project or activity including its purpose and related activities such as site clearing, grading, demolition, and other site preparations; percentage of increase or decrease in impervious cover over existing conditions resulting from the project; phasing, timing and method of proposed construction; and new uses and changes from existing uses (*attach additional pages if necessary*):

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

9. Description of Proposed Stormwater Best Management Practices:

Describe the stormwater best management practices that will be utilized to ensure that the volume of runoff generated by the first inch of rainfall is retained on-site, especially if the site or stormwater discharge is adjacent to tidal wetlands. If runoff cannot be retained on-site, describe the site limitations that prevent such retention and identify how stormwater will be treated before it is discharged from the site. Also demonstrate that the loadings of total suspended solids from the site will be reduced by 80 percent on an average annual basis, and that post-development stormwater runoff rates and volumes will not exceed pre-development runoff rates and volumes (*attach additional pages if necessary*):

Refer to Coastal Area Management Assessment report and Site Engineering Report prepared by Redniss & Mead, Inc.

10. Identification of Applicable Coastal Resources and Coastal Resource Policies:

Identify the coastal resources and associated policies that apply to the project by placing a check mark in the appropriate box(es) in the following table.

Coastal Resources	On-site	Adjacent	Off-site but within the influence of project	Not Applicable
General Coastal Resources* - Definition: CGS Section 22a-93(7); Policy: CGS Section 22a-92(a)(2)	☑	☑	☐	☐
Beaches & Dunes - Definition: CGS Section 22a-93(7)(C); Policies: CGS Sections 22a-92-(b)(2)(C) and 22a-92(c)(1)(K)	☐	☐	☐	☑
Bluffs & Escarpments - Definition: CGS Section 22a-93(7)(A); Policy: CGS Section 22a-92(b)(2)(A)	☐	☐	☐	☑
Coastal Hazard Area - Definition: CGS Section 22a-93(7)(H); Policies: CGS Sections 22a-92(a)(2), 22a-92(a)(5), 22a-92(b)(2)(F), 22a-92(b)(2)(J), and 22a-92(c)(2)(B)	☑	☑	☐	☐
Coastal Waters, Estuarine Embayments, Nearshore Waters, Offshore Waters - Definition: CGS Sections 22a-93(5), 22a-93(7)(G), and 22a-93(7)(K), and 22a-93(7)(L) respectively; Policies: CGS Sections 22a-92(a)(2) and 22a-92(c)(2)(A)	☐	☑	☐	☐
Developed Shorefront - Definition: CGS Section 22a-93(7)(I); Policy: 22a-92(b)(2)(G)	☑	☑	☐	☐
Freshwater Wetlands and Watercourses - Definition: CGS Section 22a-93(7)(F); Policy: CGS Section 22a-92(a)(2)	☐	☐	☐	☑
Intertidal Flats - Definition: CGS Section 22a-93(7)(D); Policies: 22a-92(b)(2)(D) and 22a-92(c)(1)(K)	☐	☐	☐	☑
Islands - Definition: CGS Section 22a-93(7)(J); Policy: CGS Section 22a-92(b)(2)(H)	☐	☐	☐	☑
Rocky Shorefront - Definition: CGS Section 22a-93(7)(B); Policy: CGS Section 22a-92(b)(2)(B)	☐	☐	☐	☑
Shellfish Concentration Areas - Definition: CGS Section 22a-93(7)(N); Policy: CGS Section 22a-92(c)(1)(I)	☐	☐	☐	☑
Shorelands - Definition: CGS Section 22a-93(7)(M); Policy: CGS Section 22a-92(b)(2)(I)	☐	☐	☐	☑
Tidal Wetlands - Definition: CGS Section 22a-93(7)(E); Policies: CGS Sections 22a-92(a)(2), 22a-92(b)(2)(E), and 22a-92(c)(1)(B)	☐	☐	☐	☑

* General Coastal Resource policy is applicable to all proposed activities

11. Consistency with Applicable Coastal Resource Policies and Standards:

Describe the location and condition of the coastal resources identified in Question #10 and explain how the proposed project or activity is consistent with all of the applicable coastal resource policies and standards; also see adverse impacts assessment in Question #14 below (*attach additional pages if necessary*):

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

12. Identification of Applicable Coastal Use and Activity Policies and Standards:

Identify all coastal policies and standards in or referenced by CGS Section 22a-92 applicable to the proposed project or activity:

- [x] General Development* - CGS Sections 22a-92(a)(1), 22a-92(a)(2), and 22a-92(a)(9)
- [x] Water-Dependent Uses** - CGS Sections 22a-92(a)(3) and 22a-92(b)(1)(A); Definition CGS Section 22a-93(16)
- [ ] Ports and Harbors - CGS Section 22a-92(b)(1)(C)
- [x] Coastal Structures and Filling - CGS Section 22a-92(b)(1)(D)
- [x] Dredging and Navigation - CGS Sections 22a-92(c)(1)(C) and 22a-92(c)(1)(D)
- [x] Boating - CGS Section 22a-92(b)(1)(G)
- [ ] Fisheries - CGS Section 22a-92(c)(1)(I)
- [x] Coastal Recreation and Access - CGS Sections 22a-92(a)(6), 22a-92(C)(1)(j) and 22a-92(c)(1)(K)
- [ ] Sewer and Water Lines - CGS Section 22a-92(b)(1)(B)
- [ ] Fuel, Chemicals and Hazardous Materials - CGS Sections 22a-92(b)(1)(C), 22a-92(b)(1)(E) and 22a-92(c)(1)(A)
- [ ] Transportation - CGS Sections 22a-92(b)(1)(F), 22a-92(c)(1)(F), 22a-92(c)(1)(G), and 22a-92(c)(1)(H)
- [ ] Solid Waste - CGS Section 22a-92(a)(2)
- [ ] Dams, Dikes and Reservoirs - CGS Section 22a-92(a)(2)
- [ ] Cultural Resources - CGS Section 22a-92(b)(1)(J)
- [ ] Open Space and Agricultural Lands - CGS Section 22a-92(a)(2)

* General Development policies are applicable to all proposed activities

** Water-dependent Use policies are applicable to all activities proposed at waterfront sites, including those with tidal wetlands frontage.

13. Consistency With Applicable Coastal Use Policies and Standards:

Explain how the proposed activity or use is consistent with all of the applicable coastal use and activity policies and standards identified in Question #12. **For projects proposed at waterfront sites (including those with tidal wetlands frontage)**, particular emphasis should be placed on the evaluation of the project's consistency with the water-dependent use policies and standards contained in CGS Sections 22a-92(a)(3) and 22a-92(b)(1)(A) -- also see adverse impacts assessment in Question #15 below (attach additional pages if necessary):

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

14. Identification of Potential Adverse Impacts on Coastal Resources: (*Must be completed for ALL projects.*)
Identify the adverse impact categories below that apply to the proposed project or activity.

The **'applicable'** column **must** be checked if the proposed activity has the **potential** to generate any adverse impacts as defined in CGS Section 22a-93(15). If an adverse impact **may result** from the proposed project or activity, please use Question #16 to describe what project design features may be used to eliminate, minimize, or mitigate the potential for adverse impacts.

Potential Adverse Impacts on Coastal Resources	Applicable	Not Applicable
Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or functions - CGS Section 22a-93(15)(H)	☐	☑
Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones - CGS Section 22a-93(15)(E)	☐	☑
Degrading existing circulation patterns of coastal water through the significant alteration of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours - CGS Section 22a-93(15)(B)	☐	☑
Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff - CGS Section 22a-93(15)(D)	☐	☑
Degrading natural erosion patterns through the significant alteration of littoral transport of sediments in terms of deposition or source reduction - CGS Section 22a-93(15)(C)	☐	☑
Degrading visual quality through significant alteration of the natural features of vistas and view points - CGS Section 22a-93(15)(F)	☐	☑
Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity - CGS Section 22a-93(15)(A)	☐	☑
Degrading or destroying essential wildlife, finfish, or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alterations of the natural components of the habitat - CGS Section 22a-93(15)(G)	☐	☑
Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or functions - CGS Section 22a-93(15)(H)	☐	☑
Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones - CGS Section 22a-93(15)(E)	☐	☑

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

15. Identification of Potential Adverse Impacts on Water-dependent Uses: ***(Complete only if the project/activity is proposed at a waterfront site.)***

a) Identify the adverse impact categories below that apply to the proposed project or activity. The applicable column **must** be checked if the proposed activity has the **potential** to generate any adverse impacts as defined in CGS Section 22a-93(17). If an adverse impact **may result** from the proposed project or activity, use Question #16 to describe what project design features may be used to eliminate, minimize, or mitigate the potential for adverse impacts.

Potential Adverse Impacts on Future Water-dependent Development Opportunities and Activities	Applicable	Not Applicable
Locating a non-water-dependent use at a site physically suited for or planned for location of a water-dependent use - CGS Section 22a-93(17)	☑	☐
Replacing an existing water-dependent use with a non-water-dependent use - CGS Section 22a-93(17)	☐	☑
Siting a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters - CGS Section 22a-93(17)	☐	☑

b) Identification of existing and/or proposed Water-dependent Uses:

Describe the features or characteristics of the proposed activity or project that qualify as water-dependent uses as defined in CGS Section 22a-93(16). If general public access to coastal waters is provided, please identify the legal mechanisms used to ensure public access in perpetuity, and describe any provisions for parking or other access to the site and proposed amenities associated with the access (e.g., boardwalk, benches, trash receptacles, interpretative signage, etc.) *:

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

*If there are no water-dependent use components, describe how the project site is not appropriate for the development of a water-dependent use.

16. Mitigation of Potential Adverse Impacts:

Explain how all potential adverse impacts on coastal resources and/or future water-dependent development opportunities and activities identified in Questions #14 & #15 have been avoided, eliminated, or minimized (*attach additional pages if necessary*):

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

17. Remaining Adverse Impacts:

Explain why any remaining adverse impacts resulting from the proposed activity or use have not been mitigated and why the project as proposed is consistent with the Connecticut Coastal Management Act (*attach additional pages if necessary*):

Refer to Coastal Area Management Assessment report prepared by Redniss & Mead, Inc.

By signing this application, the applicant or his/her agent certifies that they are familiar with the information provided in this application and are aware of the penalties for obtaining a permit through deception or by submission of inaccurate or misleading information.

By signing this application, permission is hereby given to necessary and proper inspection of the subject property by the Commissioners and designated staff of the Commission or consultants to the Commission, at reasonable times, during the pendency of the application.

Applicant's Signature: Henry Conroy **DATE:** 6/17/2025

Agent's Signature: Adam J.Blank, Esq. **DATE:** 6/17/2025

Instructions for Coastal Site Plan Review Application

Notification of Neighbors

Coastal Site Plan Reviews require the applicant make three actions to notice to neighbors during the review of the application: 1) initial notification of the application submittal, 2) notice of public hearing (if applicable), and 3) legal notice of the public hearing in the newspaper (if applicable).

1) **Notice of Application Submittal:** ALL applications shall notify *by a certificate of mailing* the owners of land withing 100 feet of the subject parcel *within ten (10) days of submitting an application* to the Planning & Zoning Commission. The name of the owners shall be taken from the latest Tax Assessor records. *Proof of mailings shall be evidenced by providing a certificate of mailing* that must be submitted to the Planning & Zoning staff immediately following mailing. See Sample Letter below.
2) **Public Hearing Notice:** Any application for which a public hearing is required, the applicant shall notify *by certified mail, return receipt requested at least ten (10) days prior to the public hearing*, the owners of land that abut or are directly across the street from the subject parcel. The name of the owners shall be taken from the latest Tax Assessor records. See Sample Letter below.
   When a condominium is located across the street or abuts the subject proposal notification may be sent to the condominium association in lieu of the individual unit owners. Evidence of certified mailings shall be submitted by the applicant on or before the public hearing date.
3) **Legal Notice Payment:** When a public hearing is required, applicants shall be responsible for payment of three legal notices in The Hour newspaper. Two notices will advertise the application's public hearing date and one will advertise the Commission's action on the application.
   The Planning & Zoning staff will provide the required legal notices to The Hour. Applicants must contact The Hour at the number given below to arrange for payment in advance of the publication date.
   Classified Advertising Manager
   The HOUR
   Phone: (203) 354-1100 or 846-3281
   Fax: (203) 846 – 9897

Application Decision Publication

Decisions on ALL Coastal Site Review Applications must be published in The Hour. All application decisions must be published as a Legal Notice in The Hour. The applicant is responsible for payment of the Legal Notice of Decision. The Planning & Zoning staff will provide the required legal notices to The Hour. Applicants must contact The Hour at the number given below to arrange for payment.
Classified Advertising Manager
The HOUR
Phone: (203) 354-1100 or 846-3281
Fax: (203) 846 – 9897

Sample Letter: APPLICATION SUBMITTAL NOTIFICATION

Dear _____,

Be advised that _____ has applied for a Coastal Site Plan
(Applicant)

application for property located at the following address: _____

_____
(Street name and number and District, Block and Lot numbers)

The proposal is for _____
(Description of Proposal)

_____

You are being notified because your property abuts the property or is located directly across the street from the subject parcel. The application is on file in the Planning & Zoning Office located at City Hall, 125 East Avenue, Room 129, Norwalk, Connecticut 06856. The application materials can be reviewed on the City webpage at https://www.norwalkct.gov/1746/Pending-Application-Materials. If you have any questions regarding this application, you can email the staff person noted on the pending application webpage or you can call the Planning & Zoning Office at (203) 854-7780.

_____
Signature of applicant

Applicant must sign above and provide contact information below.
(THIS FORM IS TO BE COMPLETED BY APPLICANT)

Sample Letter: PUBLIC HEARING NOTIFICATION

Dear _____,

Be advised that **[Applicant Name]** has applied for a Coastal Site Plan Review application for property located at the following address: **[Project Address – street name and number]** and **[District/Block/Lot number]**.

The proposal is for **[Description of Proposal]**.

The Norwalk Planning & Zoning Commission will conduct a public hearing on this proposal on **[Day, Date, Time, and Location of Public Hearing].**

You are being notified because your property abuts the property or is located directly across the street from the subject parcel. The application is on file in the Planning & Zoning Office located at City Hall, 125 East Avenue, Room 129, Norwalk, Connecticut 06856. The application materials can be reviewed on the City webpage at https://www.norwalkct.gov/1746/Pending-Application-Materials. If you have any questions regarding this application, you can email the staff person noted on the pending application webpage or you can call the Planning & Zoning Office at (203) 854-7780.

_____
Signature of applicant

Applicant must sign above and provide contact information below.
(THIS FORM IS TO BE COMPLETED BY APPLICANT)

Application Form Instructions:

6. Project Site Plans
It is important to include clear and concise project plans that delineate coastal resources on and/or adjacent to site, especially the waterbody receiving stormwater discharges, if applicable. *Complete plans will expedite the review process.*

7. Site Information
Describe in detail the current land use on the site, current zoning classification, and any significant features of the project site. Indicate overall area of disturbance of the project. "*Disturbance*" includes not only the footprint of any construction, but also the extent of the project's work area. If the disturbance is 5 or more total acres of land area, then a CT DEEP stormwater permit may be required.

8. Description of Proposed Project or Activity
Provide a detailed description of the proposed project or activity, including the construction phasing, timing, and methodology. Include all activities related to construction such as site clearing, grading, and demolition. Also include the percentage of increase or decrease in impervious cover over existing conditions resulting from the project, and any changes or new uses of the property.

9. Description of Proposed Stormwater Best Management Practices
Describe in detail the stormwater best management practices (BMP), which will be utilized in this project. Explain how these stormwater BMPs will retain on-site the volume of runoff generated by the first inch of rainfall, especially if the site or ultimate discharge is adjacent to tidal wetlands. If retention is not a feasible option, explain why not and describe how the stormwater will be treated before it is discharged. It is also necessary to demonstrate that the loadings of total suspended solids from the site will be reduced by 80% on an average annual basis, and that post-development runoff rates and volumes will not exceed pre-development rates and volumes.

10. Identification of Applicable Coastal Resources and Coastal Resource Policies
Check ALL appropriate coastal resources and their associated Coastal Management Policies. This information should be based on a field-verified determination of on-site and adjacent coastal resources. Note that there is a box provided for the identification of resources, which are off-site but "within the influence of project." This is particularly applicable to "downstream" resources, such as those, which could be affected by project drainage, erosion sedimentation or other impacts unless the project is designed with proper mitigation.

Coastal Resource Maps may not be substituted for field surveys by qualified personnel where warranted by the presence of sensitive resources.

Please note that general "*Coastal Resources*" is "pre-checked" as its policies apply to all activities in the coastal boundary.

Additionally, check "*Shorelands*" for any site which is not entirely within the coastal flood hazard area, since shorelands are statutorily defined as, "...those land areas within the coastal boundary exclusive of coastal hazard areas…."

11. Consistency with Applicable Coastal Resource Policies and Standards
Explain how the proposed activity is consistent with the associated policies for each of the identified coastal resources in Question #10. Describe the location and condition of the coastal resources identified and explain how the proposed project is consistent with ALL applicable coastal resource policies. Where appropriate, describe mitigation measures proposed to offset any impacts from the project. For example, if "*Tidal Wetlands*" are identified on-site, explain the proposed wetland protection measures that will be incorporated into the project including setbacks, buffer areas, conservation easements and other protective measures, since the CCMA policies require strict protection of tidal wetland resources. Or, if off-site Tidal Wetlands could be affected by construction, provide a detailed description of the measures that will mitigate potential impacts.

12. Identification of Applicable Coastal Use and Activity Policies and Standards
This section provides a list of all statutory policies and standards for land and water uses in Connecticut's Coastal Boundary which are either set forth in, or referenced by, Section 22a-92 of the CCMA.
Using the appropriate fact sheet(s) identify all policies and standards applicable to the proposed activity.
Please note that "*General Development* " is "pre-checked" as its policies apply to all activities in the coastal boundary.

13. Consistency with Applicable Coastal Use Policies and Standards
Explain how the proposed activity, including any mitigation proposed to offset adverse impacts, is consistent with the coastal use policies and standards. Because all activities invoke the "*General Development*" policies, consistency must be addressed in every case.

14. Identification of Potential Adverse Impacts on Coastal Resources
This section requires the identification of applicable adverse impacts to coastal resources. "Adverse Impacts" are specifically defined by statute and are discussed in the Fact Sheet for Adverse Impacts. Based upon the proposed activity and its location, identify the potential adverse impacts to the resources on and adjacent to the site.

15. Identification of Potential Adverse Impacts on Future Water-dependent Uses:
Complete this Question if the project abuts marine or tidal waters, or tidal wetlands. Identify applicable adverse impacts to future water-dependent development opportunities and activities. As a reference, each statutorily defined adverse impact is listed with its statutory citation. Based upon the proposed activity and its location, carefully identify the potential adverse impacts on future water-dependent uses.

Identify the components of the project that constitute water-dependent uses and therefore render the project consistent with the CCMA. If there are no water-dependent use components, describe how the project is not appropriate for development of a water dependent use.

16. Mitigation of Potential Adverse Impacts
Explain how all potential adverse impacts to coastal resources and future water-dependent development opportunities have been avoided, minimized, or mitigated. For example, potential water-quality impacts might be minimized through preservation of pervious surfaces, which reduce runoff and mitigated by stormwater pre-treatment prior to discharge off-site. Impacts to water-dependent uses could be avoided by locating a water-dependent use at an appropriate site where no such water-dependent use currently exists.

17. Remaining Adverse Impacts
Identify any remaining impacts to coastal resources and/or future water-dependent development opportunities that have not been mitigated and explain why no other mitigation is proposed. Clearly explain why there are no feasible or prudent alternatives to the proposed activity that would result in fewer or lesser impacts to coastal resources and water-dependent uses.

N.B.

The Commission reserves the right to require any further plans or documentation which in its judgement may be necessary for the proper exercise of its responsibilities under the terms of Article 6, Section 10 of the Norwalk Zoning Regulations.

NO APPLICATION WILL BE ACCEPTED BY THE COMMISSION UNTIL IT IS COMPLETE AND DOCUMENTED AS SPECIFIED ABOVE. The applicant is encouraged to review their application with the Planning and Zoning Staff prior to the date of submission to facilitate expeditious administration of the application and to ensure that all necessary information and documentation is included.

Upon written request, the Commission may waive any of the requirements of a Coastal Site Plan Review application where such requirements are inappropriate or do not apply.

Coastal Area Management Assessment
108 Water Street
June 13, 2025

108 Water Street LLC, contract purchasers of 108 Water Street, are proposing to redevelop the property and construct a new 4 ½ story mixed-use building with public and private amenities, and site improvements. Uses of the site will include multi-family residential, office, hotel, personal services, restaurant, and water dependent uses (marine supply store and boat slips). Work will include reconstruction of an existing bulkhead wall, construction of a boardwalk with public access from Water Street, and installation of new boat slips.

Existing Conditions

The subject property is 2.72± acres and lies within the SD-MC zoning district. The property is located on the east side of Water Street, adjacent to its intersection with Hanford Place. The site is bound to the north and south by mixed-use commercial properties, to the west by Water Street and to the east by Norwalk Harbor. This portion of Water Street runs along the western bank of the Norwalk Harbor and consists of developed shorefront areas within the Coastal Flood Hazard Area. The site is and will continue to be served by public water and sewers.

The site area is primarily impervious with surfaces consisting of asphalt, buildings, and compacted gravel and dirt. Limited vegetation exists on site. Site stormwater runoff discharges from the site by sheet flow, either to the city right-of-way where it is collected by a storm drain network within Water Street or directly to the harbor; no formal stormwater infrastructure exists within the site. The city storm drain network consists of a series of catch basins, manholes, and pipes that convey the storm runoff from the street toward the harbor. The pipe sizes within Water Street range between 30" diameter and 48" diameter concrete pipe. The network discharges by a 60" diameter concrete pipe into the harbor via drainage easement located at 130 Water Street. As such, all stormwater runoff from the site is tributary to the harbor.

Coastal Resources

A list of coastal resources is provided in Table 2 with those resources present on site, adjacent, or not applicable so indicated.

The site is located on the west bank of Norwalk Harbor which consists of developed shorefront. A mix of uses, consisting of mixed-use parcels, water-related parcels, multi-family dwellings, office/retail buildings, and industrial uses line the harbor.

The entire site is in a *Coastal Hazard Area*, specifically it is within the AE-12 Zone with a small portion along the eastern property line within the VE-14 Zone as depicted on the Federal Emergency Management Agency – Flood Insurance Map Community No. 090012 Panel 531 Suffix G, effective date July 8, 2013. The proposed improvements are located within the AE Zone and will comply with

Section 6.9, Flood Hazard Zone Overlay, with all floor elevations and supporting mechanical equipment located at least two feet above the Base Flood Elevation.

Consistency with General Goals and Policies of the Coastal Area Management Act

The proposed project is consistent with other uses in the neighborhood and the proposed uses are allowed within the SD-MC zoning district. The proposal will create public access to the harbor via public paths that will connect the public sidewalk of Water Street to a proposed boardwalk along the harbor. Additionally, the proposal will encourage boating via the inclusion of boat slips and a marine supply store, or similar use, in the building.

No coastal resources will be disturbed or otherwise disrupted by the proposed activities. The existing shoreline is a developed shoreline and contains a mix of dilapidated timber and concrete structures and miscellaneous piles and debris. The site is generally devoid of vegetation and lacks coastal resources of natural significance. The proposed plan will remove debris and piles and rehabilitate the shoreline to improve stability and resiliency.

While there is decrease in site impervious coverage, addressing the quality of stormwater runoff is critical to protecting the receiving waters. Soil testing confirmed adequate soil conditions on site to infiltrate stormwater into the ground. Stormwater runoff from disturbed impervious surfaces will be collected and conveyed to proposed surface and underground infiltration practices designed to store the required water quality volume before overflowing to the receiving systems. In addition to providing water quality treatment, the systems also provide groundwater recharge.

In total, two underground infiltration systems are proposed to capture and provide treatment for the building roof areas and a series of permeable surfaces, consisting of bonded aggregate pavement and crushed stone reservoirs are proposed to capture and provide treatment for the public access walkways. The treatment systems provide water quality treatment to 93,167 square feet of impervious coverage (approximately 79% of the site area is treated) which is a significant improvement when compared to existing conditions where no treatment is provided. The overflow from systems on the west side of the site will either sheet flow to or be collected and piped to the storm drain network within Water Street. The overflow from systems on the east side of the site will be collected and discharged to the harbor by a new storm pipe discharge proposed at the bulkhead; note, a backflow preventer will be installed on the outlet pipe to the harbor. The proposed system is properly designed to protect the receiving waters from impact.

In addition to the above mentioned water quality treatment, the proposed drainage system was designed to minimize the rates and volume of flow tributary to the city stormwater infrastructure which is known to flood; as the city infrastructure discharges to the harbor, this does not result in an increase in tributary area to the harbor. With the proposed systems in place, the total runoff flow and volume tributary to the harbor are reduced up to and including the 100-year storm event.

Additionally, temporary sediment and erosion controls during construction and permanent stabilization of the disturbed surfaces after construction are proposed to minimize adverse impacts

linked to the transport of sediment from the upland disturbances associated with the proposed improvements.

The proposed bulkhead will be generally in line with existing structures to minimize encroachment. Since the shoreline structures are replacement structures, we do not anticipate adverse impacts to flow, flooding, or erosion patterns. In fact, the dilapidated condition of the shoreline structures currently allows for some erosion into the harbor. The proposed bulkhead replacement will stabilize the shoreline and prevent upland sediments from entering the harbor. The proposed boardwalk is not anticipated to impact flows or erosion patterns due to its landward location from the bulkhead. Similarly, the proposed dock facility will not alter flood or erosion patterns since it will be floating.

Each of the general goals and policies outlined in C.G.S. 22a-92(a) are provided below with a statement assessing consistency of the proposed improvements with those goals.

(1) To ensure that the development, preservation or use of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water resources to support development, preservation or use without significantly disrupting either the natural environment or sound economic growth.

The site development will include proposed uses consistent with and allowed by the local zoning regulations. Uses will include multi-family residential, restaurant, personal services, office, hotel, and water related uses (marine supply store and boat slips proposed) which will provide sound economic growth for the site and the local area.

As noted above, stormwater runoff from the new impervious surfaces will be collected and conveyed to the proposed underground infiltration system designed to store the required water quality volume before overflowing to the City stormwater infrastructure or to the harbor. Soil testing confirmed adequate soil conditions on site to infiltrate stormwater into the ground. The proposed system is properly designed to protect the receiving waters from impact.

(2) To preserve and enhance coastal resources in accordance with the policies established by chapters 439, 440, 446i, 446k, 447, 474 and 477.

As previously mentioned, the site is a "developed shorefront" relatively devoid of natural coastal resources (i.e., no wetlands, beaches, intertidal flats or other habitat for flora and fauna). The proposed bulkhead replacement will stabilize the shoreline to protect the shore from erosion and the adjacent waterway from sedimentation and allow for continuation of water-dependent marine-related uses consistent with the definition of developed shorefront. By protecting the shoreline, the project preserves adjacent coastal resources in accordance with the policies established by the aforementioned chapters. As noted above, the quality of storm water runoff from the site will be mitigated and improved by the addition of an underground infiltration system that does not exist today.

(3) To give high priority and preference to uses and facilities which are dependent upon proximity to the water or the shorelands immediately adjacent to marine and tidal waters.

The proposed project will not interfere with existing waterfront uses and will, in fact, enhance them. The project will include support services (bathroom and appropriate parking spaces) and space related to a water-dependent use within the building (to be determined), publicly accessible walkways to a boardwalk along the eastern edge of the parcel (there is no public access there today), an improved bulkhead, and new boat slips.

(4) To resolve conflicts between competing uses on the shorelands adjacent to marine and tidal waters by giving preference to uses that minimize adverse impacts on natural coastal resources while providing long term and stable economic benefits.

The site is fully impervious under existing conditions and the proposed design will minimize adverse impacts to coastal resources via implementation of temporary and permanent erosion controls measures. The indicated upland development is consistent with other uses of the neighborhood and will be constructed in a manner compliant with the local zoning regulations and is anticipated to provide economic benefits to the City of Norwalk. There are no apparent use conflicts. In addition, the proposed construction will include reconstruction of an existing bulkhead to stabilize and protect the harbor from the impacts of erosion and the upland development from flood and erosion, construction of a public boardwalk (with access paths from Water Street), construction of boat slips, and a water dependent use (e.g., marine supply store) within the building.

(5) To consider in the planning process the potential impact of coastal flooding and erosion patterns on coastal development so as to minimize damage to and destruction of life and property and reduce the necessity of public expenditure to protect future development from such hazards.

The proposed building improvements are located within the AE Zone and will comply with Section 6.9, Flood Hazard Zone Overlay with all floor elevations and supporting mechanical equipment located at least two feet above the Base Flood Elevation. The lowest occupied floor level, which is commercial floor area, is set at elevation 14.0, with the lowest office floor level set at elevation 19. While the residential lobby space extends below the BFE, to the street level, the lowest residential unit floor level is set at elevation 34. The lower parking level and lobby spaces are below the BFE, at elevation 9.0 (or lower), and are likely to experience flooding during a 100-year storm. The structures will be designed to local and federal requirements for these conditions.

The site development plans include temporary sediment and erosion control measures to limit potential construction sediment loads and permanent drainage features to provide water quality volume and limit impacts to erosion patterns. As previously discussed, the proposed bulkhead, as a replacement to existing, but dilapidated structures, is not anticipated to adversely impact coastal flooding and erosion patterns over existing conditions. In addition, the bulkhead replacement will help to minimize damage to the upland areas from flood and erosion impacts.

(6) To encourage public access to the waters of Long Island Sound by expansion, development and effective utilization of state-owned recreational facilities within the coastal area that are consistent with sound resource conservation procedures and constitutionally protected rights of private property owners.

The proposed improvements are on private property and therefore will not adversely affect state-owned recreational facilities. However, the proposed project will allow for public access opportunities to the water that currently don't exist on the site.

(7) To conduct, sponsor and assist research in coastal matters to improve the database upon which coastal land and water use decisions are made.

The proposed improvements do not impede the goals of the State or efforts of third parties to conduct, sponsor or assist in research into coastal matters.

(8) To coordinate the activities of public agencies to insure that state expenditures enhance development while affording maximum protection to natural coastal resources and processes in a manner consistent with the state plan for conservation and development adopted pursuant to part I of chapter 297.

Not applicable as the proposed improvements are privately funded.

(9) To coordinate planning and regulatory activities of public agencies at all levels of government to insure maximum protection of coastal resources while minimizing conflicts and disruption of economic development.

The proper coordination of planning and regulatory activities of public agencies are evidenced by this application to the Planning & Zoning Commission. As noted above, the proposed improvements create no conflict. The adjacent natural coastal resources are proposed to be protected while allowing the indicated upland development consistent with the local zoning regulations. Additionally, the project will be submitted to CT DEEP Land and Water Resource Division for review as it relates to the potential impacts for the reconstruction of the bulkhead, construction of a public boardwalk, and construction of boat slips.

(10) To insure that the state and the coastal municipalities provide adequate planning for facilities and resources which are in the national interest as defined in section 22a-93 and to insure that any restrictions or exclusions of such facilities or uses are reasonable.

The proposed facility will not adversely affect any facilities which are defined as in the national interest in accordance with 22a-93.

Potential for Adverse Impacts on Coastal Resources (C.G.S. 22a-93.(15))

Based on the descriptions provided above, the design of the site and building as indicated on the civil, architectural plans, and coastal plans, and the proper installation and construction of those designs we make the following findings as to the potential for adverse impacts on coastal resources.

(A) Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity	Positive impact

(B) degrading existing circulation patterns of coastal waters through the significant alteration of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours	No impact
(D) degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff	Positive Impact
(E) increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones	Positive Impact
(F) degrading visual quality through significant alteration of the natural features of vistas and view points	No impact
(G) degrading or destroying essential wildlife, finfish or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alteration of the natural components of the habitat	No impact
(H) degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function	No impact

TABLE 1: Coastal Uses and Activities

A list of coastal uses and activities is provided below with those uses applicable to the project so noted.

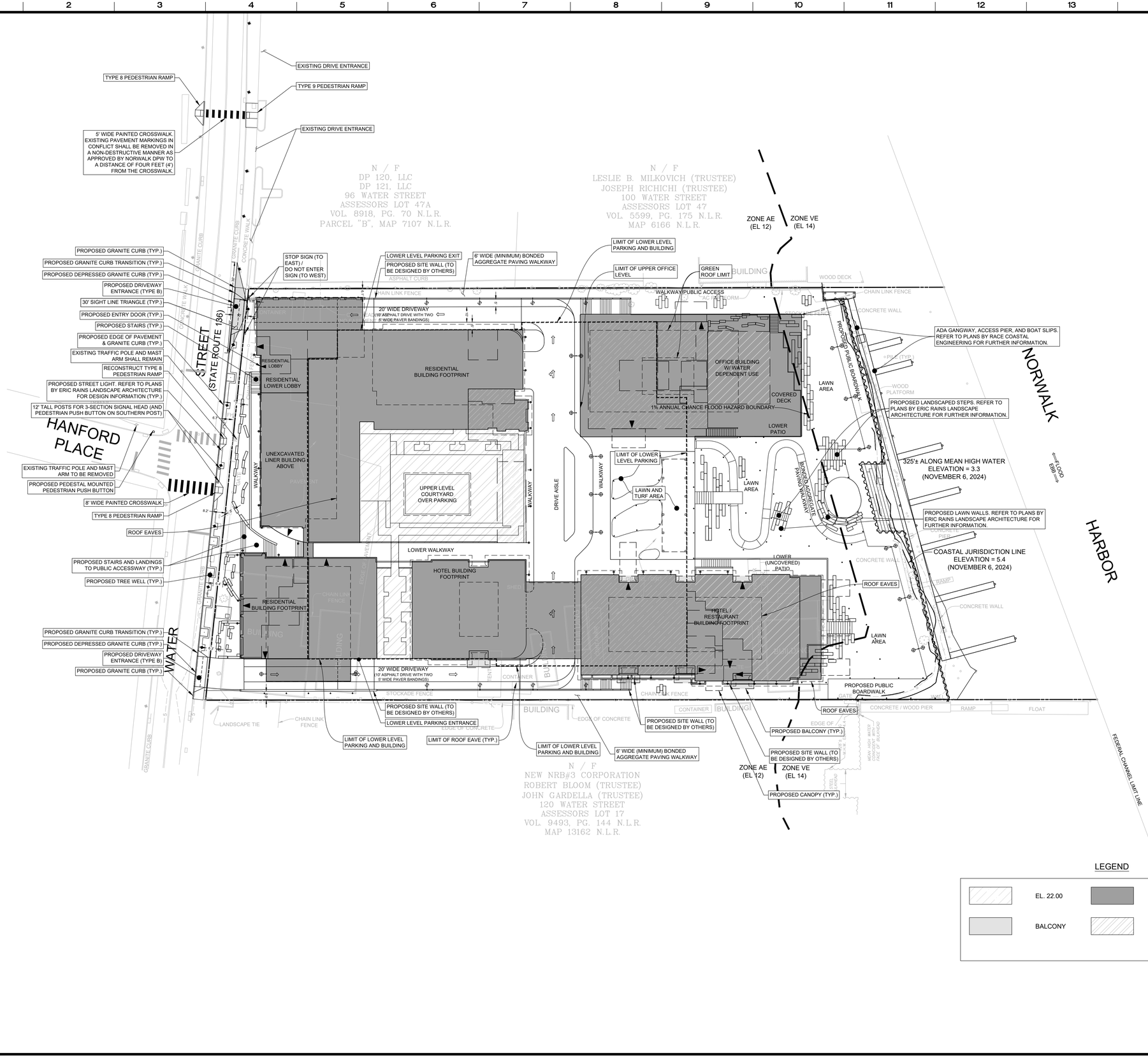
General Development	applicable
Water and Dependent Use	applicable
Ports & Harbors	not applicable
Coastal Structures & Filling	applicable
Dredging & Navigation	applicable
Boating	applicable
Fisheries	not applicable
Coastal Recreation & Access	applicable
Sewer and Water Lines	not applicable
Energy Facilities	not applicable
Fuels, Chemicals, & Hazardous Material	not applicable
Transportation	not applicable
Solid Waste	not applicable
Dams, Dikes & Reservoirs	not applicable
Cultural Resources	not applicable
Open Space & Agricultural	not applicable

TABLE 2: Coastal Resources

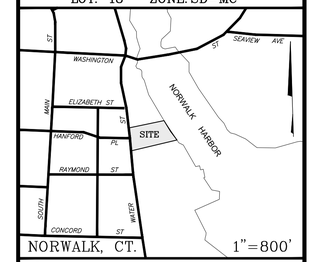
A list of coastal resources is provided below with those resources present on site, adjacent, or not applicable so indicated.

General Resources	present
Bluffs & Escarpments	not applicable
Rocky Shorefronts	not applicable
Beaches & Dunes	not applicable
Intertidal Flats	nearby (on eastern bank of Norwalk Harbor)
Tidal Wetlands	not applicable

Freshwater Wetlands	not applicable
Coastal Waters & Embayments	adjacent
Coastal Hazard Areas	present
Developed Shorefront	present
Islands	not applicable
Shorelands	not applicable
Shellfish Concentrations	not applicable



DISTRICT: 2 BLOCK: 84
LOT: 18 ZONE: SD–MC



ORIENTATION

LEGEND

	EL. 22.00		RESIDENTIAL/OFFICE UPPER LEVEL
	BALCONY		AMENITY

No.	Date	Revision
3	01/08/2026	REVISED P&Z SUBMISSION
2	08/15/2025	REVISED PER P&Z AND DPW COMMENTS
1	06/13/2025	ORIGINAL SUBMISSION

ZONING SITE PLAN
DEPICTING
108 WATER STREET
NORWALK, CT
PREPARED FOR
108 WATER STREET LLC

SCALE: 1"=30' 0 30 60

DRAWN BY: JWB CHECKED BY: VJH

STATE OF CONNECTICUT · VINCENT J. HYNES · No. 28329 · LICENSED PROFESSIONAL ENGINEER

VINCENT J. HYNES, CT P.E. #28329

January 8, 2026
DATE

This document and copies thereof are valid only if they bear the signature and embossed seal of the designated licensed professional. Unauthorized alterations render any declaration hereon null & void.

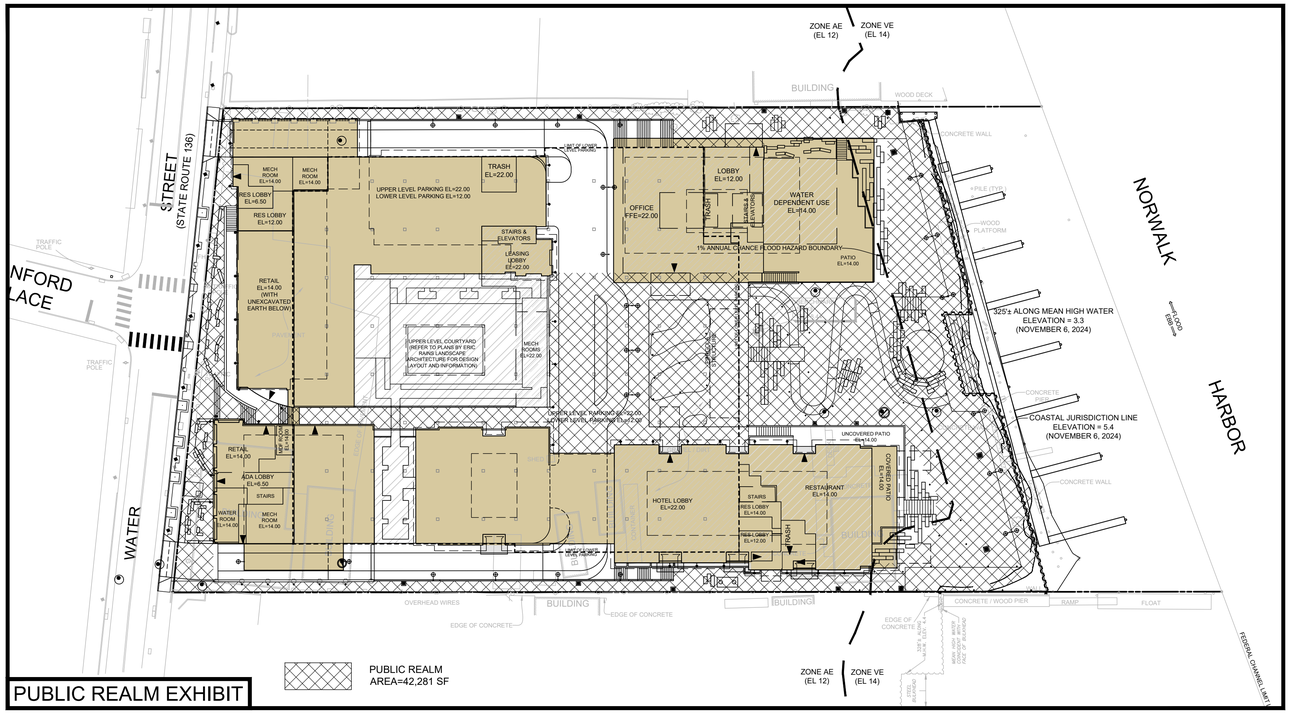
REDNISS & MEAD

LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING

22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax 203.357.1118
www.rednissmead.com

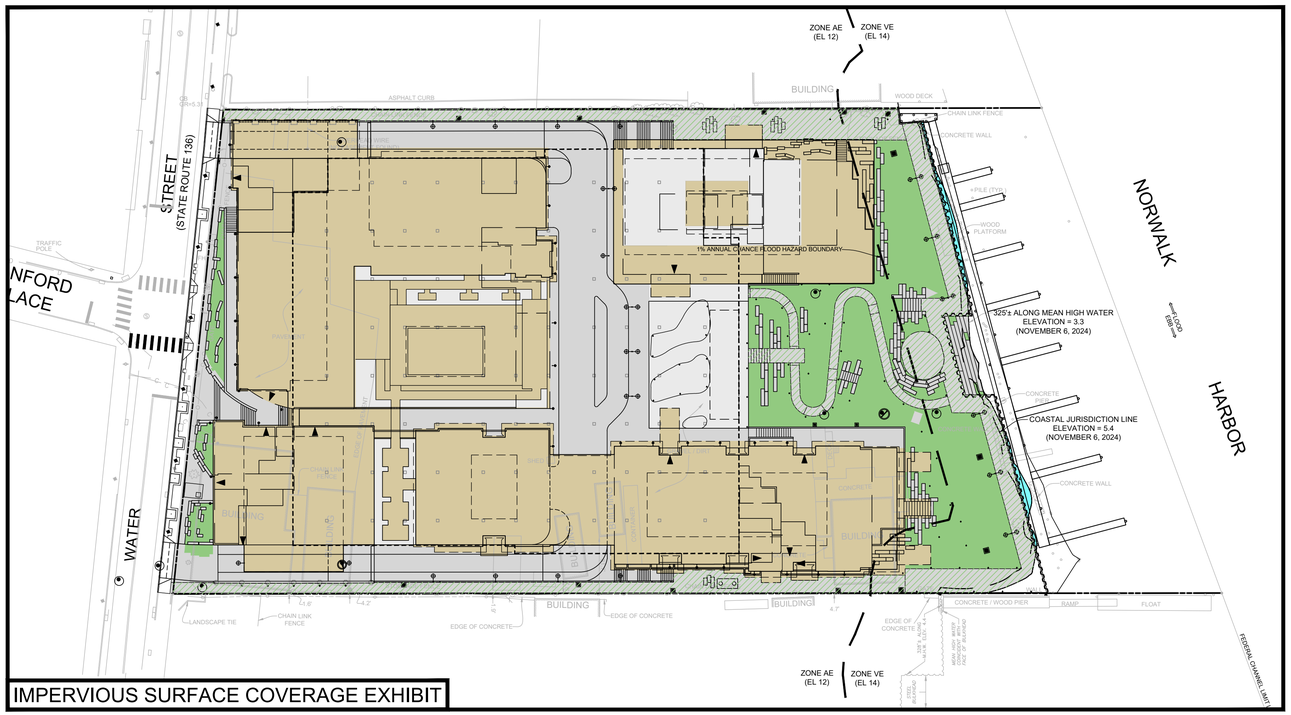
SHEET No:
ZSP-1A
Comm. No.: 10909

1/8/2026 4:25 PM\n:\Jobfiles2\10000\10900\10909\dwg\10909 Master (2020).dwg



PUBLIC REALM EXHIBIT

PUBLIC REALM
AREA=42,281 SF



IMPERVIOUS SURFACE COVERAGE EXHIBIT

PARKING ANALYSIS FOR 108 WATER STREET DEVELOPMENT — Version 1/8/2026

Description of Space	Category	Zoning Use Size	Requirement Norwalk Zoning Regulations Table 4.3.12.B-1	Base Parking Spaces Required	Reduction Factor	Total Required	*Reference Notes*
Commercial	Personal Service	2,746	1/500 Usable Floor Area	5.5	1.2	4.6	*Assumes 75% Usable Floor Area (Gross Area=3,661 sf)*
	Office	28,680	1/334 Usable Floor Area	85.9	1.4	61.3	*Assumes 75% Usable Floor Area (Gross Area=38,240 sf)*
	Restaurant	1,738	1/100 Usable Floor Area	17.4	1.2	14.5	*Assumes 50% Usable Floor Area (Gross Area=3,475 sf)*
	Hotel	130	1.0 / Unit + Staff	140.0	1.1	127.3	*Assumes base unit count + 10*
	Water Dependent Use	1,466	1/500 Usable Floor Area	2.9	1.2	2.4	*Assumes 75% Usable Floor Area (Gross Area=1,954 sf)*
	Boat Slips	14	1 / Boat Slip	14.0	1	14.0	
			SUBTOTAL COMMERCIAL PARKING	265.7		224.1	
Multi-Family Residential	Residential	59	1.3 / Dwelling Unit	76.7	1 / D.U.	59	*(24-1BR, 16-2BR, 13-3BR, & 4-4BR)*
			SUBTOTAL RESIDENTIAL PARKING	76.7		59	
			SUBTOTAL RESIDENTIAL AND COMMERCIAL PARKING	*342.4*		*283.1*	
FURTHER REDUCTIONS (4.3.12.B.13)							
Residential Reduction: Day / Night Use		59		*59*	*50%*	*29.5*	
			SUBTOTAL RESIDENTIAL AND COMMERCIAL PARKING			*253.6*	
			10% Reduction for Mixed-Use Development with 1/2 mile of the SoNo Station		*10%*	*25.4*	
			SUBTOTAL RESIDENTIAL AND COMMERCIAL PARKING			*228.2*	
			TOTAL REQUIRED PARKING			**228**	
			TOTAL PARKING AVAILABLE			**242**	
			ADA ACCESSIBLE SPACES (INCLUDED IN TOTAL)	8			*8 Provided between Parking Levels*
			ELECTRICAL VEHICLE SPACES (INCLUDED IN TOTAL)	26			*26 Provided on Mezzanine Parking Level*
			BICYCLE PARKING (1 space per 10 Dwelling Units + 1 space per 2,000 sf commercial floor area)	39			*39 Sheltered Spaces Provided*
			LOADING SPACES: COMMERCIAL FLOOR AREA	1			*See Note 1*

1. One loading space required when proposing 3,000 - 25,000 sf of commercial area.
2. Gross floor areas of commercial spaces as depicted on plans by project architect.

ZONING INFORMATION TABLE
108 Water Street

1/8/2026		SD-MC Zone	Provided / Proposed Development
MINIMUM SIZE OF PLOT	AREA	Not regulated	118,594± SF (2.72± acres)
	LOT WIDTH	100' min.	267'
HEIGHT	MAXIMUM	4.5 stories	4.5 stories
	ADDITIONAL	Height further limited via ceiling height requirements.*	Compliant; refer to Architectural Plans for additional information.
BUILDING COMPOSITION		Non-residential use required on ground floor	Compliant; refer to Architectural Plans for additional information.
MINIMUM YARDS	FRONT	5'	5.8'
	SIDE	5'	5.9'
	REAR	25' from Mean High Water	29'
BUIILDING TYPE			Mid-Rise
USE DESIGNATION			Mixed-Use Multi-family Residential Units: 59 units Hotel: 130 keys Office: 38,240 sf Restaurant: 3,475 sf Personal Service Establishment: 3,661 sf Water Dependent Use: 1,954 sf
RESIDENTIAL DENSITY		1 Dwelling Unit / 2,000 sf (59 units allowed)	59 units
IMPERVIOUS SURFACE COVERAGE		80% MAX, 90% max if use LID practices and provide a vegatative buffer against the water, required access to the water shall not be included in calculations	93,535 sf (78.9%)
STORMWATER MANAGEMENT		Section 8.4.5.N.2.g.(1)(a): 75% or more of the Development's stormwater is retained on-site	78% of Site Area treated via: infiltration system, green roof, and permeable pavement surfaces.
PUBLIC REALM			Provided: 42,281 sf (35.7%)

*Ceiling height may not exceed 13 ft from finished floor to finished floor, except for first floor Business/Commercial, Office, Retail/Personal Service which must be a minimum of 15 ft with max of 25 ft

SITE AREA
(SITE AREA=118,594 SF)

SYMBOL	DESCRIPTION	AREA (sq.ft.)
	STRUCTURES	61,043
	PAVEMENT & SIDEWALKS	21,752
	IMPERVIOUS GREENROOF	10,740
	IMPERVIOUS TOTAL =	93,535 (78.9%)
	BONDED AGGREGATE & OPEN JOINTED SURFACE	12,305
	LANDSCAPE	12,412
	WATER	342
	PERVIOUS TOTAL =	25,059 (21.1%)

No.	Date	Revision
3	01/08/2026	REVISED P&Z SUBMISSION
2	08/15/2025	REVISED PER P&Z AND DPW COMMENTS
1	06/13/2025	ORIGINAL SUBMISSION

ZONING SITE PLAN B
DEPICTING
108 WATER STREET
NORWALK, CT
PREPARED FOR
108 WATER STREET LLC

REDNISS & MEAD
LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING
22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax: 203.357.1118
www.rednissmead.com

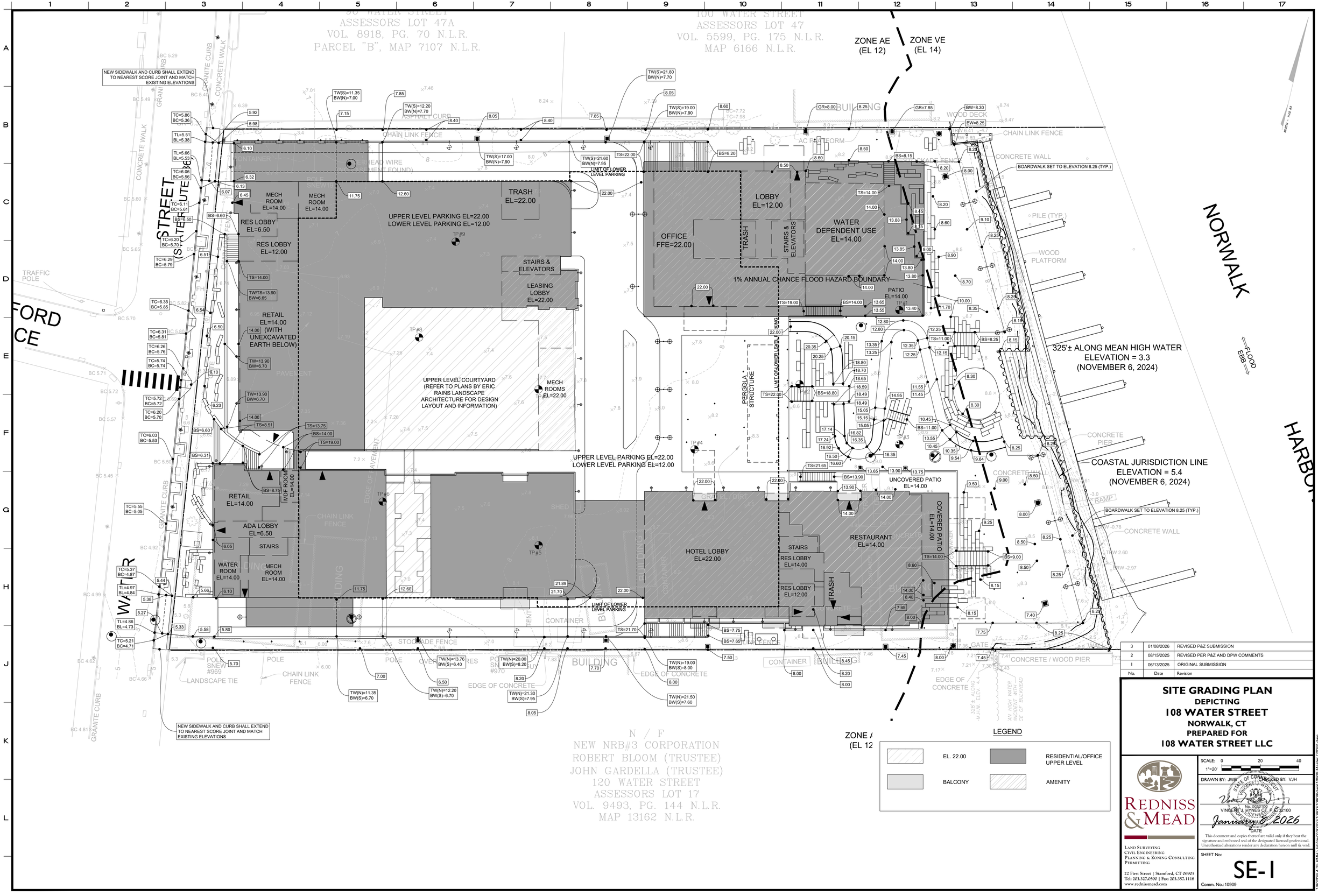
SCALE: 1"=40' (0, 40, 80)
DRAWN BY: JWB | CHECKED BY: VJH

STATE OF CONNECTICUT — VINCENT J. HYNES — No. 0032100 — REGISTERED LAND SURVEYOR
VINCENT J. HYNES, L.S. #0032100
January 5, 2026
DATE

This document and copies thereof are valid only if they bear the signature and embossed seal of the designated licensed professional. Unauthorized alterations render any declaration hereon null & void.

SHEET No:
ZSP-1B
Comm. No.: 10909

1/14/2026 12:20 PM H:\Jobfiles\10000\10900\10909\dwg\10909 Master (2026).dwg



No.	Date	Revision
3	01/08/2026	REVISED P&Z SUBMISSION
2	08/15/2025	REVISED PER P&Z AND DPW COMMENTS
1	06/13/2025	ORIGINAL SUBMISSION

SITE GRADING PLAN
DEPICTING
108 WATER STREET
NORWALK, CT
PREPARED FOR
108 WATER STREET LLC

REDNISS & MEAD
LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING
22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax 203.357.1118
www.rednissmead.com

SCALE: 1"=20' (0, 20, 40)

DRAWN BY: JWB | CHECKED BY: VJH

STATE OF CONNECTICUT — VINCENT J. HYNES — No. 0032100 — LICENSED PROFESSIONAL ENGINEER

VINCENT J. HYNES CT. P.E. 32100

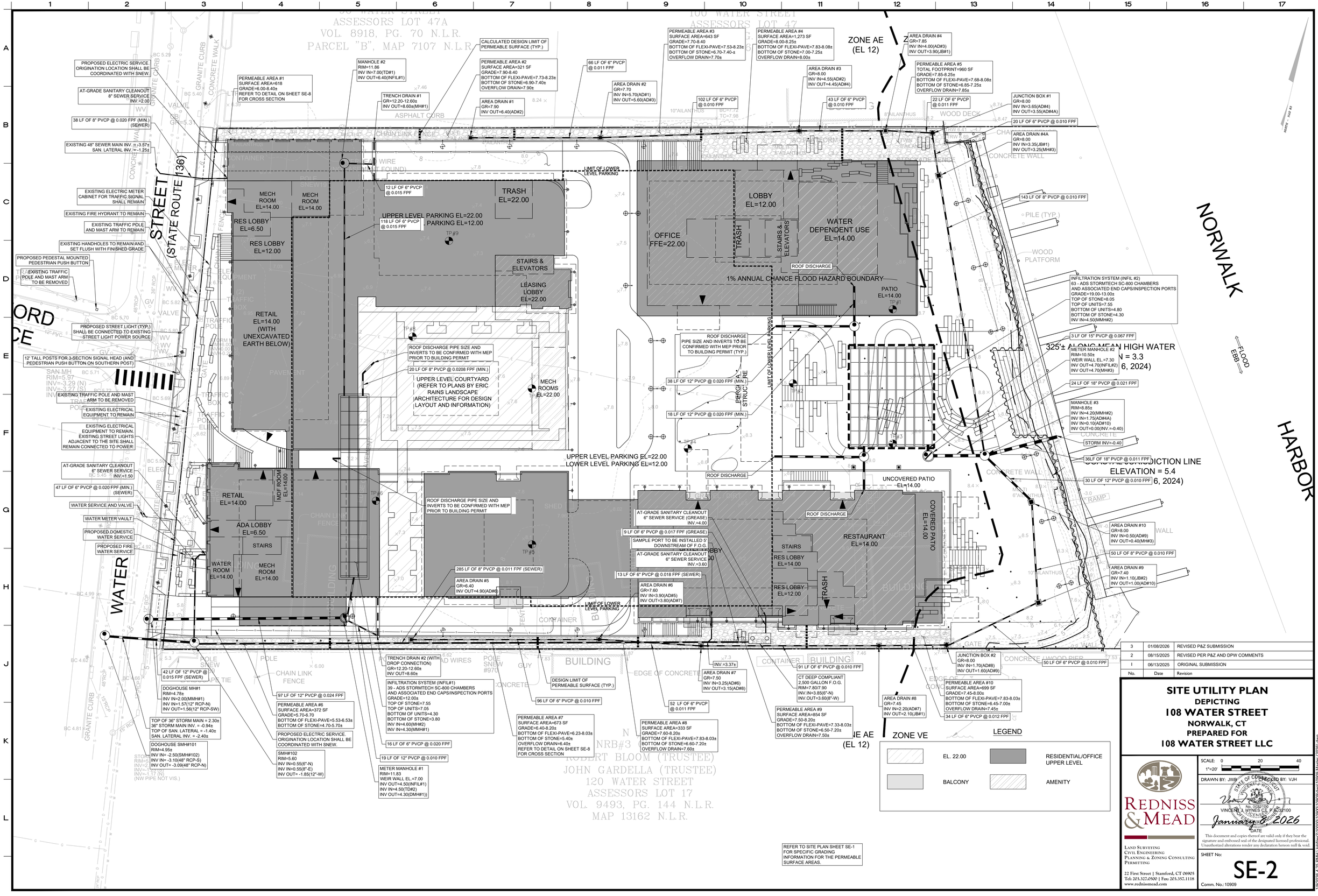
January 8, 2026
DATE

This document and copies thereof are valid only if they bear the signature and embossed seal of the designated licensed professional. Unauthorized alterations render any declaration hereon null & void.

SHEET No: SE-1

Comm. No.: 10909

1/8/2026 4:25 PM H:\Jobfiles\10100\10109\dwg\10909 Master (2025).dwg



No.	Date	Revision
3	01/08/2026	REVISED P&Z SUBMISSION
2	08/15/2025	REVISED PER P&Z AND DPW COMMENTS
1	06/13/2025	ORIGINAL SUBMISSION

SITE UTILITY PLAN
DEPICTING
108 WATER STREET
NORWALK, CT
PREPARED FOR
108 WATER STREET LLC

SCALE: 1"=20' (0, 20, 40)

DRAWN BY: JWB | CHECKED BY: VJH

STATE OF CONNECTICUT — VINCENT J. HYNES — REGISTERED LANDSCAPE ARCHITECT — No. 0032100

January 8, 2026
DATE

This document and copies thereof are valid only if they bear the signature and embossed seal of the designated licensed professional. Unauthorized alterations render any declaration hereon null & void.

REDNISS & MEAD
LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING
22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax: 203.357.1118
www.rednissmead.com

SHEET No: SE-2

Comm. No.: 10909

108 WATER ST

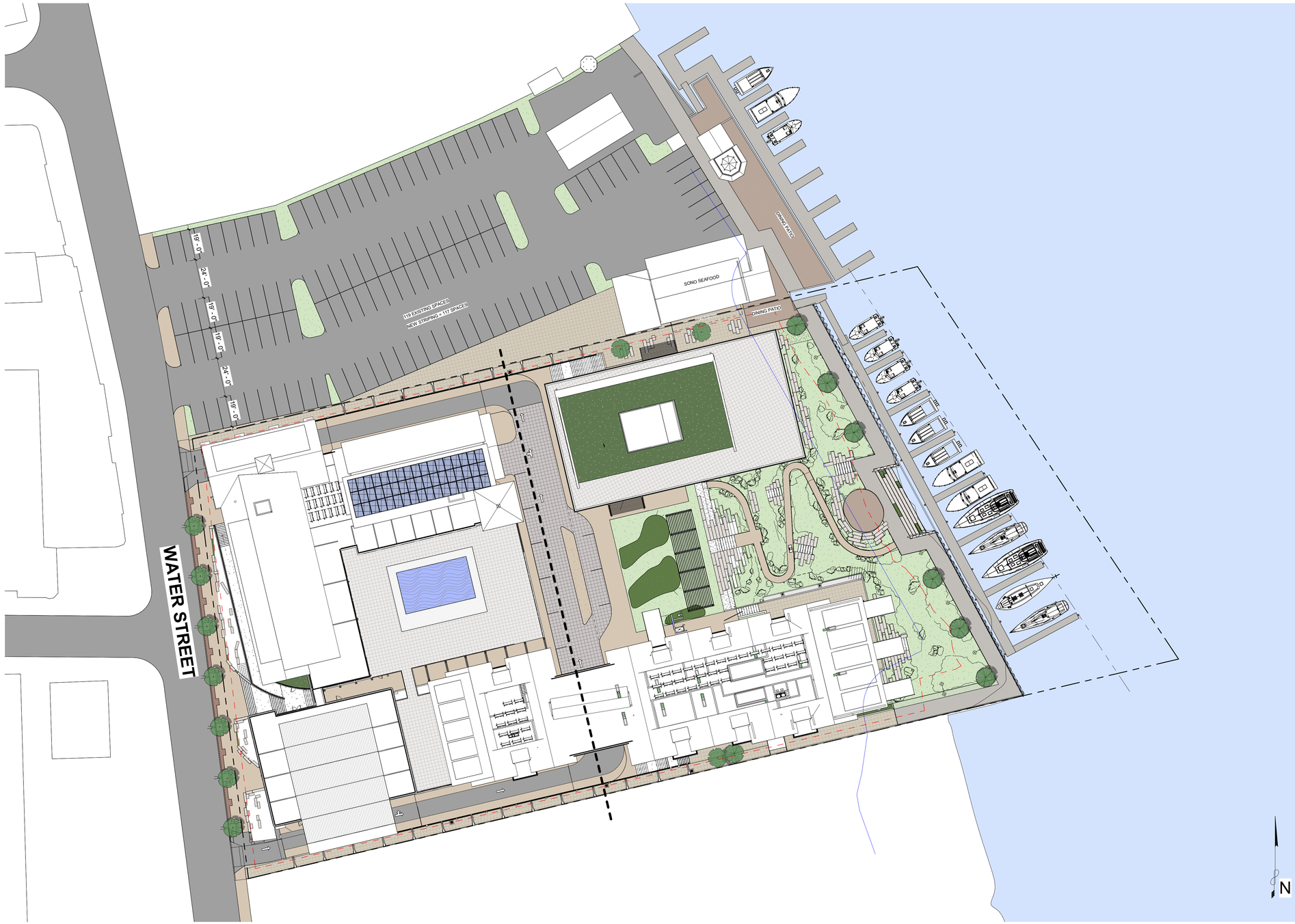
BEINFIELD ARCHITECTURE

01/13/2026

1 SD0.01 LOCATION MAP
1" = 50'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD0.02 CONNECTIVITY MAP
1" = 30'-0"

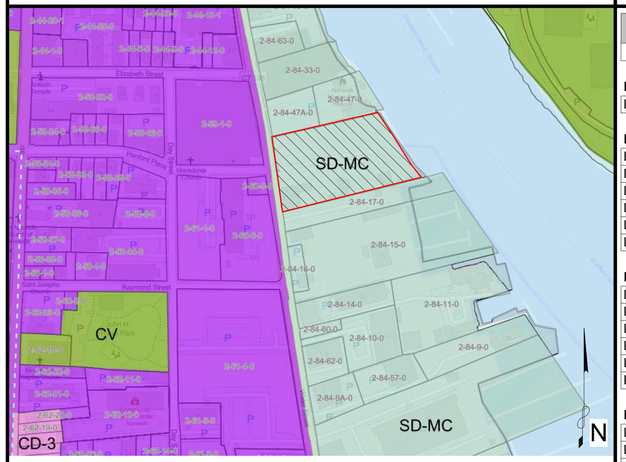
BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

ZONING MAP



BICYCLE PARKING: 39 SPACES REQUIRED

PARKING ANALYSIS

PARKING SCHEDULE

STALL TYPE	COUNT
ST - PARKING SPACE: 7 x 22 PARALLEL	8
ST - PARKING SPACE: 8.5 x 19	2
ST - PARKING SPACE: 10' x 19' ADA CAR	2
LVL 1 - MEZZ.	
ST - PARKING SPACE: 7 x 22 PARALLEL	6
ST - PARKING SPACE: 8.5 x 19	42
ST - PARKING SPACE: 8.5 x 19_EV	26
ST - PARKING SPACE: 10' x 19' ADA CAR	2
LVL 1 - PARKING	
ST - PARKING SPACE: 8.5 x 19	150
ST - PARKING SPACE: 10' x 19' ADA CAR	4
TOTAL PARKING SPACES	**242**

AREA SCHEDULE (BY PROGRAM)

LEVEL	AREA
HOTEL - AMENITY	
LEVEL_01 - MEZZ.	4,817 SF
	4,817 SF
HOTEL - BOH	
LEVEL_01 - PARKING	248 SF
LEVEL_01 - MEZZ.	425 SF
LEVEL_02	110 SF
LEVEL_03	169 SF
LEVEL_04	110 SF
LEVEL_04.5	143 SF
	1,204 SF
HOTEL - CIRCULATION	
LEVEL_01 - PARKING	991 SF
LEVEL_01 - MEZZ.	797 SF
LEVEL_02	2,007 SF
LEVEL_03	2,007 SF
LEVEL_04	2,007 SF
LEVEL_04.5	2,039 SF
	9,847 SF
HOTEL - MECH	
LEVEL_02	64 SF
LEVEL_03	64 SF
LEVEL_04	64 SF
LEVEL_04.5	65 SF
	258 SF
HOTEL - RESTAURANT	
LEVEL_01 - MEZZ.	3,475 SF
	3,475 SF
HOTEL - RM	
LEVEL_02	14,626 SF
LEVEL_03	14,626 SF
LEVEL_04	14,626 SF
LEVEL_04.5	9,508 SF
	53,386 SF
MECH	
LEVEL_01 - MEZZ.	2,315 SF
	2,315 SF
OFFICE	
LEVEL_01 - MEZZ.	4,264 SF
LEVEL_02	9,428 SF
LEVEL_OFFICE_03	9,428 SF
LEVEL_OFFICE_04	9,428 SF
	32,547 SF
OFFICE - AMENITY	
LEVEL_OFFICE_4.5	4,001 SF
	4,001 SF
OFFICE - BOH	
LEVEL_01 - PARKING	171 SF
LEVEL_01 - MEZZ.	380 SF
LEVEL_02	380 SF
LEVEL_OFFICE_03	380 SF
LEVEL_OFFICE_04	380 SF
	1,691 SF
OFFICE - CIRCULATION	
LEVEL_01 - PARKING	1,337 SF
LEVEL_01 - MEZZ.	701 SF
LEVEL_02	1,713 SF
LEVEL_OFFICE_03	1,713 SF
LEVEL_OFFICE_04	1,713 SF
	7,177 SF
OFFICE - MECH	
LEVEL_01 - MEZZ.	79 SF
LEVEL_02	79 SF
LEVEL_OFFICE_03	79 SF
LEVEL_OFFICE_04	79 SF
	316 SF
OFFICE - WATER DEPENDENT	
LEVEL_01 - MEZZ.	1,954 SF
	1,954 SF
RESIDENTIAL	
LEVEL_02	16,058 SF
LEVEL_03	21,309 SF
LEVEL_04	21,292 SF
LEVEL_04.5	12,068 SF
	70,727 SF
RESIDENTIAL - AMENITY	

AREA SCHEDULE (BY PROGRAM)

LEVEL	AREA
LEVEL_01 - MEZZ.	1,202 SF
LEVEL_02	4,630 SF
	5,832 SF
RESIDENTIAL - BOH	
LEVEL_01 - MEZZ.	367 SF
LEVEL_02	110 SF
LEVEL_04.5	22 SF
	499 SF
RESIDENTIAL - CIRCULATION	
LEVEL_01 - PARKING	1,954 SF
LEVEL_01 - MEZZ.	774 SF
LEVEL_02	2,195 SF
LEVEL_03	2,215 SF
LEVEL_04	2,215 SF
LEVEL_04.5	319 SF
	9,671 SF
RESIDENTIAL - MECH	
LEVEL_01 - MEZZ.	719 SF
LEVEL_02	192 SF
LEVEL_03	361 SF
LEVEL_04	364 SF
LEVEL_04.5	803 SF
	2,438 SF
RETAIL	
LEVEL_01 - MEZZ.	3,661 SF
	3,661 SF
	215,818 SF

UNIT SCHEDULES

~89,000 SF RESIDENTIAL / 57 UNITS =

~1,561 SF / UNIT

UNIT SCHEDULE

UNIT TYPE	COUNT
LEVEL_02	
1 BR	9
2 BR	5
3 BR	3
	17
LEVEL_03	
1 BR	10
2 BR	7
3 BR	4
	21
LEVEL_04	
1 BR	7
2 BR	5
3 BR	5
4 BR	4
	21
	59

UNIT MIX

UNIT TYPE	COUNT	PERCENTAGE
1 BR	26	44%
2 BR	17	29%
3 BR	12	20%
4 BR	4	7%
	59	**100%**

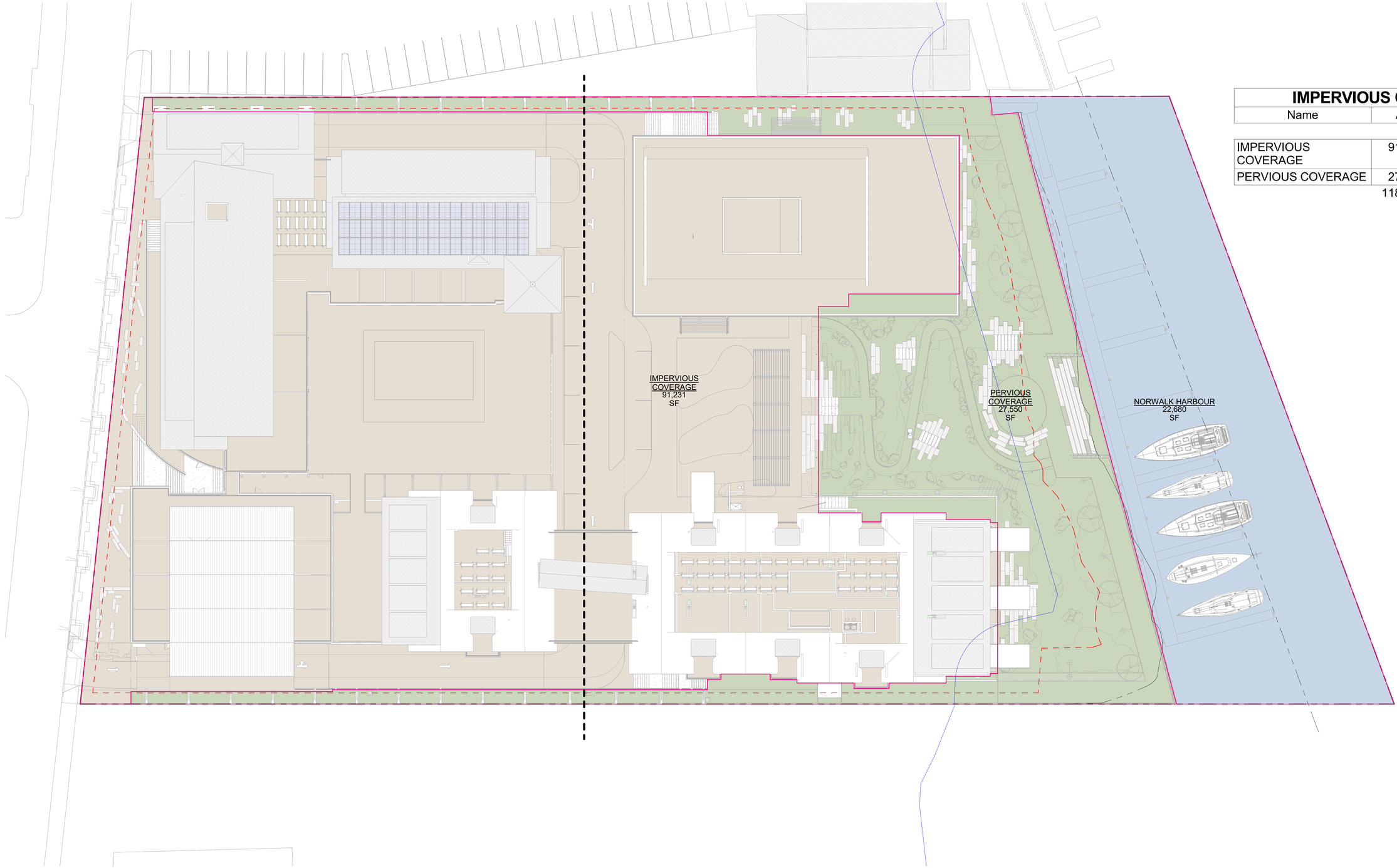
BUILDING SUMMARY

BUILDING SUMMARY

GROSS SF	TOTAL NRSF	AMENITY SF	UNIT COUNT	PARKING COUNT
215,818 SF	126,650 SF	14,650 SF	59 UNITS	242 SPACES

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

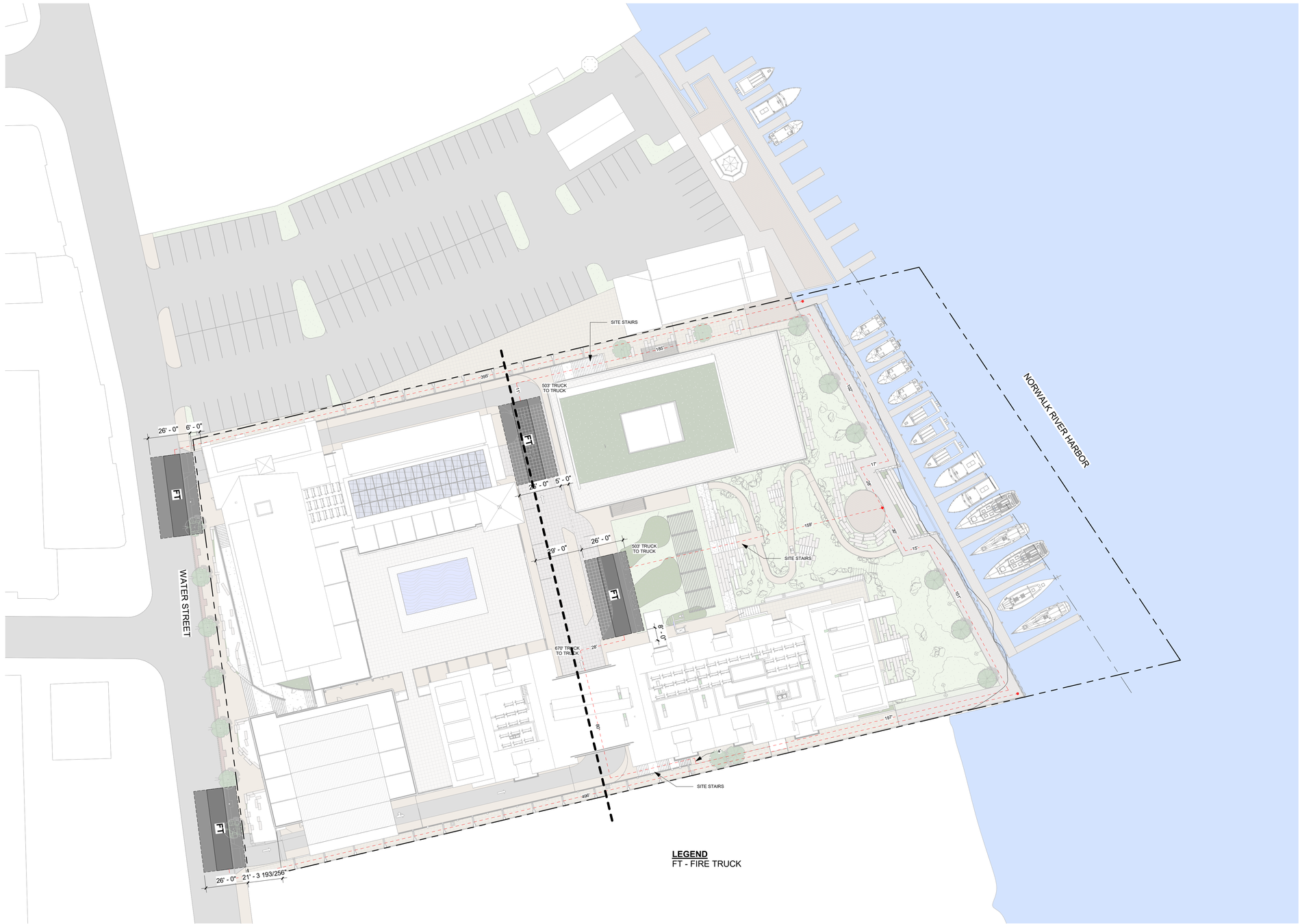


IMPERVIOUS COVERAGE		
Name	Area	PERCENTAGE
IMPERVIOUS COVERAGE	91,231 SF	77%
PERVIOUS COVERAGE	27,550 SF	23%
	118,780 SF	100%

1 SD0.20 PERVIOUS COVERAGE DIAGRAM
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD0.30 AERIAL FIRE TRUCK ACCESS PLAN
1" = 30'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

1 SD1.00 OVERALL - LEVEL_01.1 - PARKING
1" = 20'-0"

20' ENTRY DRIVEWAY EXHIBIT

108 WATER ST | 01/13/26 | LEVEL 1 - OVERALL PLAN - PARKING PLAN | SD1.00

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

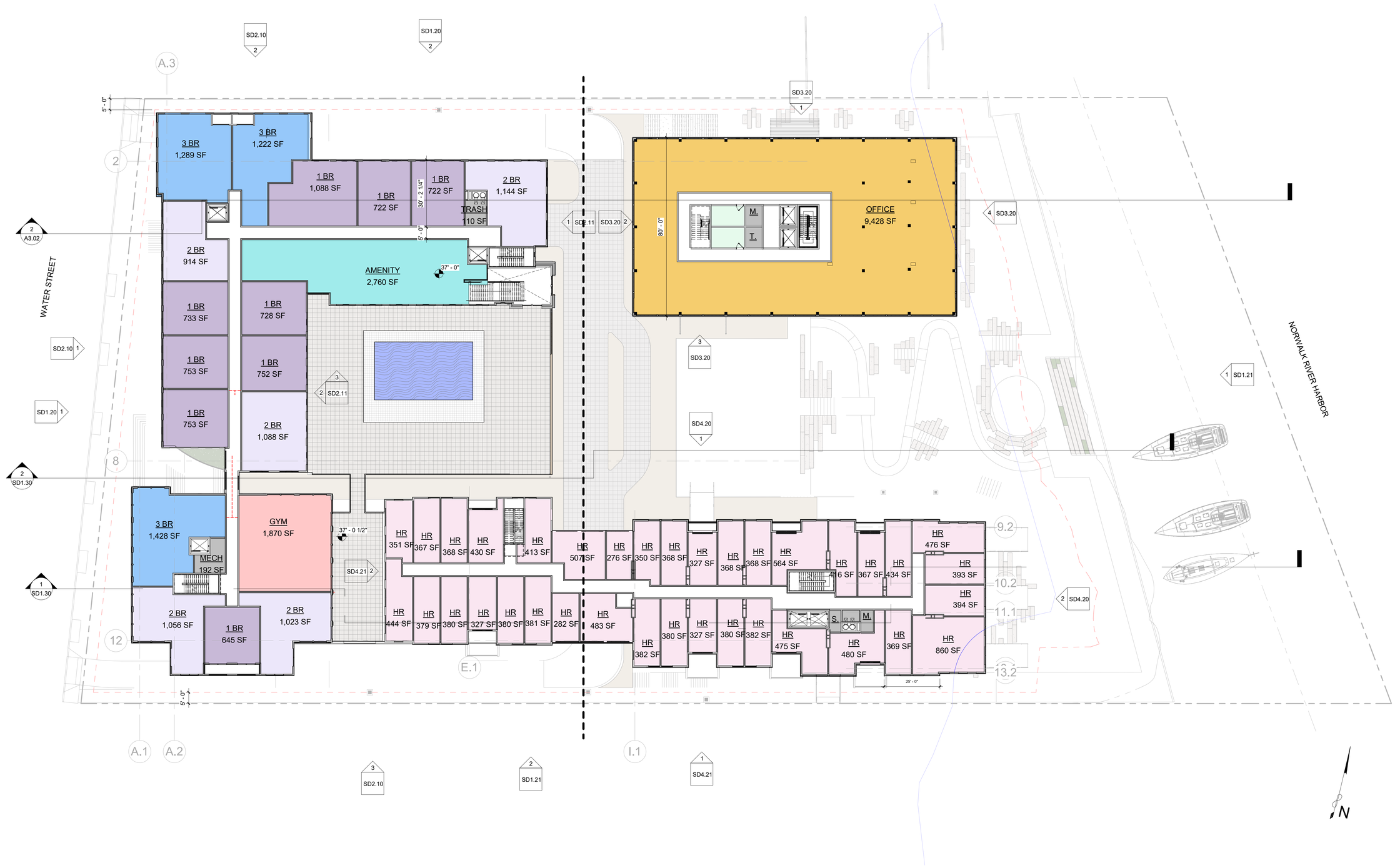
1 SD1.01 OVERALL - LEVEL_01.2 - MEZZ.
1" = 20'-0"

20' ENTRY DRIVEWAY EXHIBIT

108 WATER ST | 01/13/26 | LEVEL 1 - OVERALL PLAN - MEZZANINE PLAN | SD1.01

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



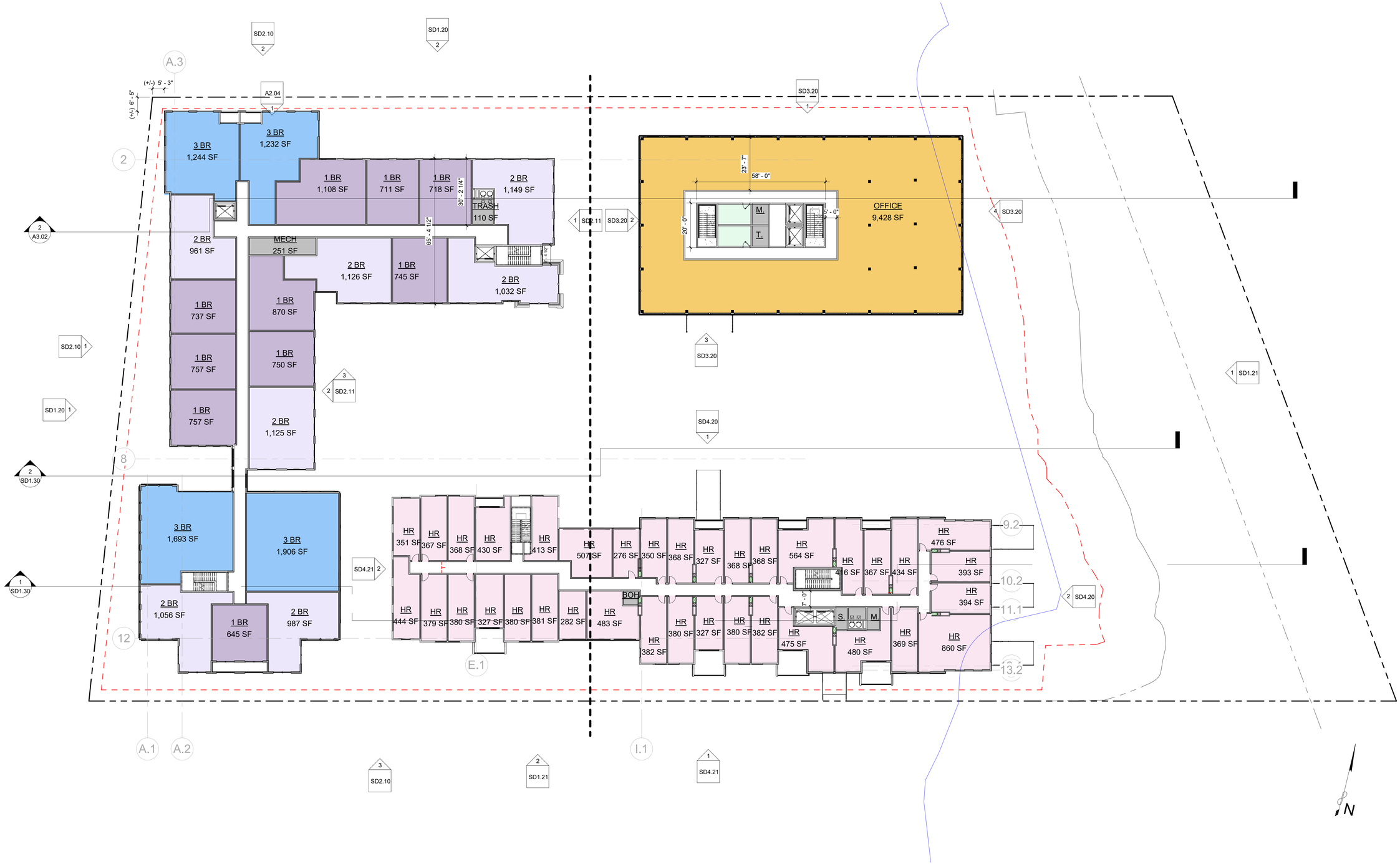
1 SD1.02 OVERALL - LEVEL_02
1" = 20'-0"

20' ENTRY DRIVEWAY EXHIBIT

108 WATER ST | 01/13/26 | LEVEL 2 - OVERALL PLAN | SD1.02

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

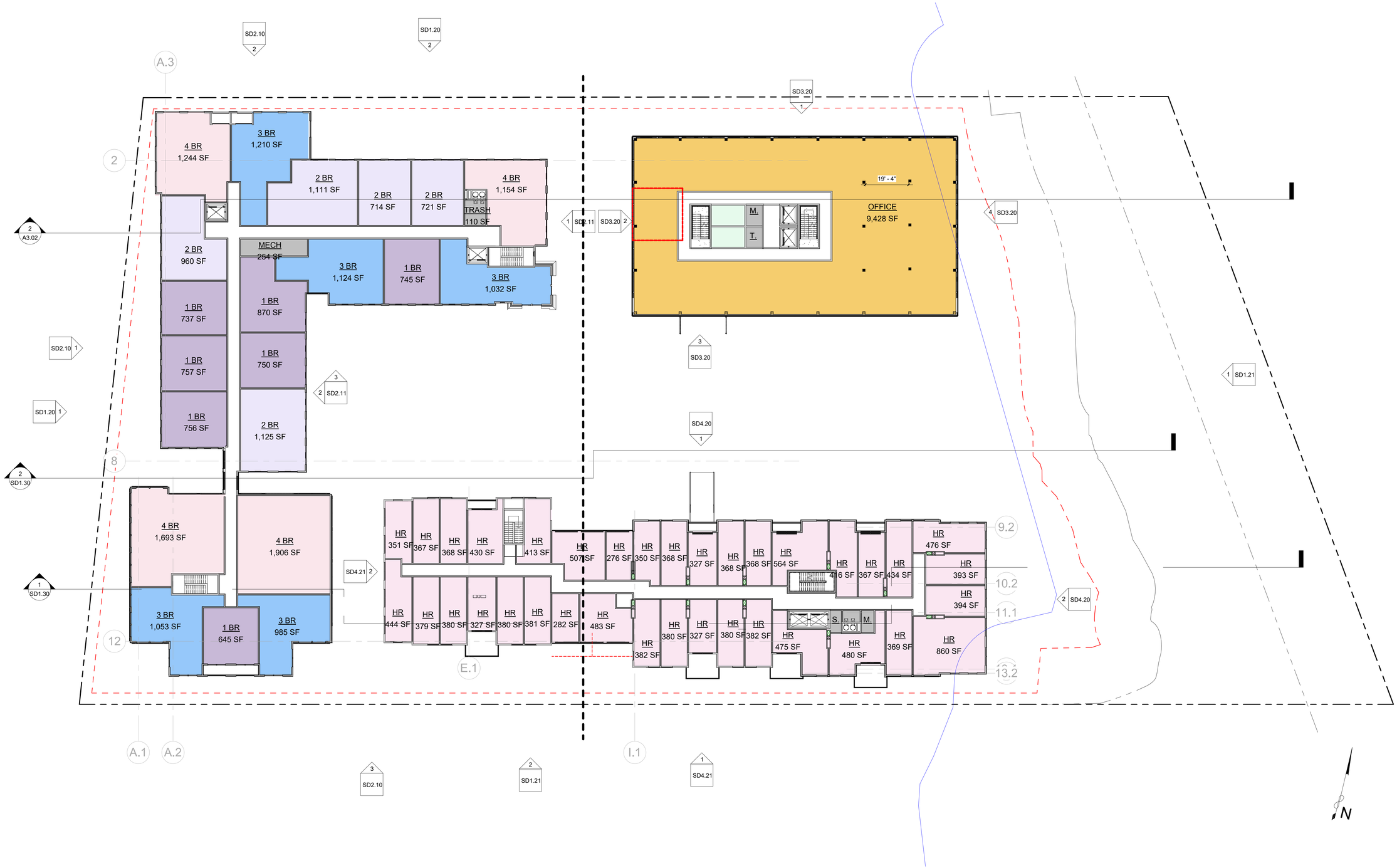
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.03 OVERALL - LEVEL_03
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

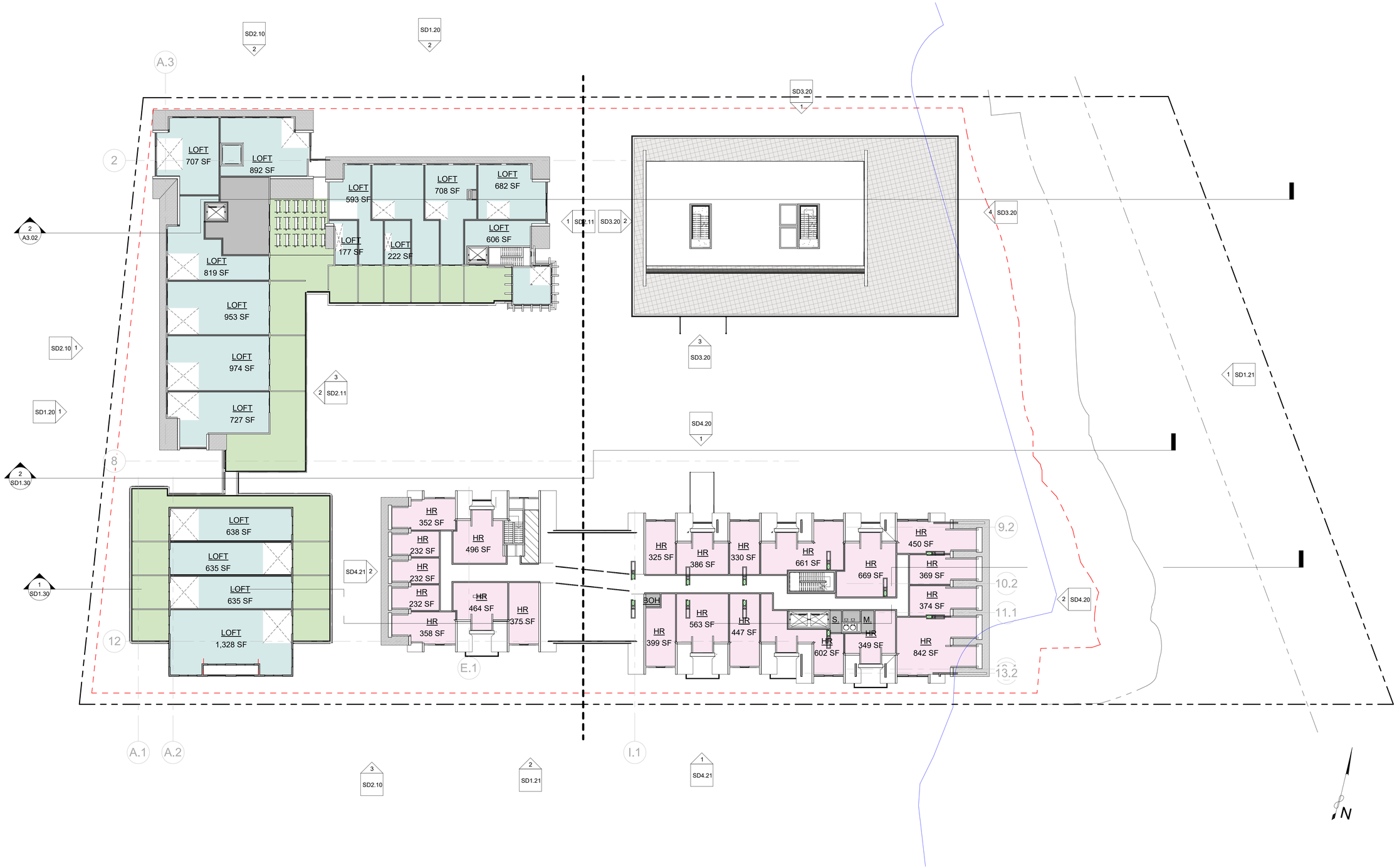
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.04 OVERALL - LEVEL_04
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

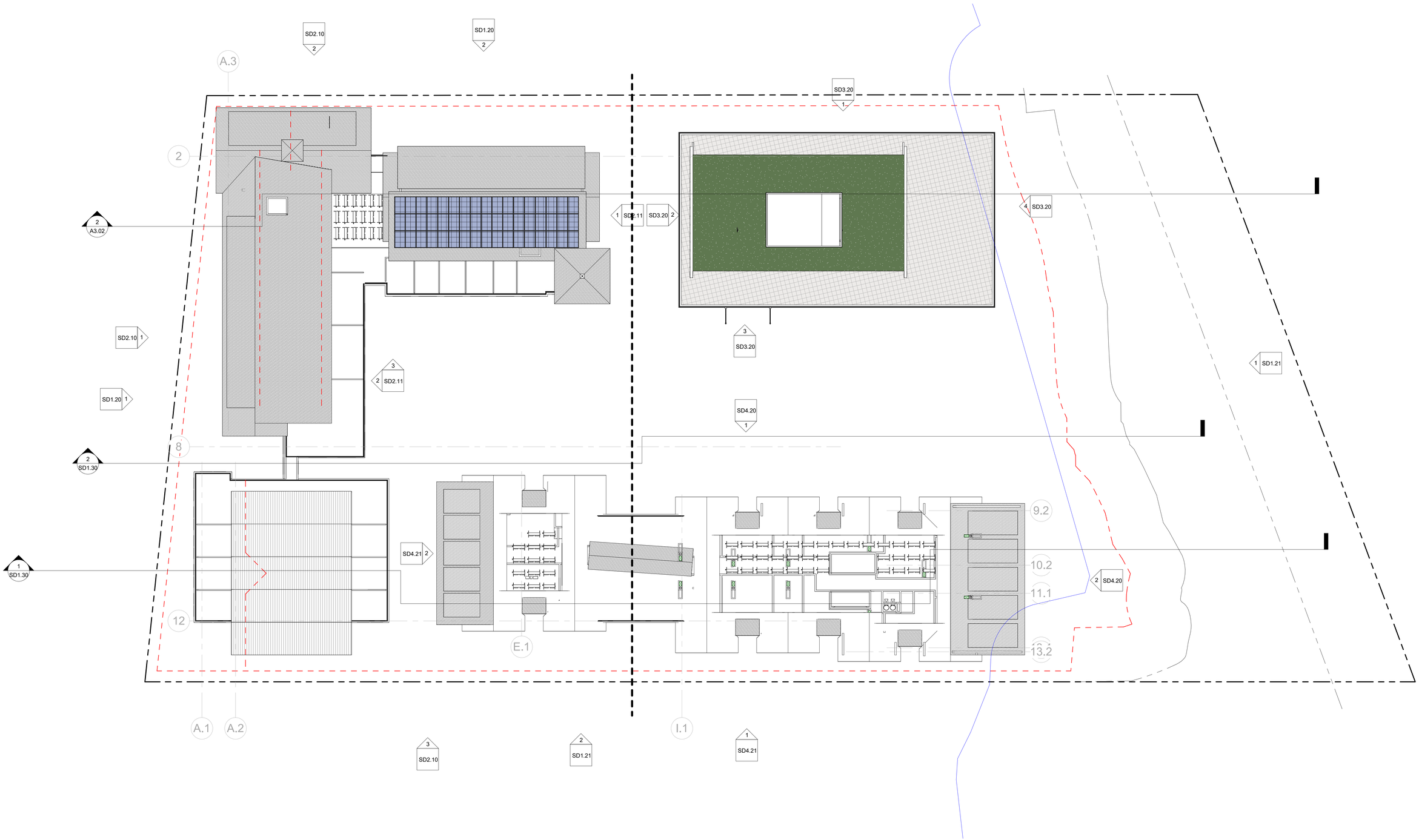
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.05 OVERALL - LEVEL_04.5
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

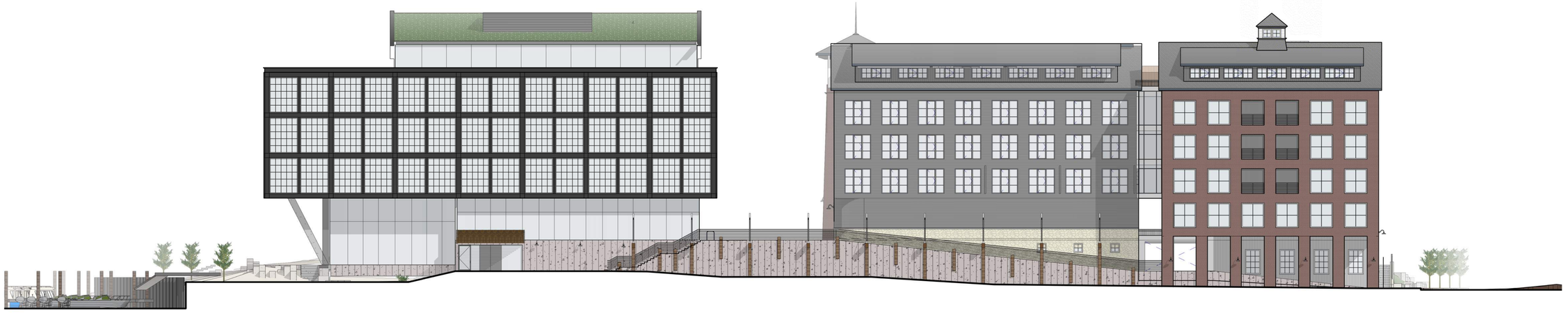


1 SD1.06 OVERALL - LEVEL_ROOF
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

1 SD1.20 SITE -WEST ELEVATION
1/16" = 1'-0"



2 SD1.20 SITE - NORTH ELEVATION
1/16" = 1'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

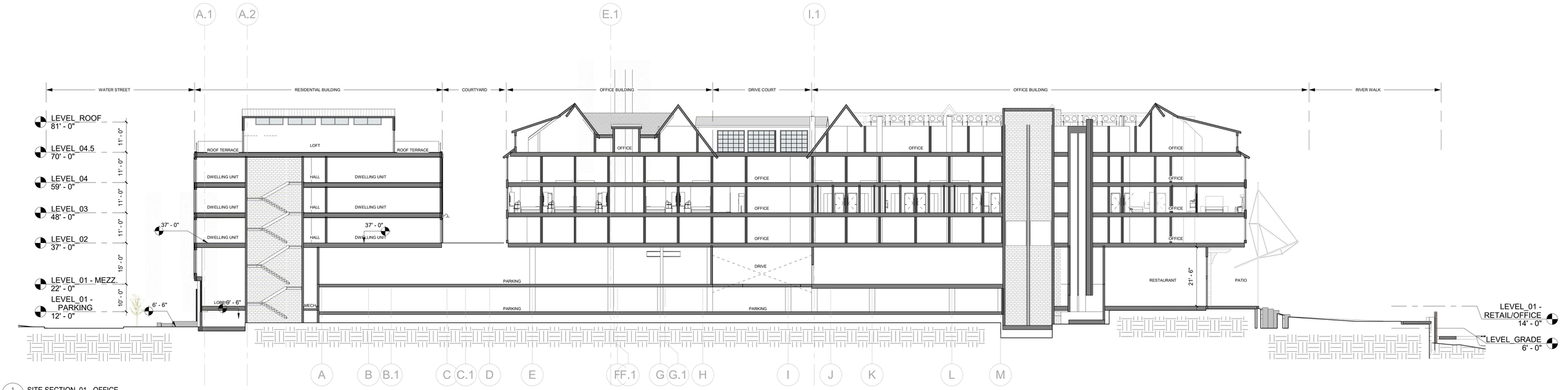
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

1 SD1.21 SITE - EAST ELEVATION
1/16" = 1'-0"

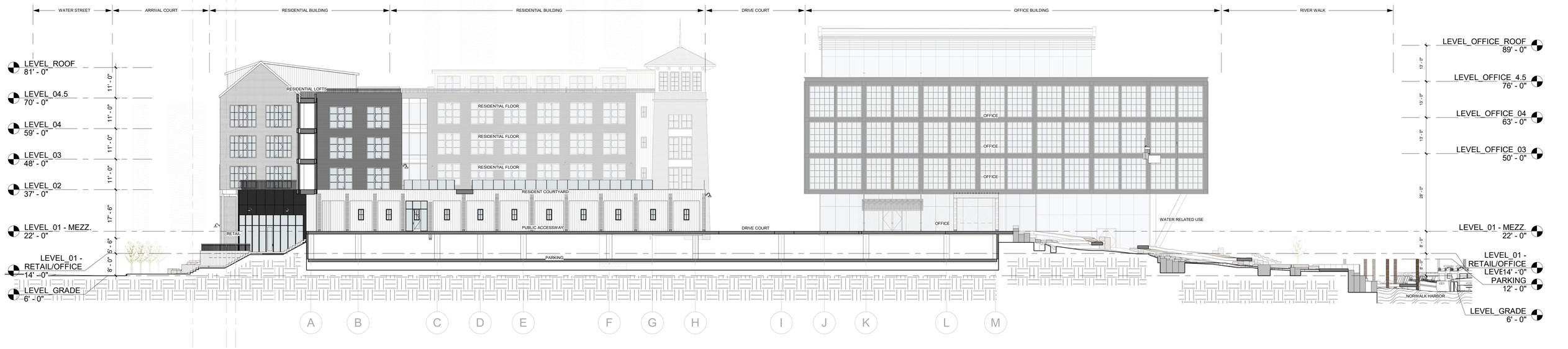
2 SD1.21 SITE - SOUTH ELEVATION
1/16" = 1'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



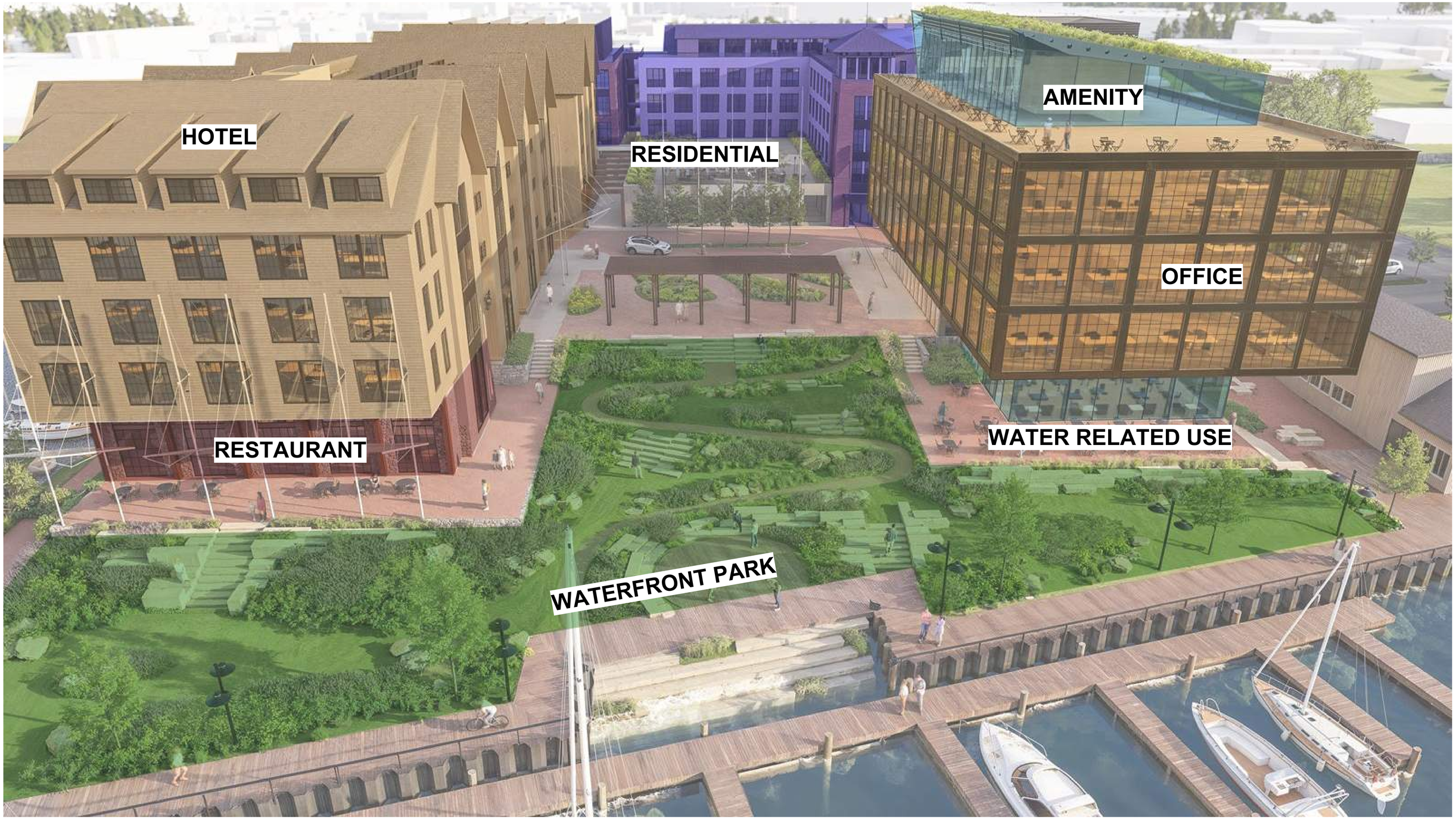
1 SITE SECTION_01 - OFFICE
SD1.30 1/16" = 1'-0"



2 SITE SECTION_02
SD1.30 1/16" = 1'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

DTS • PROVIDENT
Intelligent Land Use

TRAFFIC IMPACT STUDY
(LAND USE MODIFICATION)

108 Water Street
City of Norwalk, Fairfield County, CT

Prepared by
DTS Provident Design Engineering, LLP
1 North Broadway
White Plains, New York

Revised
January 14, 2026

DTS Provident Project No. 1187

INTRODUCTION

DTS Provident Design Engineering previously submitted a Traffic Impact Study (TIS) on June 18, 2025, for the proposed multi-use development to be located at 108 Water Street in the City of Norwalk. The Project at that time was to consist of 59 multifamily dwelling units, 110,900 square feet (sf) of office space, 3,444 sf of personal service space, 3,823 sf of restaurant space, 2,254 sf of marine supply and 14 boat slips. That Project received Approval from the City. However, slight modifications in the potential land uses has been proposed as shown in Table No. 1 below.

As illustrated within, this results in a reduction in Site-Generated Trips during the Weekday AM Peak Hour, the Weekday Midday Peak Hour and the Weekday Peak PM Hour. During the Saturday Peak Hour, there will be only a slight increase in trips to be analyzed. In addition, it also results in a reduction in overall Peak Parking Demand. Updated Traffic and Parking Analyses were conducted in this Study which show that the traffic impacts would be the same or less than previously analyzed.

TABLE NO. 1
COMPARISON OF PROJECT PROGRAM

TYPE OF DEVELOPMENT	ORIGINAL DEVELOPMENT	NEW DEVELOPMENT
MULTIFAMILY HOUSING UNITS (UNITS)	59	59
HOTEL UNITS (ROOMS)	0	130
OFFICE SPACE (SF)	110,899	38,240
PERSONAL SERVICE SPACE (SF)	3,444	3,661
RESTAURANT SPACE (SF)	3,823	3,475
MARINE SUPPLY (SF)	2,254	1,954
BOAT SLIPS (# OF SLIPS)	14	14

TRIP GENERATION COMPARISON

Table No. 2 below was the Trip Generation utilized in the original Traffic Impact Study (TIS) which utilized the 11th Edition of the Institute of Transportation Engineers (ITE) Manual, which was the current version at that time:

TABLE NO. 2
TRIP GENERATION SUMMARY – ITE MANUAL 11TH EDITION

Type of Development		Weekday AM Peak Hour		Weekday MID Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
		ENTER	**EXIT**	**ENTER**	**EXIT**	**ENTER**	**EXIT**	**ENTER**	**EXIT**
LUC 221	Multifamily Housing 59 Units	2	13	7	7	12	4	8	8
LUC 710	Office 110,899 SF	91	14	65	64	16	84	10	9
LUC 822	Personal Service* 3,444 SF	9	6	7	7	18	18	12	12
LUC 931	Fine Dining Restaurant 3,823 SF	1	1	10	5	20	10	24	17
Marine Supply 2,254 SF		2	2	2	2	2	2	2	2
Boat Slips 14 Total		2	2	2	2	2	2	2	2
20% Credit for Office Midday Lunch Hour		-	-	-13	-13	-	-	-	-
5% Credit for Office AM+PM Weekday & Sat		-5	-1	-	-	-1	-4	-1	0
Total		**103**	**37**	**80**	**75**	**69**	**116**	**57**	**49**

*The Dense Multi Use Urban setting was utilized when available. For when unavailable, the General Urban/Suburban setting was used instead
*Midday trip generation values for Fine Dining obtained by multiplying Weekday PM Peak Hour values by 0.5
*Land Use Code 822 Strip Retail Plaza <40k was used to calculate trip generation for personal service

Table No. 3 below shows the updated Trip Generation with the revised land uses. Since the original Traffic Study was performed, the 12th Edition of the Institute of Transportation Engineers (ITE) Manual has been published. Thus, this was used to calculate this trip generation for the new Project uses and sizes.

TABLE NO. 3 TRIP GENERATION SUMMARY – ITE MANUAL 12TH EDITION									
Type of Development		Weekday AM Peak Hour		Weekday MID Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
		ENTER	**EXIT**	**ENTER**	**EXIT**	**ENTER**	**EXIT**	**ENTER**	**EXIT**
LUC 221	Multifamily Housing 59 Units	2	13	4	4	12	4	11	10
LUC 310	Hotel 130 Units	16	25	39	24	12	16	19	10
LUC 710	Office 38,240 SF	46	7	22	22	6	32	0	7
LUC 822	Personal Service* 3,661 SF	8	7	12	11	19	19	13	12
LUC 931	Fine Dining Restaurant 3,475 SF	1	1	10	5	19	9	14	10
Marine Supply 1,954 SF		2	2	2	2	2	2	2	2
Boat Slips 14 Total		2	2	2	2	2	2	2	2
20% Credit for Hotel Midday Lunch Hour				-8	-5				
5% Credit for Hotel AM+PM Weekday & Sat		-1	-1			-1	-1	-1	-1
20% Credit for Office Midday Lunch Hour		-	-	-4	-4	-	-	-	-
5% Credit for Office AM+PM Weekday & Sat		-2	0	-	-	0	-2	0	0
Total		**73**	**55**	**78**	**60**	**72**	**82**	**60**	**52**

*The Dense Multi Use Urban setting was utilized when available. For when unavailable, the General Urban/Suburban setting was used instead

*Midday trip generation values for Fine Dining obtained by multiplying Weekday PM Peak Hour values by 0.5

*Land Use Code 822 Strip Retail Plaza <40k was used to calculate trip generation for personal service

Revised Traffic Figures are illustrated in Attachment A.

Below is Table No. 4 which shows the differences in trip generation between the original TIS and the revised TIS.

TABLE NO. 4 TRIP GENERATION COMPARISON								
Type of Development	Weekday AM Peak Hour		Weekday MID Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	ENTER	**EXIT**	**ENTER**	**EXIT**	**ENTER**	**EXIT**	**ENTER**	**EXIT**
ORIGINAL TRIP GENERATION TOTAL (11th EDITION)	103	37	80	75	69	116	57	49
UPDATED TRIP GENERATION TOTAL (12th EDITION)	73	55	78	60	72	82	60	52
DIFFERENCE	**-30**	**+18**	**-2**	**-15**	**+3**	**-34**	**+3**	**+3**
TOTAL PEAK HOUR DIFFERNCE	**-12**		**-17**		**-31**		**+6**	

As illustrated above, this results in a reduction in Site-Generated Trips during the Weekday AM Peak Hour, the Weekday Midday Peak Hour and the Weekday Peak PM Hour. During the Saturday Peak Hour, there will be only a slight increase in trips to be analyzed.

LEVEL OF SERVICE ANALYSIS

DTS Provident revised the Build scenario's Levels of Service (LOS) and delay using the updated trip generation. The following Tables 5A and 5B illustrate the revised overall LOS and delay.

TABLE NO. 5A
OVERALL LEVEL OF SERVICE SUMMARY
PEAK WEEKDAY AM HOUR and PEAK WEEKDAY MIDDAY HOUR

Intersection	PEAK WEEKDAY AM HOUR		PEAK WEEKDAY MID HOUR	
	No-Build	Build	No-Build	Build
	LOS Delay (sec/veh)	LOS Delay (sec/veh)	LOS Delay (sec/veh)	LOS Delay (sec/veh)
Water Street & Washington Street	C 32.4	D 38.0	C 26.6	C 28.1
Water Street & Haviland Street	a 0.5	a 0.5	a 0.5	a 0.4
Water Street & Elizabeth Street	a 1.9	a 2.1	a 2.0	a 2.1
Water Street & Hanford Place	B 15.8	B 16.2	B 13.2	B 13.2
Washington Street & North/South Main Street	C 34.9	D 36.4	C 27.7	C 28.0
Washington Street/Fort Point Street & Seaview Avenue	C 21.3	C 21.9	B 14.4	B 17.0
North/South Main Street & Monroe Street/Hanford Place	C 32.0	C 33.5	C 26.6	C 27.5
Water Street & Proposed Site Driveway A	N/A N/A	a 0.7	N/A N/A	a 0.8
Water Street & Proposed Site Driveway B	N/A N/A	a 0.6	N/A N/A	a 0.8

*Signalized intersections are denoted by upper case letters.
*Unsignalized intersections are denoted by lower case letters.

TABLE NO. 5B OVERALL LEVEL OF SERVICE SUMMARY PEAK WEEKDAY PM HOUR and PEAK SATURDAY HOUR						
Intersection	**PEAK WEEKDAY PM HOUR**			**PEAK SAT HOUR**		
	No-Build	**Build**	**Build With Imp.**	**No-Build**	**Build**	**Build With Imp.**
	LOS Delay (sec/veh)	**LOS Delay (sec/veh)**	**LOS Delay (sec/veh)**	**LOS Delay (sec/veh)**	**LOS Delay (sec/veh)**	**LOS Delay (sec/veh)**
Water Street & Washington Street	E 58.6	E 67.1	[(1)]E 63.5	D 41.9	D 48.3	[(2)]D 46.7
Water Street & Haviland Street	a 0.4	a 0.4	N/A	a 0.6	a 0.6	N/A
Water Street & Elizabeth Street	a 3.9	a 4.9	N/A	a 4.0	a 4.6	N/A
Water Street & Hanford Place	B 15.9	B 15.9	N/A	B 13.1	B 17.6	N/A
Washington Street & North/South Main Street	C 33.6	D 35.5	N/A	C 31.4	C 32.3	N/A
Washington Street/Fort Point Street & Seaview Avenue	C 22.9	C 23.8	N/A	B 18.2	B 18.5	N/A
North/South Main Street & Monroe Street/Hanford Place	C 30.0	C 31.1	N/A	C 24.7	C 25.1	N/A
Water Street & Proposed Site Driveway A	N/A N/A	a 1.1	N/A	N/A N/A	a 0.7	N/A
Water Street & Proposed Site Driveway B	N/A N/A	a 0.6	N/A	N/A N/A	a 0.5	N/A

Signalized intersections are denoted by upper case letters.
Unsignalized intersections are denoted by lower case letters.
(1) Takes 5 seconds of green time from Ø2. Gives 3 seconds of green time to Ø4 & Ø8. Gives 2 seconds of green time to Ø1.
(2) Takes 2 seconds of green time from Ø2. Gives 2 seconds of green time to Ø4 & Ø8.

More detailed Level of Service Tables by intersection approach lane group are contained in Attachment B. Copies of the capacity analysis summary sheets are contained in Attachment C with the LOS Standards contained in Attachment D. It is the opinion of DTS Provident that the study intersections will not be significantly impacted by the proposed Project.

The updated trip generation has generally caused the overall trips to be reduced. Therefore, previously recommended improvements at some intersections are no longer necessary. These include the following:

1) Water Street & Washington Street
    - AM Peak Hour
        (a) Original Westbound Left changed from an E of 60.2 seconds to an F of 87.3 seconds
        (b) Updated Westbound Left changed from an E of 60.2 seconds to an E of 79.7 seconds
        (c) Therefore, the previously recommended improvement of taking 5 seconds of green time from Ø2 and giving to Ø1 is no longer necessary (but could still be implemented).

2) North/South Main Street & Washington Street
    - AM Peak Hour
        (a) Original recommended timing improvements of taking 4 seconds of green time from Ø2 and Ø6 and giving to Ø4 and Ø8 is no longer necessary
    - PM Peak Hour
        (a) Original recommended timing improvements of taking 3 seconds of green time from Ø2 and Ø6 and giving to Ø4 and Ø8 is no longer necessary.

The only recommended improvement remaining is:

1) Water Street & Washington Street
    - PM Peak Hour
        (a) Take 5 seconds of green time from Ø2. Give 3 seconds of green time to Ø4 and Ø8. Give 2 seconds of green time to Ø1.
    - SAT Peak Hour
        (a) Take 2 seconds of green time from Ø2. Give 2 seconds of green time to Ø4 and Ø8.

REVISED SHARED PARKING ANALYSIS

The new land use program also reduced the shared parking calculations. To reiterate the new program, it is shown below:

- 59 Multifamily Housing Units
- 130 Hotel Rooms
- 38,240 SF of Office Space
- 3,661 SF of Personal Service Space
- 3,475 SF of Restaurant Space
- 1,954 SF of Marine Supply
- 14 Boat Slips

DTS Provident utilized the Institute of Transportation Engineers Parking Generation Manual, 6th Edition to obtain Time-of-Day distributions for each of the proposed uses. See Table No 6 Below for the Parking Summary Table:

TABLE NO. 6
ITE SHARED PARKING SUMMARY – ITE MANUAL 6TH EDITION

Time of Day	Previous Program Peak Parking Demand (Spaces)	New Program Peak Parking Demand (Spaces)
Weekday	227	178
Friday	225	178
Saturday	110	167

As shown in the table above, the peak parking demand has decreased with the new program during the weekday. There is an increase on Saturday due to the parking requirement of the hotel in the evening hours, but the Saturday Peak Parking Demand is still less than the Weekday Peak Demand which has now been reduced to 178 parking spaces. Appendix E illustrates the Shared Parking Analysis tables.

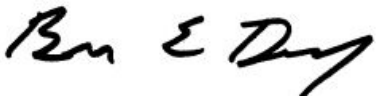
According to the City's Zoning Code, 238 parking spaces are required while a total of 249 parking spaces are being provided. According to the ITE shared parking analysis, 179 parking spaces are required to accommodate all future uses. The 242 spaces to be provided will be sufficient for the Project.

CONCLUSION

Based upon the information contained herein, it is the considered professional opinion of DTS Provident that the land use change and the corresponding updated trip generation has generally caused the overall number of Peak Hour trips to be reduced. Therefore, some of the previously recommended improvements are no longer necessary. In addition, based upon the ITE Shared Parking, there would also be a reduction in the Peak Parking Demand.

Very truly yours,

DTS Provident Design Engineering, LLP



Brian E. Dempsey P.E., P.T.O.E., RSP1
Partner

Brian Haggarty, EIT
Traffic Engineer

https://divneytungschwalbe.sharepoint.com/sites/DTSP/Shared Documents/Projects/Projects 1100/1187 Norwalk - 108 Water Street/COR/2026_01_12_1187_TIS_REV_V2/1187_TIS_REV_Letter.docx

APPENDIX A

TRAFFIC FIGURES

C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

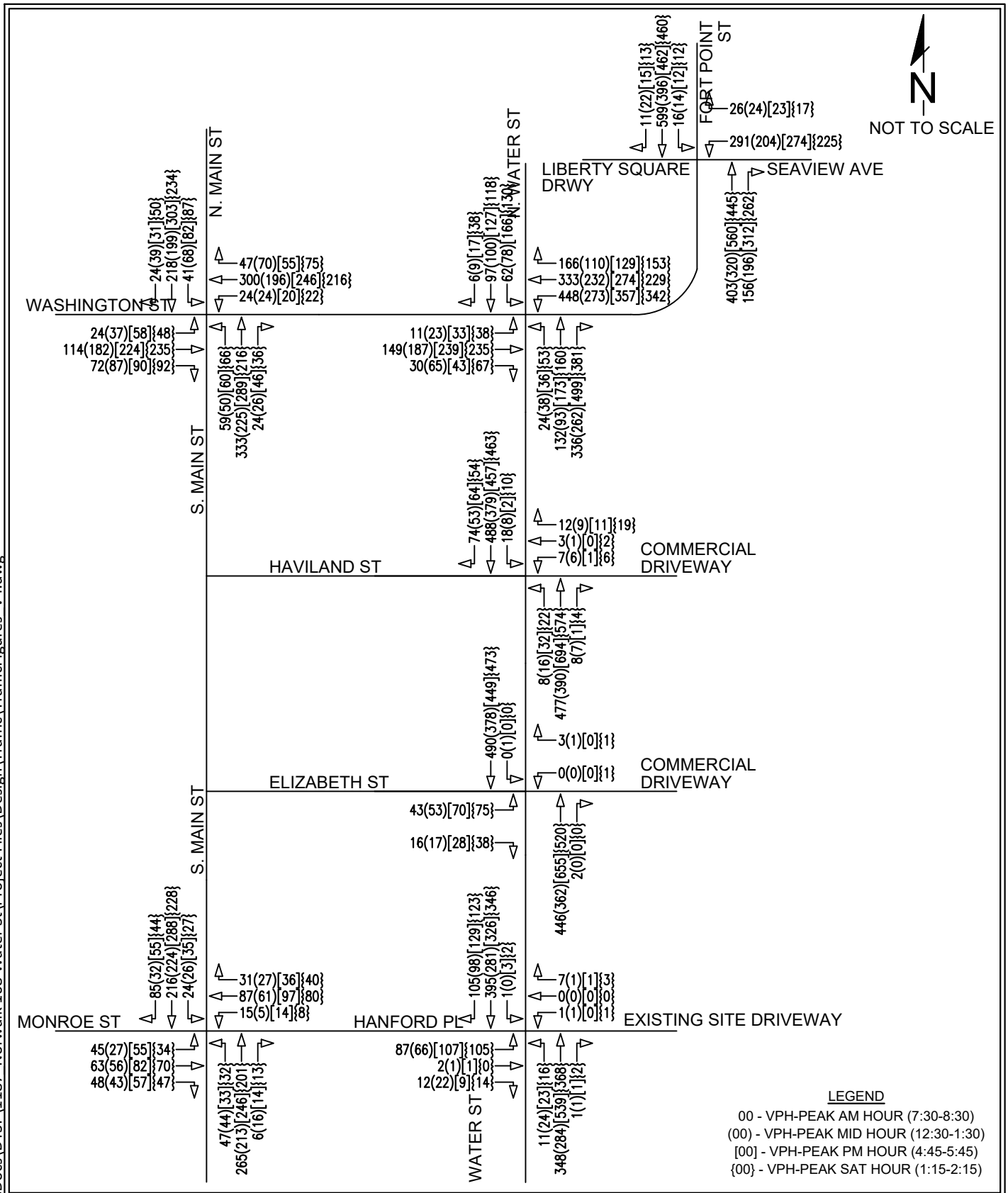
DTS · PROVIDENT
Intelligent Land Use

DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Site Location
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: As Shown
January, 2026

Figure No. 01



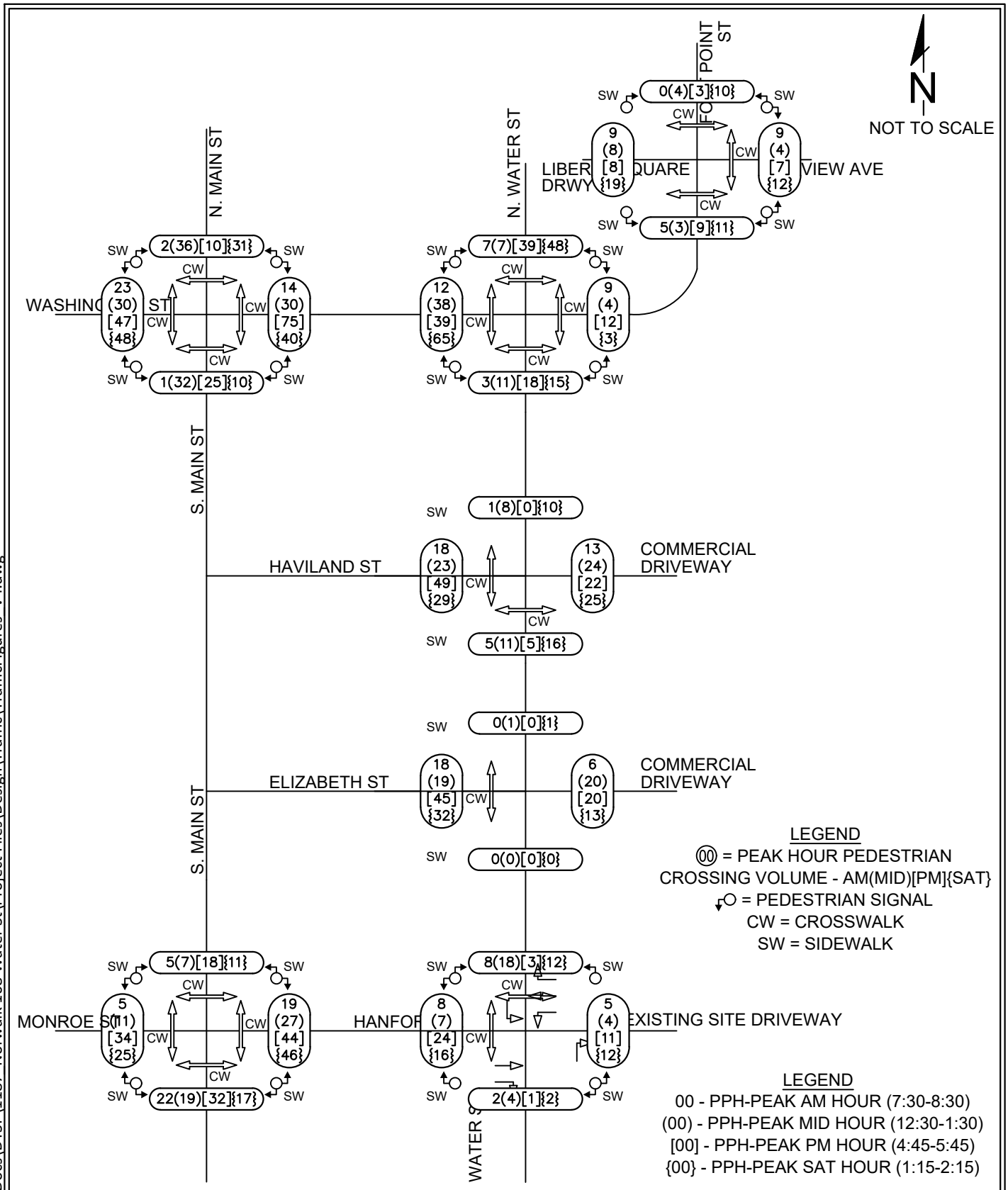
C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Existing Traffic Volumes
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 02



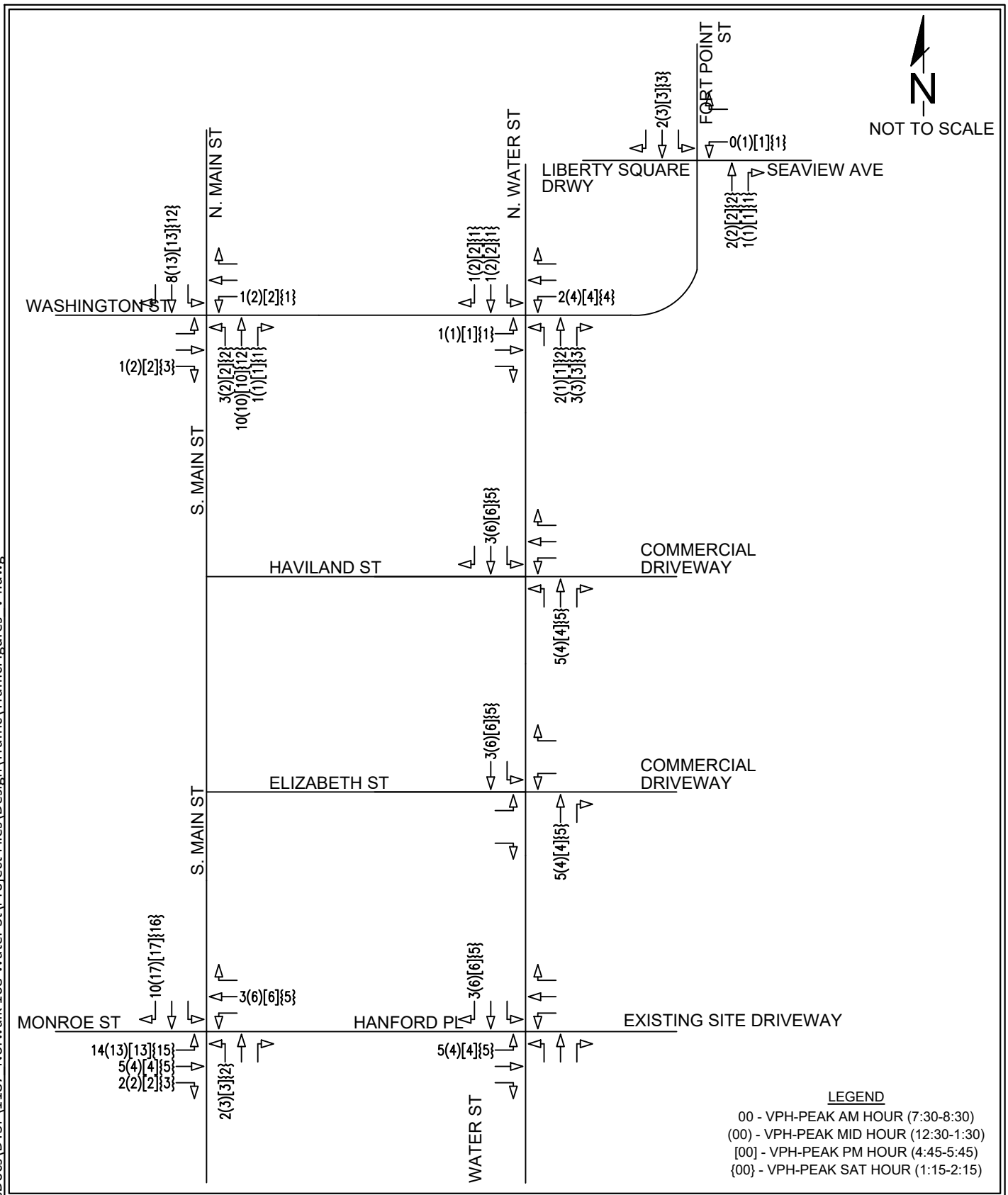
DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Existing Pedestrian Volumes
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 03

C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg



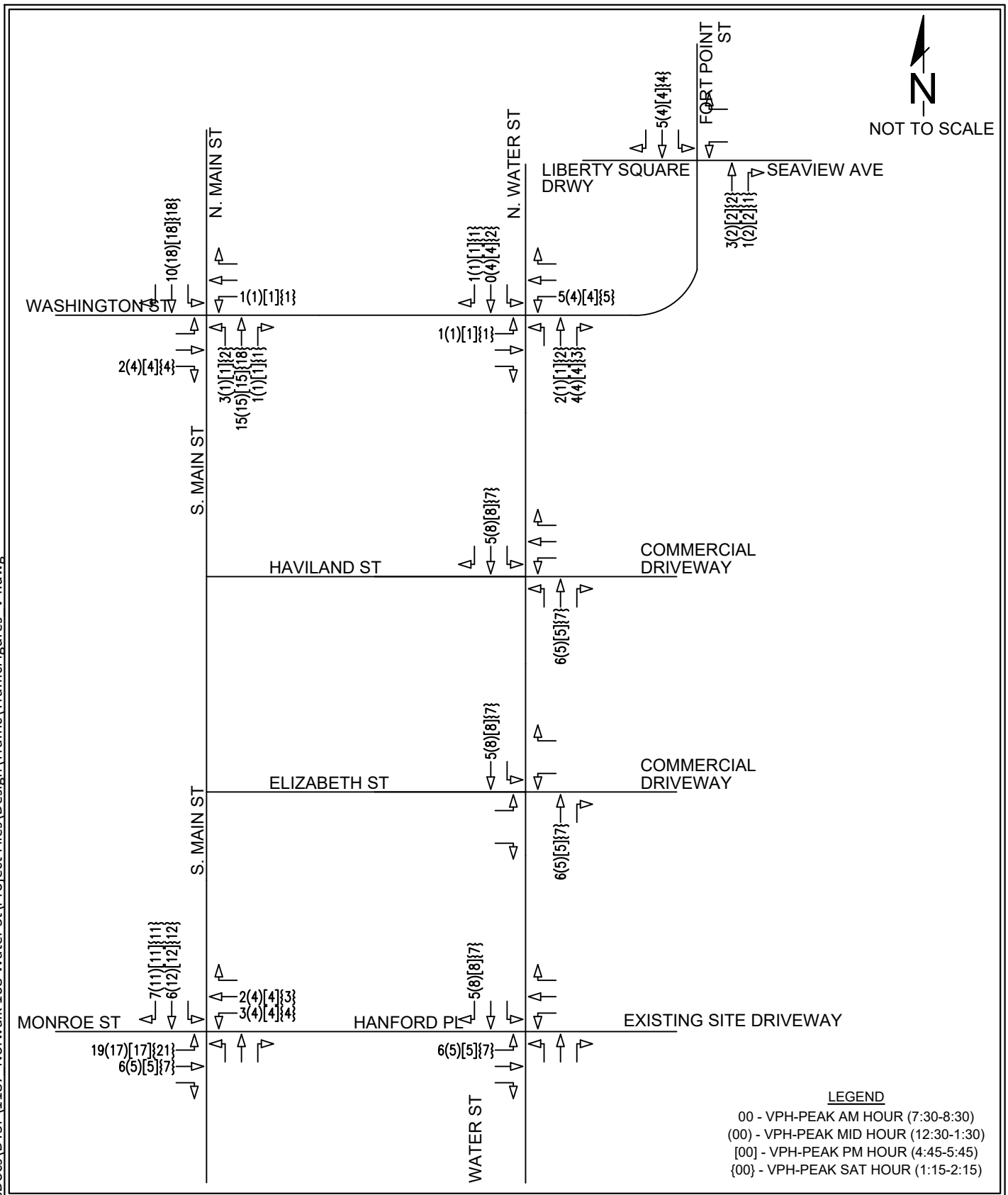
C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Adjacent Development Traffic Volumes
10 Monroe Street
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 04



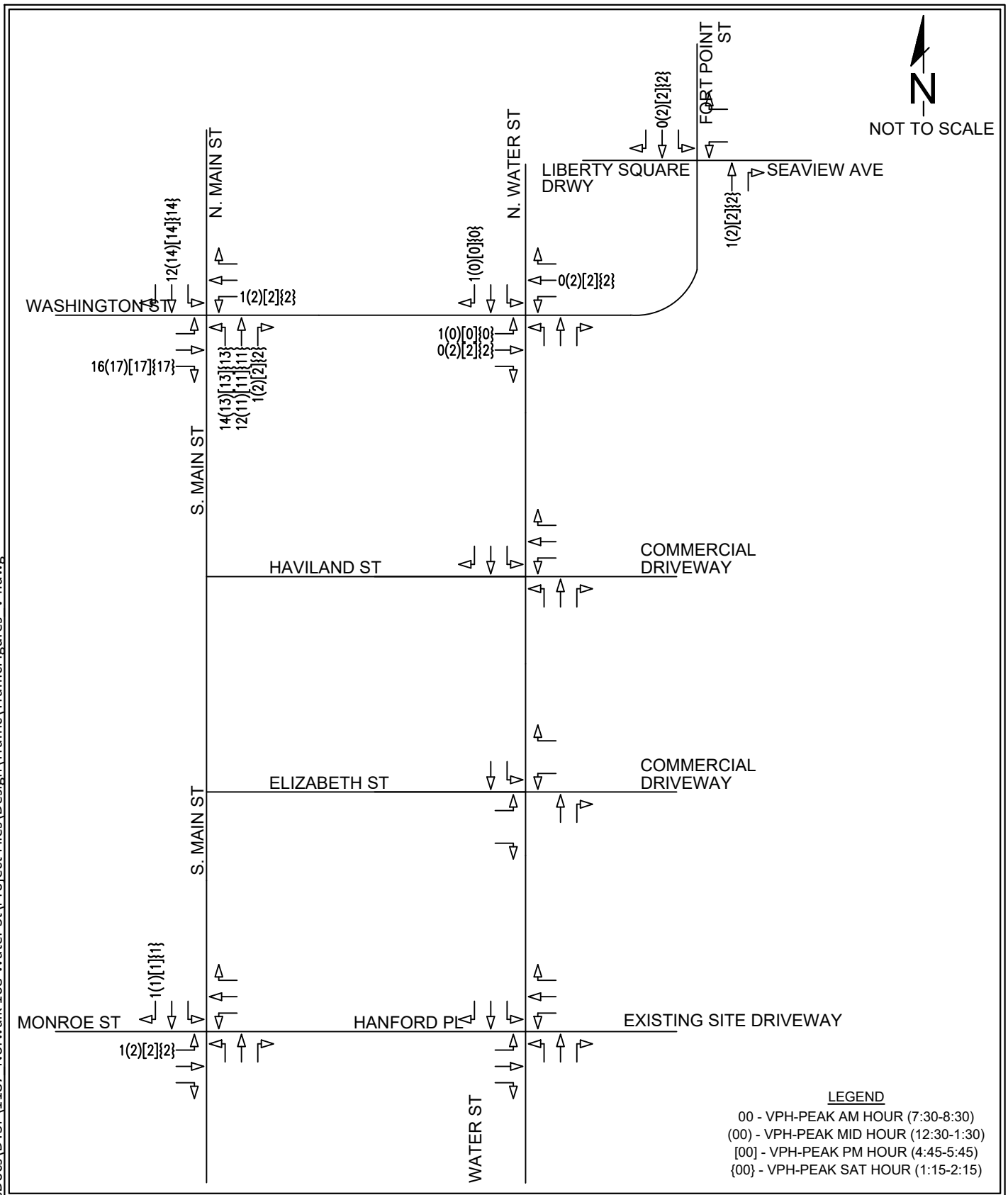
DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Adjacent Development Traffic Volumes
15-07 Chestnut Street
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 05

C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg



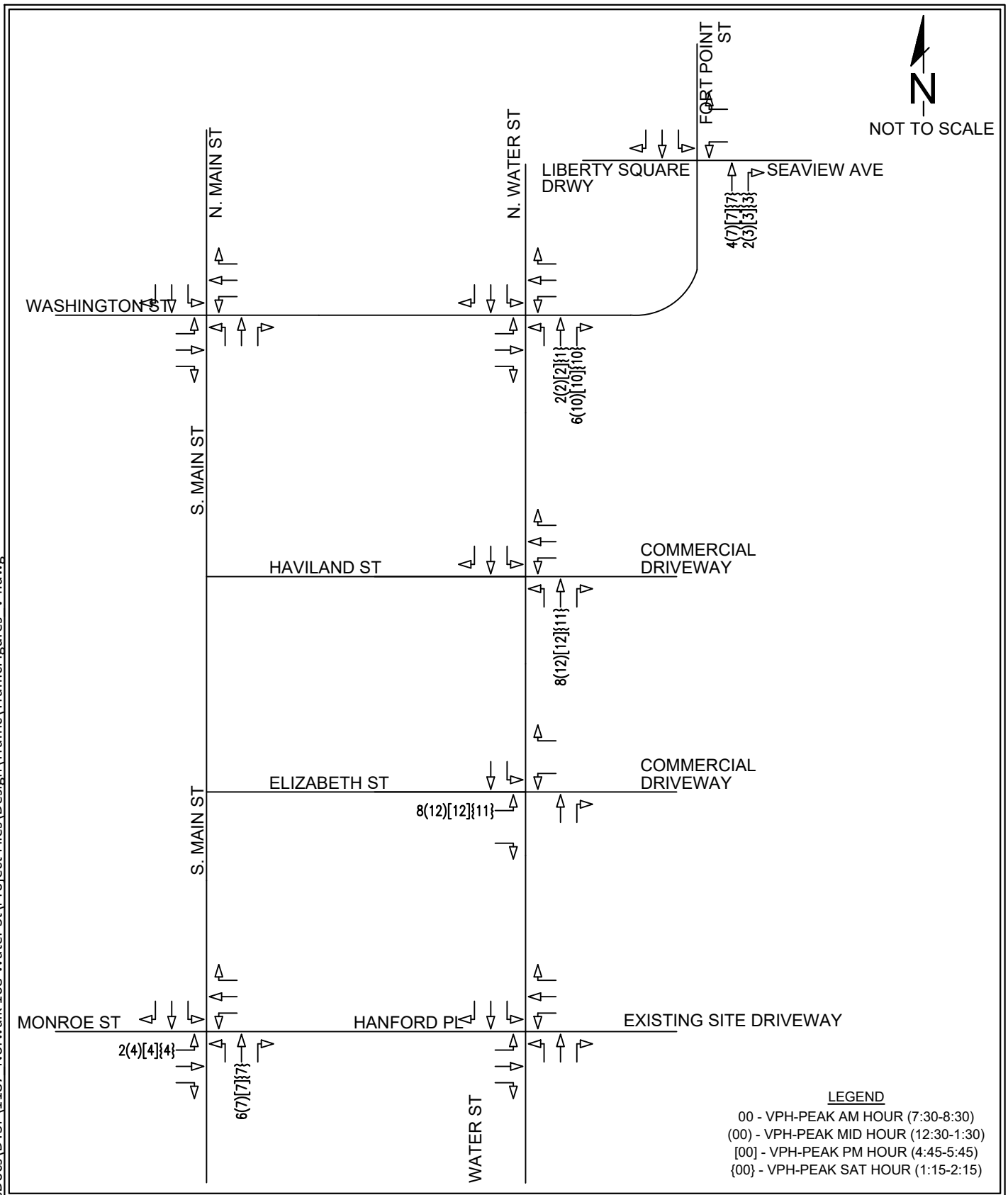
C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Adjacent Development Traffic Volumes
25-35 South Main Street
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 06



C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

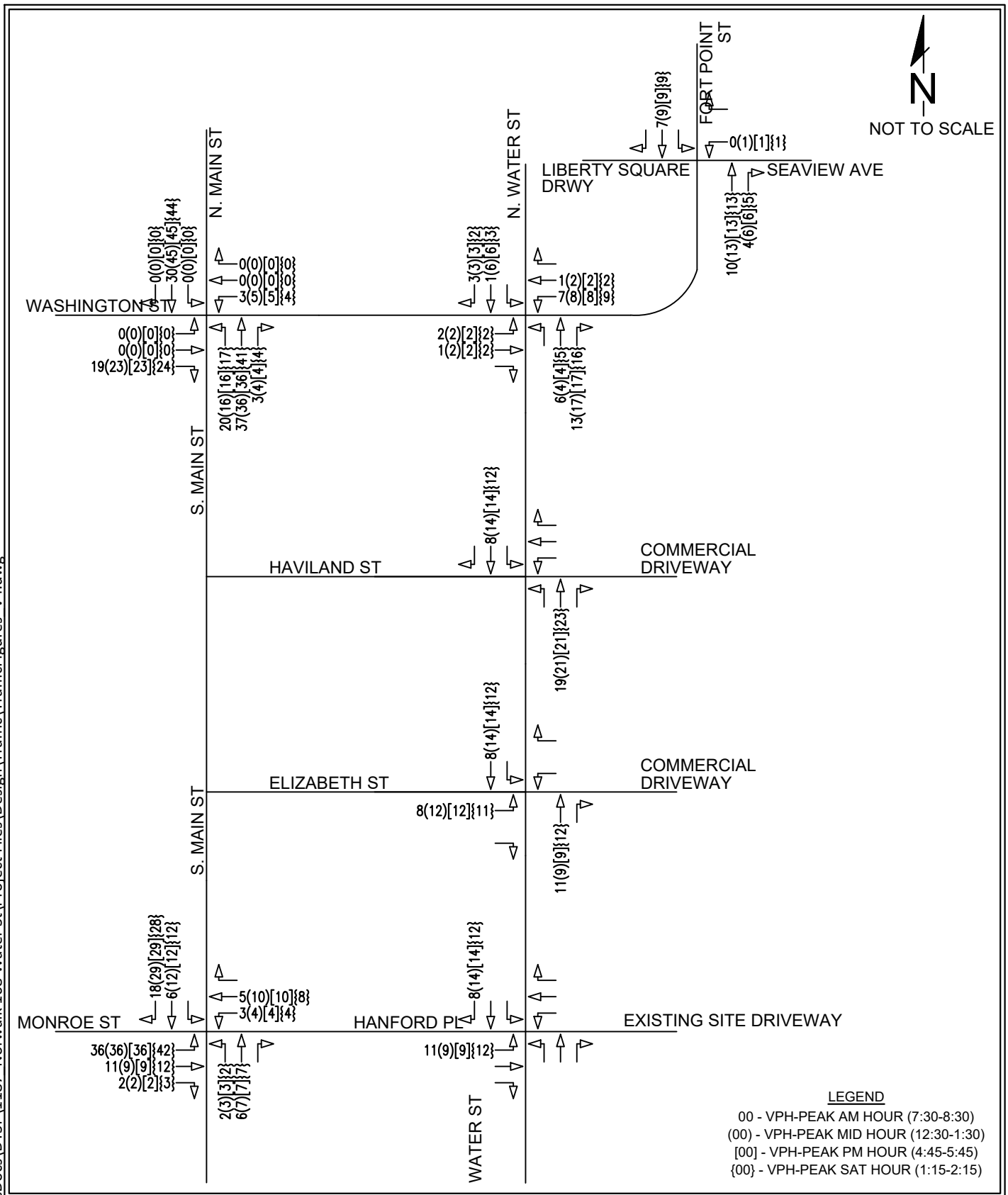
DTS · PROVIDENT
Intelligent Land Use

DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Adjacent Development Traffic Volumes
71 Water Street
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 07



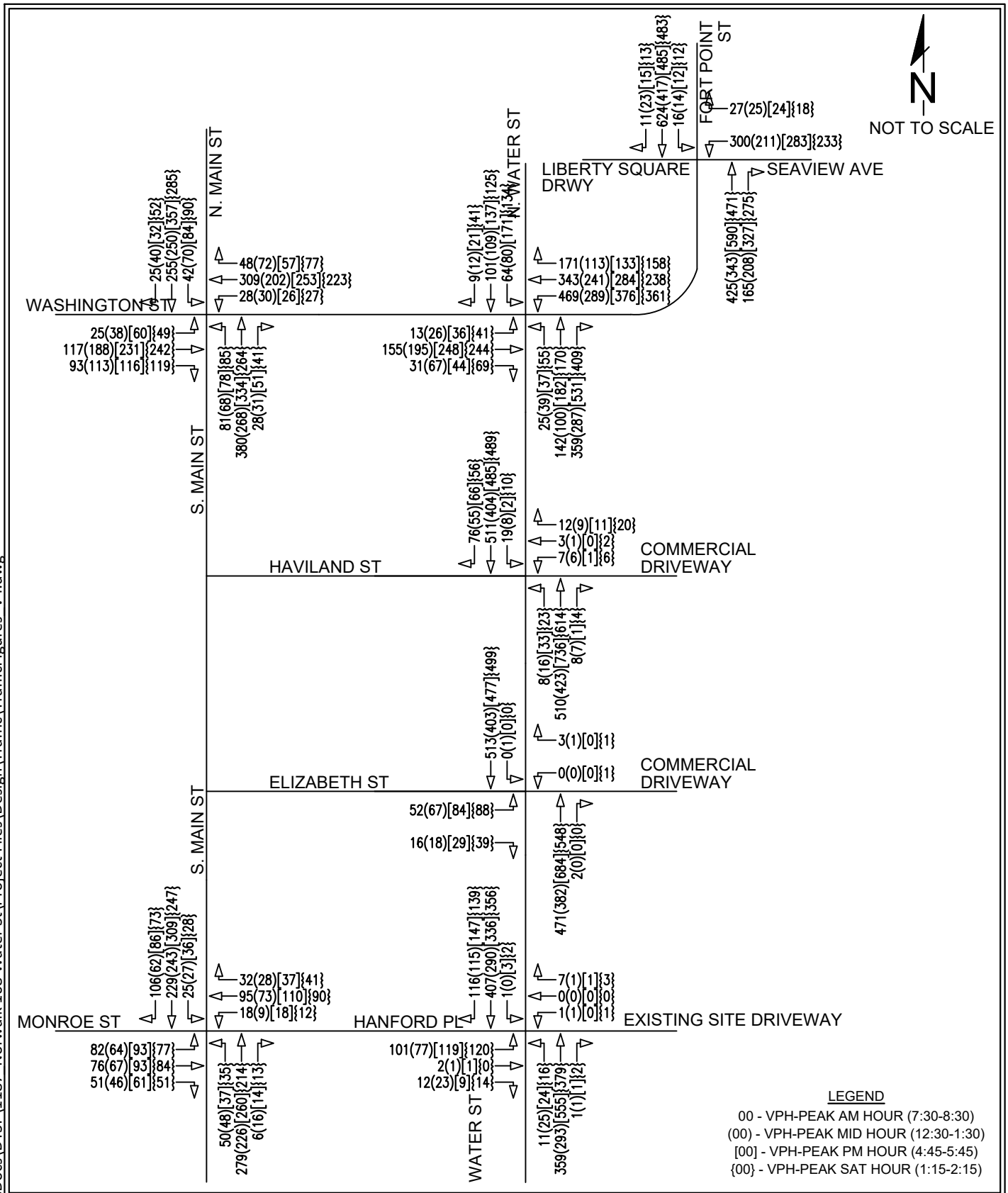
C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Adjacent Development Traffic Volumes
Total
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 08



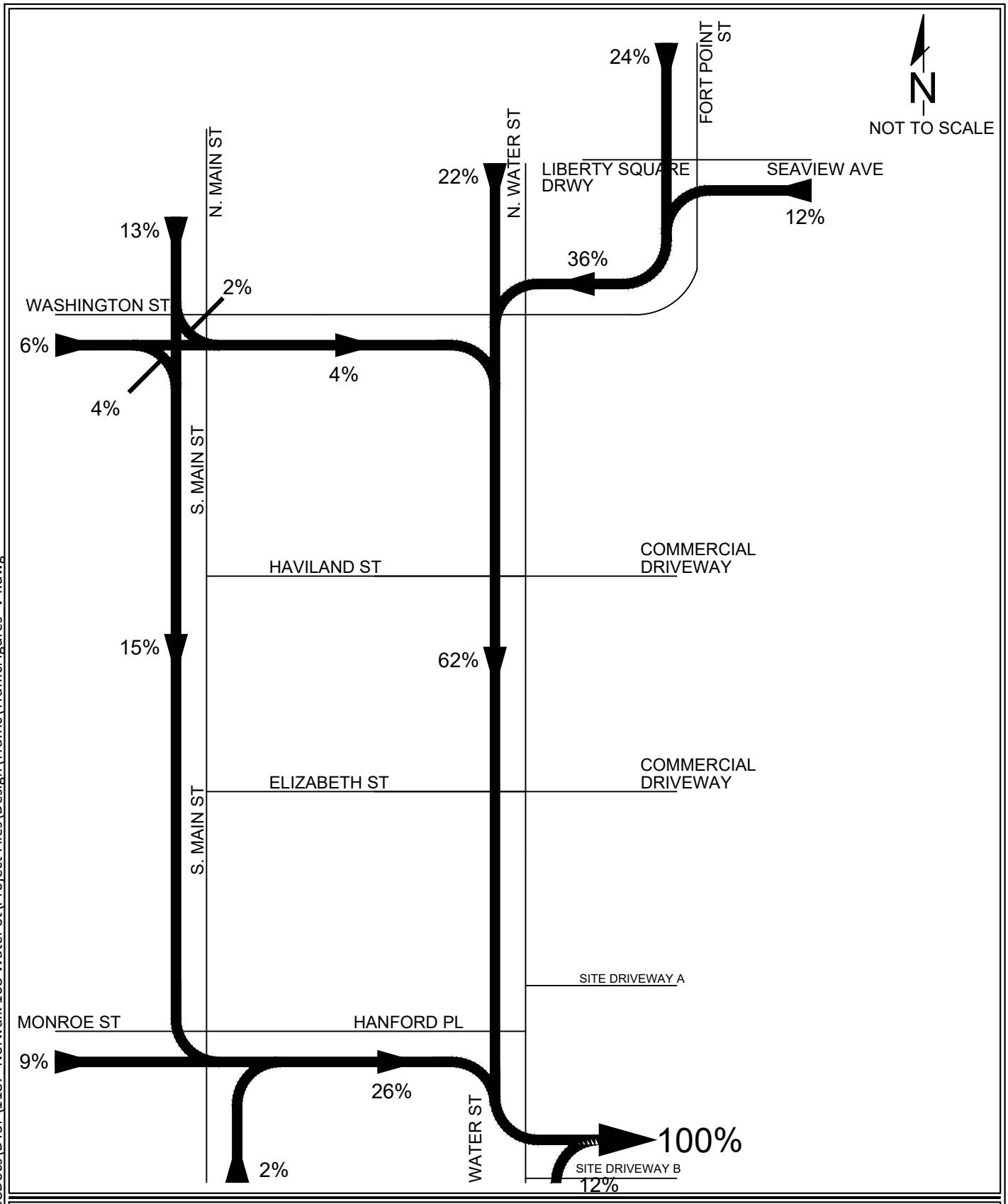
C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

No-Build Traffic Volumes
108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 09



DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

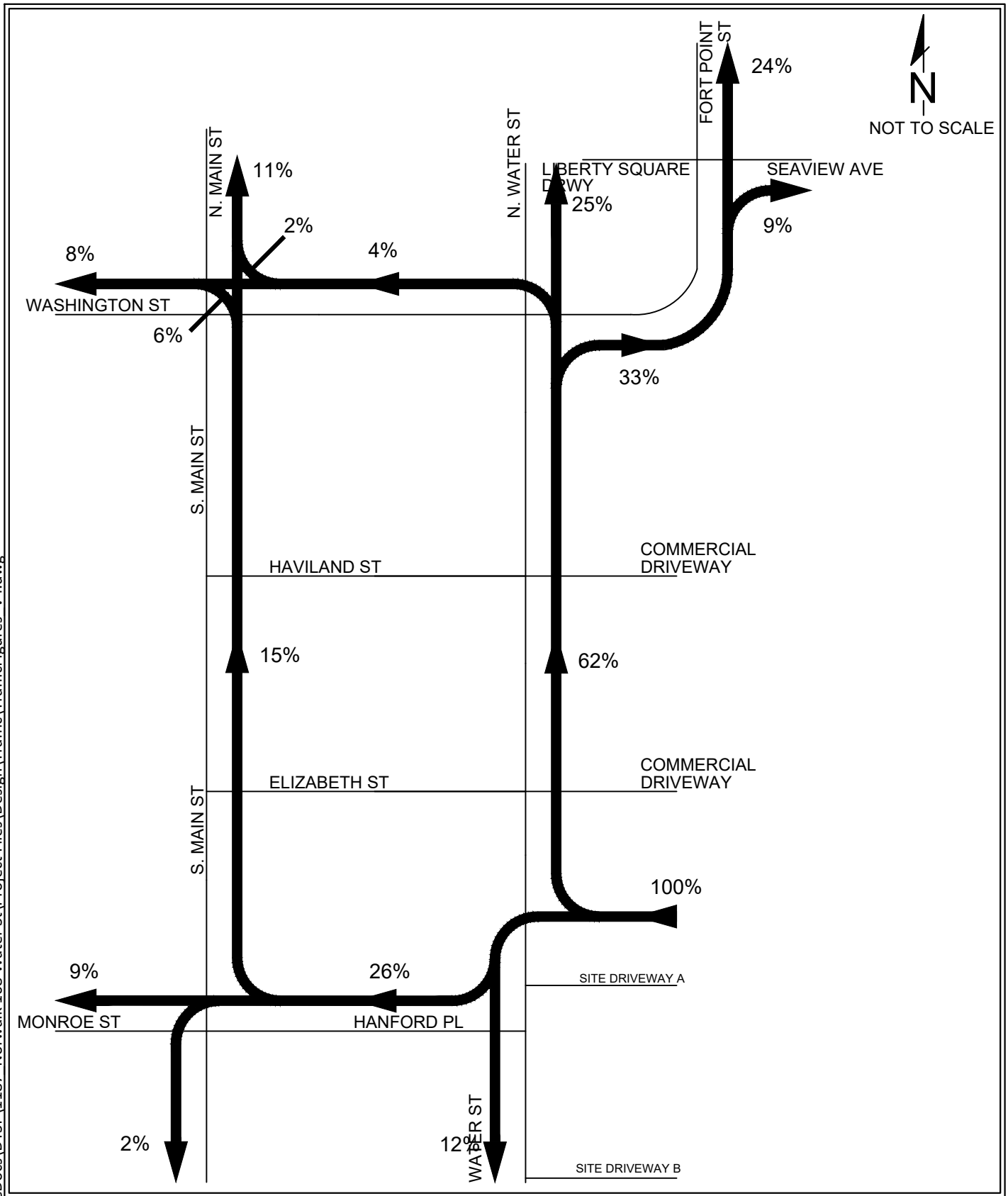
Arrival Distribution

108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 10

C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg



C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

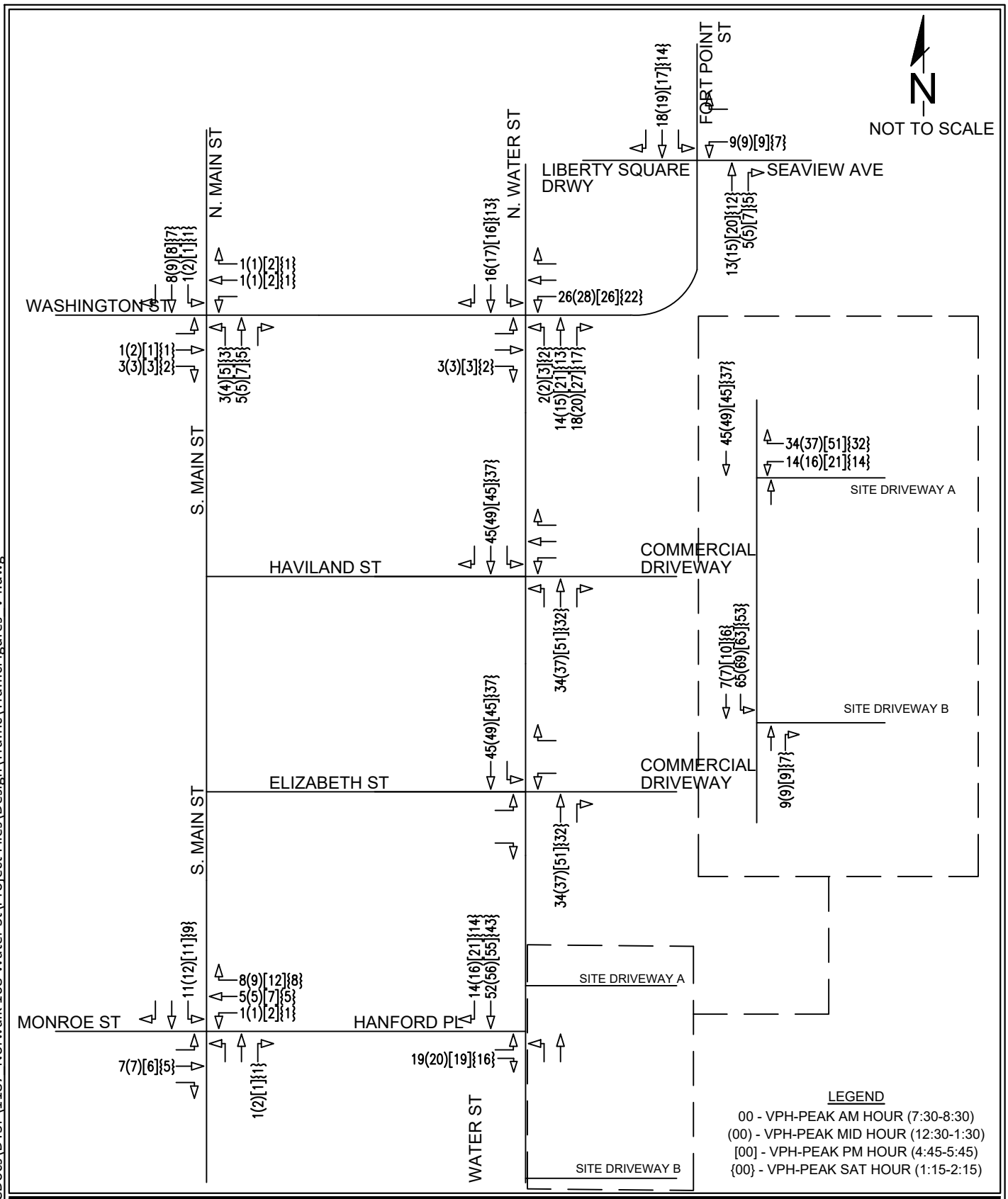
DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Departure Distribution

108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 11



C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

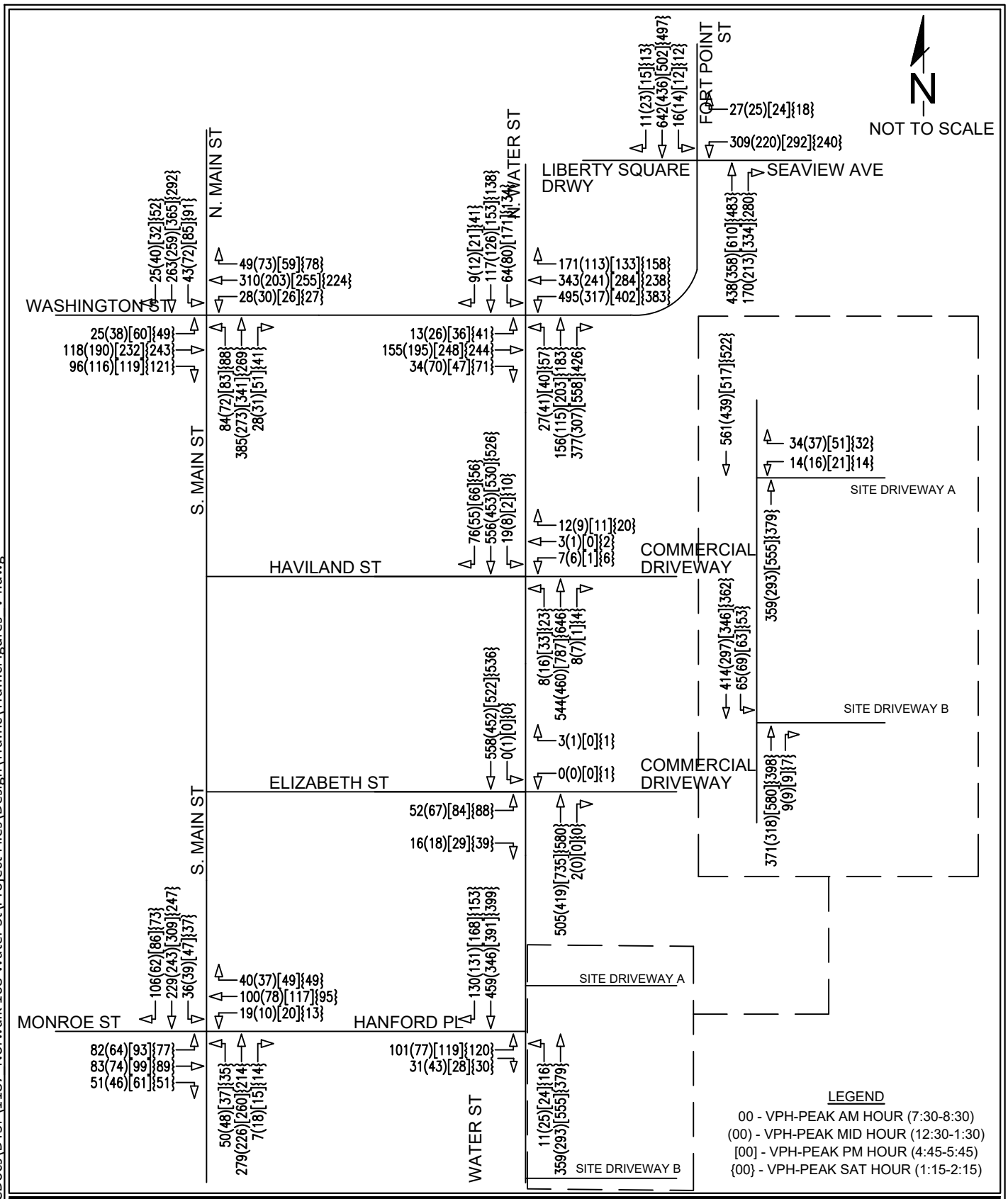
DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Site Generated Traffic Volumes

108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 12



C:\Users\bhaggarty\DC\ACCDocs\DTSP\1187 Norwalk 108 Water St\Project Files\Design\Traffic\TrafficFigures V4.dwg

DTS · PROVIDENT
Intelligent Land Use
DTS Provident Design Engineering, LLP
One North Broadway
White Plains, NY 10601
P: 914.428.0010
F: 914.428.0017

Build Traffic Volumes

108 Water Street
Norwalk, Fairfield County, CT

Project No. 1187
Scale: N.T.S.
January, 2026

Figure No. 13

APPENDIX B

LEVEL OF SERVICE SUMMARY

TABLES

TABLE B-1A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Washington Street

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Washington Street							
EB	OVERALL	C 31.9	D 36.5	D 37.7	D 44.1	D 46.9	D 49.4
WB	L	C 33.8	E 60.2	E 79.7	C 27.4	C 29.8	C 33.7
	TR	B 17.8	C 22.5	C 22.9	B 18.7	B 19.0	B 19.2
	OVERALL	C 25.4	D 40.5	D 50.8	C 22.5	C 23.9	C 26.1
Water Street							
NB	L	C 31.5	C 34.2	C 34.3	C 30.7	C 30.8	C 31.1
	T	C 32.1	D 35.6	D 35.7	C 29.7	C 29.8	C 30.1
	R	A 0.4	A 0.4	A 0.5	A 0.2	A 0.3	A 0.3
	OVERALL	B 10.4	B 11.5	B 11.9	B 10.1	A 10.0	B 10.4
SB	OVERALL	D 38.3	D 44.9	D 47.4	D 40.0	D 41.6	D 43.3
INTERSECTION		C **23.2**	C **32.4**	D **38.0**	C **25.5**	C **26.6**	C **28.1**

TABLE B-1B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Washington Street

APPROACH		PM PEAK HOUR				SAT PEAK HOUR			
		2025	2028	2028	2028	2025	2028	2028	2028
		EXISTING	NO-BUILD	BUILD	BUILD WITH IMPROVEMENTS	EXISTING	NO-BUILD	BUILD	BUILD WITH IMPROVEMENTS
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Washington Street									
EB	OVERALL	D 39.3	D 41.1	D 41.1	D 48.3	D 54.0	E 56.0	E 56.4	E 59.7
WB	L	F 166.7	F 218.3	F 257.0	F 232.4	D 45.2	D 54.7	E 66.8	E 77.8
	TR	C 25.6	C 26.3	C 26.4	C 27.8	B 18.3	B 18.6	B 18.6	C 20.1
	OVERALL	F 92.0	F 117.8	F 139.6	F 128.3	C 31.0	D 35.9	D 42.3	D 48.4
Water Street									
NB	L	C 27.6	C 28.0	C 28.2	C 27.2	C 33.8	C 34.5	D 35.1	C 32.8
	T	C 27.6	C 27.7	C 28.1	C 27.3	C 31.9	C 32.3	C 32.8	C 31.0
	R	A 0.4	A 0.5	A 0.5	A 0.5	A 0.3	A 0.4	A 0.4	A 0.4
	OVERALL	A 8.5	A 8.5	A 8.9	A 8.6	B 11.8	B 11.9	B 12.2	B 11.6
SB	OVERALL	D 44.7	D 47.5	E 55.2	D 51.1	E 79.8	F 103.9	F 130.8	F 102.6
INTERSECTION		D **48.8**	E **58.6**	E **67.1**	E **63.5**	D **36.4**	D **41.9**	D **48.3**	D **46.7**

*PM Improvements - Take 5 seconds of green time from Ø2. Give 3 seconds of green time to Ø4 & Ø8. Give 2 seconds of green time to Ø1.
*SAT Improvements - Take 2 seconds of green time from Ø2. Give 2 seconds of green time to Ø4 & Ø8.

TABLE B-2A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Haviland Street

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025 EXISTING	**2028 NO-BUILD**	**2028 BUILD**	**2025 EXISTING**	**2028 NO-BUILD**	**2028 BUILD**
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Driveway							
WB	OVERALL	c 15.9	c 16.7	c 17.9	b 13.1	b 13.6	b 14.4
Water Street							
NB	OVERALL	a 0.1	a 0.1	a 0.1	a 0.3	a 0.3	a 0.3
SB	OVERALL	a 0.3	a 0.3	a 0.3	a 0.2	a 0.1	a 0.1
INTERSECTION		a **0.5**	a **0.5**	a **0.5**	a **0.5**	a **0.5**	a **0.4**

TABLE B-2B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Haviland Street

APPROACH		PM PEAK HOUR			SAT PEAK HOUR		
		2025 EXISTING	**2028 NO-BUILD**	**2028 BUILD**	**2025 EXISTING**	**2028 NO-BUILD**	**2028 BUILD**
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Driveway							
WB	OVERALL	b 14.3	b 14.9	c 15.7	c 15.2	c 15.9	c 16.7
Water Street							
NB	OVERALL	a 0.4	a 0.4	a 0.4	a 0.3	a 0.3	a 0.3
SB	OVERALL	a 0.0	a 0.0	a 0.0	a 0.2	a 0.2	a 0.2
INTERSECTION		a **0.4**	a **0.4**	a **0.4**	a **0.6**	a **0.6**	a **0.6**

TABLE B-3A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Elizabeth Street

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025 EXISTING	2028 NO-BUILD	2028 BUILD	2025 EXISTING	2028 NO-BUILD	2028 BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Elizabeth Street							
EB	L	d 30.4	d 34.0	e 40.7	c 19.8	c 22.3	d 26.0
	R	b 12.4	b 12.3	b 12.8	b 11.0	b 11.2	b 11.7
	OVERALL	d 25.5	d 28.9	d 34.2	c 17.7	c 20.0	c 23.0
Driveway							
WB	OVERALL	b 12.1	b 12.3	b 12.7	b 12.6	b 12.8	b 13.3
Water Street							
NB	OVERALL	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0
SB	OVERALL	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0
INTERSECTION		a **1.6**	a **1.9**	a **2.1**	a **1.5**	a **2.0**	a **2.1**

TABLE B-3B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Elizabeth Street

APPROACH		PM PEAK HOUR			SAT PEAK HOUR		
		2025 EXISTING	2028 NO-BUILD	2028 BUILD	2025 EXISTING	2028 NO-BUILD	2028 BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Elizabeth Street							
EB	L	e 41.5	f 55.5	f 75.6	e 37.3	e 47.9	f 59.0
	R	b 11.4	b 11.6	b 12.1	b 12.4	b 12.7	b 13.1
	OVERALL	d 32.9	e 44.3	f 59.3	d 28.9	e 37.1	e 44.9
Driveway							
WB	OVERALL	a 0.0	a 0.0	a 0.0	c 23.3	d 25.8	d 28.2
Water Street							
NB	OVERALL	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0
SB	OVERALL	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0	a 0.0
INTERSECTION		a **2.7**	a **3.9**	a **4.9**	a **3.0**	a **4.0**	a **4.6**

TABLE B-4A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Hanford Place

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Hanford Place							
EB	OVERALL	C 31.0	C 33.0	C 30.3	C 20.2	C 22.5	C 20.3
Driveway							
WB	OVERALL	A 0.1	A 0.1	N/A N/A	A 0.0	A 0.0	N/A N/A
Water Street							
NB	OVERALL	B 12.0	B 12.3	B 11.7	B 10.7	B 11.8	B 11.2
SB	OVERALL	B 13.9	B 14.7	B 15.9	B 10.7	B 12.0	B 12.8
INTERSECTION		B **14.8**	B **15.8**	B **16.2**	B **11.8**	B **13.2**	B **13.2**

TABLE B-4B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Hanford Place

APPROACH		PM PEAK HOUR			SAT PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Hanford Place							
EB	OVERALL	C 29.9	C 29.9	C 27.1	B 16.0	B 17.3	C 27.1
Driveway							
WB	OVERALL	A 0.0	A 0.0	N/A N/A	A 0.0	A 0.0	N/A N/A
Water Street							
NB	OVERALL	B 15.2	B 15.2	B 14.7	B 11.4	B 11.9	B 14.3
SB	OVERALL	B 13.1	B 13.1	B 14.1	B 12.1	B 13.0	B 17.4
INTERSECTION		B **15.9**	B **15.9**	B **15.9**	B **12.3**	B **13.1**	B **17.6**

TABLE B-5A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
North/South Main Street & Washington Street

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Washington Street							
EB	L	C 23.2	C 24.2	C 24.2	C 21.3	C 22.4	C 22.6
	TR	C 24.3	C 26.6	C 26.7	C 24.8	C 28.0	C 29.1
	OVERALL	C 24.2	C 26.4	C 26.5	C 24.3	C 27.3	C 28.4
WB	OVERALL	C 31.8	D 38.7	D 38.7	C 25.2	C 27.7	C 28.5
South Main Street							
NB	OVERALL	D 37.0	D 42.9	D 47.4	C 27.0	C 31.3	C 31.0
North Main Street							
SB	L	C 24.6	C 24.5	C 24.7	C 23.6	C 24.4	C 24.3
	TR	C 24.5	C 24.3	C 24.6	C 23.4	C 24.4	C 24.3
	OVERALL	C 24.5	C 24.4	C 24.6	C 23.4	C 24.4	C 24.3
INTERSECTION		C **30.7**	C **34.9**	D **36.4**	C **25.0**	C **27.7**	C **28.0**

TABLE B-5B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
North/South Main Street & Washington Street

APPROACH		PM PEAK HOUR			SAT PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Washington Street							
EB	L	C 26.7	C 31.7	C 32.5	C 24.4	C 27.7	C 28.1
	TR	C 30.3	D 41.2	D 43.1	C 29.6	D 36.6	D 37.7
	OVERALL	C 29.8	D 39.8	D 41.5	C 28.9	D 36.5	D 36.5
WB	OVERALL	C 29.2	D 43.2	D 48.5	C 27.9	C 33.9	D 35.1
South Main Street							
NB	OVERALL	C 30.5	C 31.7	C 33.2	C 26.5	C 34.6	D 36.4
South Main Street							
SB	L	C 24.4	C 23.3	C 23.3	C 23.0	C 22.4	C 22.4
	TR	C 24.2	C 23.3	C 23.3	C 22.9	C 22.6	C 22.5
	OVERALL	C 24.2	C 23.3	C 23.3	C 22.9	C 22.6	C 22.5
INTERSECTION		C **28.3**	C **33.6**	D **35.5**	C **26.5**	C **31.4**	C **32.3**

TABLE B-6A

PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE

Fort Point Street / Washington Street & Seaview Avenue

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Seaview Avenue							
WB	L	C 27.1	C 27.1	C 27.1	C 22.2	C 22.5	C 26.2
	LR	B 14.0	B 14.2	B 14.4	A 9.1	A 9.6	B 11.0
	OVERALL	C 20.6	C 20.7	C 20.9	B 15.8	B 16.1	B 18.6
Washington Street							
NB	OVERALL	B 19.6	C 20.4	C 21.0	B 14.0	B 14.2	B 16.9
Fort Point Street							
SB	OVERALL	C 21.5	C 22.4	C 23.2	B 13.5	B 13.7	B 16.3
INTERSECTION		C **20.6**	C **21.3**	C **21.9**	B **14.1**	B **14.4**	B **17.0**

TABLE B-6B

PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE

Fort Point Street / Washington Street & Seaview Avenue

APPROACH		PM PEAK HOUR			SAT PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Seaview Avenue							
WB	L	C 26.5	C 26.5	C 26.5	C 25.3	C 25.5	C 25.5
	LR	B 12.3	B 12.6	B 12.8	B 10.8	B 11.2	B 11.4
	OVERALL	B 19.5	B 19.7	B 19.8	B 18.1	B 18.3	B 18.5
Washington Street							
NB	OVERALL	C 24.8	C 26.6	C 28.2	B 18.5	B 19.3	B 19.6
Fort Point Street							
SB	OVERALL	B 17.5	B 17.9	B 18.3	B 16.3	B 16.6	B 16.7
INTERSECTION		C **21.7**	C **22.9**	C **23.8**	B **17.7**	B **18.2**	B **18.5**

TABLE B-7A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
South Main Street & Monroe Street / Hanford Place

APPROACH		AM PEAK HOUR			MIDDAY PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Monroe Street							
EB	L	B 19.2	B 20.0	B 19.8	C 20.4	C 21.0	C 20.8
	TR	C 20.8	C 21.0	C 20.9	C 21.7	C 21.5	C 21.3
	OVERALL	C 20.4	C 20.6	C 20.5	C 21.4	C 21.3	C 21.1
Hanford Place							
WB	OVERALL	D 36.6	D 37.8	D 37.9	C 33.8	D 37.0	D 37.6
South Main Street							
NB	OVERALL	C 34.1	D 45.2	D 48.2	C 27.0	C 29.4	C 30.2
SB	LT	C 27.2	C 30.0	C 32.1	C 24.9	C 26.9	C 28.5
	R	A 9.2	A 9.7	A 9.9	A 8.3	A 8.7	A 8.9
	OVERALL	C 22.5	C 24.0	C 25.7	C 23.1	C 23.5	C 25.0
INTERSECTION		C **28.1**	C **32.0**	C **33.5**	C **25.5**	C **26.6**	C **27.5**

TABLE B-7B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
South Main Street & Monroe Street / Hanford Place

APPROACH		PM PEAK HOUR			SAT PEAK HOUR		
		2025	2028	2028	2025	2028	2028
		EXISTING	NO-BUILD	BUILD	EXISTING	NO-BUILD	BUILD
		LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)	LOS DELAY (sec)
Monroe Street							
EB	L	C 21.4	C 23.0	C 23.0	C 20.2	C 20.7	C 20.5
	TR	C 22.8	C 23.9	C 23.9	C 21.3	C 20.9	C 20.7
	OVERALL	C 22.4	C 23.6	C 23.6	C 21.1	C 20.8	C 20.6
Hanford Place							
WB	OVERALL	D 36.9	D 39.8	D 41.1	C 31.6	C 32.4	C 32.2
South Main Street							
NB	OVERALL	C 27.5	C 33.1	C 33.9	C 24.6	C 26.4	C 27.0
SB	LT	C 28.0	C 32.3	C 34.2	C 24.3	C 26.0	C 27.0
	R	A 8.7	A 9.2	A 9.4	A 8.8	A 9.4	A 9.6
	OVERALL	C 25.2	C 27.6	C 29.3	C 22.0	C 22.5	C 23.5
INTERSECTION		C **27.1**	C **30.0**	C **31.1**	C **24.1**	C **24.7**	C **25.1**

TABLE B-8A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Site Driveway A

APPROACH		AM PEAK HOUR 2028 BUILD	MIDDAY PEAK HOUR 2028 BUILD
		LOS DELAY (sec)	LOS DELAY (sec)
Site Driveway A			
WB	OVERALL	b 13.8	b 12.3
Water Street			
NB	OVERALL	a 0.0	a 0.0
SB	OVERALL	a 0.0	a 0.0
INTERSECTION		a **0.7**	a **0.8**

TABLE B-8B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Site Driveway A

APPROACH		PM PEAK HOUR 2028 BUILD	SAT PEAK HOUR 2028 BUILD
		LOS DELAY (sec)	LOS DELAY (sec)
Site Driveway A			
WB	OVERALL	c 17.8	b 13.8
Water Street			
NB	OVERALL	a 0.0	a 0.0
SB	OVERALL	a 0.0	a 0.0
INTERSECTION		a **1.1**	a **0.7**

TABLE B-9A
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Site Driveway B

APPROACH		AM PEAK HOUR	MIDDAY PEAK HOUR
		2028 **BUILD**	**2028** **BUILD**
		LOS DELAY (sec)	LOS DELAY (sec)
Site Driveway B			
WB	OVERALL	a 0.0	a 0.0
Water Street			
NB	OVERALL	a 0.0	a 0.0
SB	OVERALL	a 1.1	a 1.6
INTERSECTION		a **0.6**	a **0.8**

TABLE B-9B
PEAK HOUR LEVEL OF SERVICE SUMMARY TABLE
Water Street & Site Driveway B

APPROACH		PM PEAK HOUR	SAT PEAK HOUR
		2028 **BUILD**	**2028** **BUILD**
		LOS DELAY (sec)	LOS DELAY (sec)
Site Driveway B			
WB	OVERALL	a 0.0	a 0.0
Water Street			
NB	OVERALL	a 0.0	a 0.0
SB	OVERALL	a 1.4	a 1.1
INTERSECTION		a **0.6**	a **0.5**

APPENDIX C

LEVEL OF SERVICE STANDARDS

1. LEVEL OF SERVICE

CONCEPT

The Highway Capacity Manual, published by the Transportation Research Board of the U.S. Government, established a system by which highway facilities are examined for their adequacy to handle traffic volumes. The terminology "Level of Service" is used to provide a "qualitative" evaluation based on certain "quantitative" calculations which are related to empirical values.

Intersection Capacity, Delay and resultant Levels of Service are dependent upon a number of factors, including the following:

- Area Type
- Intersection geometrics
- Traffic volumes
- Parking conditions
- Pedestrian activity
- Vehicle Mix
- Bus Stop location and activity
- Peak Hour Factor
- Traffic Signal operation, if applicable

Ramp and weaving area Densities and resultant Levels of Service are dependent upon a number of factors, including the following:

- Number of lanes
- Configuration of weaving area
- Length of acceleration/deceleration lanes
- Vehicle speeds
- Traffic volumes
- Vehicle Mix
- Peak Hour Factor

FACTORS

SIGNALIZED INTERSECTIONS

Level of Service for Signalized Intersections is defined in terms of Delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, Level of Service criteria are stated in terms of the Average Control Delay per vehicle for the peak 15-minute period within the hour analyzed.

Delay is a complex measure and is dependent upon a number of variables, including:

- Cycle length
- Ratio of Green time to Cycle length (G/C)

- Ratio of Volume to Capacity (V/C) for lane group or approach
- Traffic signal progression

UNSIGNALIZED INTERSECTIONS

Level of Service for Unsignalized Intersections is also defined in terms of Delay. The amount of Delay is based upon the availability of "gaps" in the mainline traffic stream and the acceptance of these gaps by motorists waiting on the side street to enter the main street traffic flow.

RAMP AND RAMP JUNCTIONS

Level of Service for ramp freeway junctions and the ramp proper are defined in terms of Density (passenger cars per mile per lane). Density is related to the traffic flow in the area of influence.

WEAVING AREAS

Level of Service for weaving areas is defined in terms of Density (passenger cars per mile per lane). Density is based on the ratio of weaving vehicles to non-weaving vehicles and on vehicle speeds in the weaving area of influence

CRITERIA

The criteria for the various Level of Service designations are as follows:

	SIGNALIZED	UNSIGNALIZED
LEVEL OF SERVICE	**Average Control Delay per Vehicle (Seconds)**	**Average Control Delay per Vehicle (Seconds)**
A	10.0 or less	10.0 or less
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	80.1 or greater	50.1 or greater

Level of Service	Ramp-Freeway Junction	Ramp Proper	Weaving Areas	
	Maximum Density pc/mi/ln	Density Range pc/mi/ln	Maximum Density pc/mi/ln	
			Freeway Weaving Area	Multi-lane + C-D Weaving Area
A	≤10	≤11	≤10	≤12
B	>10 - 20	>11 – 18	>10 - 20	>12 - 24
C	>20 - 28	>18 – 26	> 20 - 28	>24 - 32
D	>28 - 35	>26 – 35	>28 - 35	>32 - 36
E	>35	>35 – 45	>35 - 43	>36 - 40
F	Demand exceeds capacity	>45	>43	>40

DESCRIPTION

The following is a brief description of each of the six Level of Service designations as defined by the Highway Capacity Manual:

SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE A

Average Control Delay - 10.0 secs. or less

Describes operations with very low delay. Occurs when progression is extremely favorable and most vehicles arrive during the Green Phase and do not stop at all. Short cycle lengths may also contribute to low delay.

LEVEL OF SERVICE B

Average Control Delay - 10.1 to 20.0 secs.

Generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average delay.

LEVEL OF SERVICE C

Average Control Delay - 20.1 to 35.0 secs.

Higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this Level of Service. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.

LEVEL OF SERVICE D

Average Control Delay - 35.1 to 55.0 secs.

The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high Volume/Capacity (V/C) Ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LEVEL OF SERVICE E

Average Control Delay - 55.1 to 80.0 secs.

The limit of acceptable delay.

Higher delay values generally indicate poor progression, long cycle lengths, and high V/C Ratios. Individual cycle failures are frequent occurrences.

LEVEL OF SERVICE F

Average Control Delay - in excess of 80.0 secs.

Unacceptable to most drivers.

Occurs with oversaturation, i.e., arrival flow rates exceed the capacity of the intersection. May also occur at high V/C Ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.

UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE A
Average Control Delay - 10.0 secs. or less
Operations with little or no delay to minor turning movements.

LEVEL OF SERVICE B
Average Control Delay - 10.1 to 15.0 secs.
Operations with short delays on minor turning movements.

LEVEL OF SERVICE C
Average Control Delay - 15.1 to 25.0 secs.
Operations with average delays on minor turning movements.

LEVEL OF SERVICE D
Average Control Delay - 25.1 to 35.0 secs.
Operations with some delays on minor turning movements.

LEVEL OF SERVICE E
Average Control Delay - 35.1 to 50.0 secs.
Operations with long delays on minor turning movements.

LEVEL OF SERVICE F
Average Control Delay - In excess of 50.0 secs.
Operations where demand exceeds capacity. Very long delays with queuing may be experienced on the minor street approach.

RAMPS AND RAMP JUNCTIONS

LEVEL OF SERVICE A

Maximum Density - 10 pc/mi/ln

Unrestricted operations with no noticeable turbulence in the ramp influence area.

LEVEL OF SERVICE B

Maximum Density - 20 pc/mi/ln

Minimal levels of turbulence exist and speeds of vehicles in the influence area begin to decline.

LEVEL OF SERVICE C

Maximum Density - 28 pc/mi/ln

Level of turbulence becomes noticeable as average speed within the influence area declines. Driving conditions are still relatively comfortable at this level.

LEVEL OF SERVICE D

Maximum Density - 35 pc/mi/ln

.

Turbulence levels become intrusive. Queues may form on some high volume on-ramps but freeway operation remains stable.

LEVEL OF SERVICE E

Maximum Density - >35 pc/mi/ln

.

Conditions approaching and reaching capacity. Speeds are reduced and turbulence of merging/diverging vehicles becomes intrusive to all vehicles in the influence area. Flow levels approach capacity limits and minor changes in demand can cause ramp and freeway queues to occur.

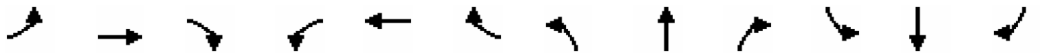
LEVEL OF SERVICE F

Maximum Density – Demand flow exceeds limits

Unstable, or breakdown, operation. Approaching demand flows exceed the discharge capacity of the downstream freeway or ramp. Queues are visibly formed on the freeway and on-ramps and will continue to grow as long as the approaching demand exceeds the discharge capacity.

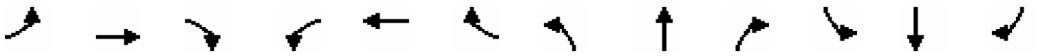
APPENDIX D

CAPACITY ANALYSIS SHEETS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	2	12	1	0	7	11	348	1	1	395	105
Future Volume (vph)	87	2	12	1	0	7	11	348	1	1	395	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.96			1.00			0.99	
Frt		0.984			0.880						0.972	
Flt Protected		0.959			0.994			0.998				
Satd. Flow (prot)	0	1497	0	0	1282	0	0	1550	0	0	1552	0
Flt Permitted		0.749			0.971			0.983				
Satd. Flow (perm)	0	1150	0	0	1252	0	0	1526	0	0	1552	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			67						23	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	8		2	2		8	8		5	5		8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	18%	50%	25%	0%	0%	29%	9%	15%	0%	0%	11%	11%
Adj. Flow (vph)	96	2	13	1	0	8	12	382	1	1	434	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	0	0	9	0	0	395	0	0	550	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



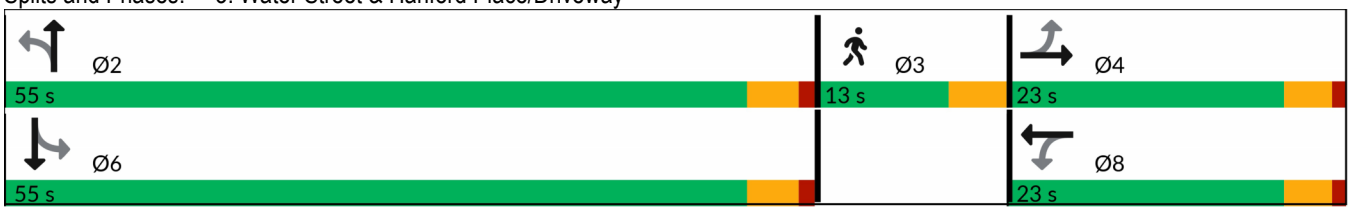
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		55.0	55.0	
Total Split (%)	25.3%	25.3%		25.3%	25.3%		60.4%	60.4%		60.4%	60.4%	
Maximum Green (s)	18.8	18.8		18.8	18.8		50.4	50.4		50.4	50.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		11.9			11.5			35.7			35.7	
Actuated g/C Ratio		0.21			0.20			0.62			0.62	
v/c Ratio		0.46			0.03			0.42			0.56	
Control Delay (s/veh)		31.0			0.1			12.0			13.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		31.0			0.1			12.0			13.9	
LOS		C			A			B			B	
Approach Delay (s/veh)		31.0			0.1			12.0			13.9	
Approach LOS		C			A			B			B	
90th %ile Green (s)	18.8	18.8		18.8	18.8		49.9	49.9		49.9	49.9	
90th %ile Term Code	Max	Max		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	14.3	14.3		14.3	14.3		36.2	36.2		36.2	36.2	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	9.5	9.5		9.5	9.5		19.2	19.2		19.2	19.2	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	8.4	8.4		8.4	8.4		26.1	26.1		26.1	26.1	
30th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		18			0			46			69	
Queue Length 95th (ft)		110			0			222			337	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		447			522			1280			1305	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	14%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	23
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.02			0.31			0.42	

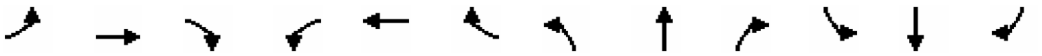
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 57.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay (s/veh): 14.8		Intersection LOS: B	
Intersection Capacity Utilization 47.5%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94.5			
70th %ile Actuated Cycle: 76.3			
50th %ile Actuated Cycle: 37.5			
30th %ile Actuated Cycle: 43.3			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



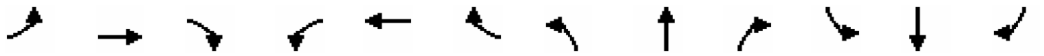
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	149	30	448	333	166	24	132	336	62	97	6
Future Volume (vph)	11	149	30	448	333	166	24	132	336	62	97	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.99		0.98		0.99		0.99	
Frt		0.979			0.950				0.850		0.995	
Flt Protected		0.997		0.950			0.950				0.981	
Satd. Flow (prot)	0	1677	0	1560	1632	0	1671	1810	1506	0	1757	0
Flt Permitted		0.956		0.416			0.585				0.826	
Satd. Flow (perm)	0	1607	0	682	1632	0	1011	1810	1483	0	1474	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		9			35				361			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	7		3	3		7	12		9	9		12
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	9%	11%	10%	13%	8%	5%	8%	5%	18%	2%	0%	33%
Adj. Flow (vph)	12	160	32	482	358	178	26	142	361	67	104	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	0	482	536	0	26	142	361	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



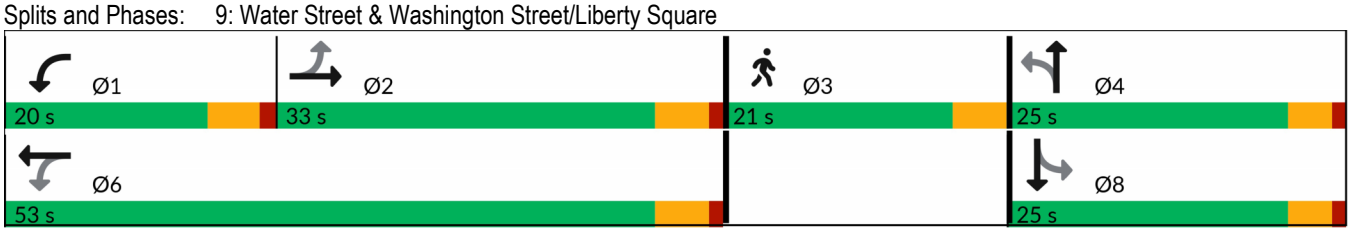
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	33.0	33.0		20.0	53.0		25.0	25.0		25.0	25.0	
Total Split (%)	33.3%	33.3%		20.2%	53.5%		25.3%	25.3%		25.3%	25.3%	
Maximum Green (s)	28.1	28.1		15.0	48.1		20.7	20.7		20.7	20.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		16.5		38.6	38.7		14.7	14.7	71.1		14.7	
Actuated g/C Ratio		0.23		0.54	0.54		0.21	0.21	1.00		0.21	
v/c Ratio		0.54		0.84	0.59		0.13	0.38	0.24		0.58	
Control Delay (s/veh)		31.9		33.8	17.8		31.5	32.1	0.4		38.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		31.9		33.8	17.8		31.5	32.1	0.4		38.3	
LOS		C		C	B		C	C	A		D	
Approach Delay (s/veh)		31.9			25.4			10.4			38.3	
Approach LOS		C			C			B			D	
90th %ile Green (s)	28.1	28.1		15.0	48.1		20.7	20.7		20.7	20.7	
90th %ile Term Code	Hold	Hold		Max	Max		Hold	Hold		Max	Max	
70th %ile Green (s)	19.9	19.9		15.0	39.9		19.3	19.3		19.3	19.3	
70th %ile Term Code	Hold	Hold		Max	Gap		Hold	Hold		Gap	Gap	
50th %ile Green (s)	15.8	15.8		15.0	35.8		15.9	15.9		15.9	15.9	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	10.1	10.1		15.0	30.1		10.1	10.1		10.1	10.1	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		15.0	30.0		7.7	7.7		7.7	7.7	
10th %ile Term Code	Min	Min		Max	Hold		Hold	Hold		Gap	Gap	
Queue Length 50th (ft)		60		93	97		7	42	0		55	
Queue Length 95th (ft)		179		#562	385		39	142	0		182	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		711		576	1228		327	585	1483		477	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	31
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.29		0.84	0.44		0.08	0.24	0.24		0.37	

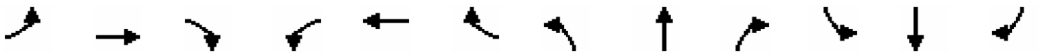
Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 71.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 23.2		Intersection LOS: C	
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 104			
70th %ile Actuated Cycle: 94.4			
50th %ile Actuated Cycle: 60.9			
30th %ile Actuated Cycle: 49.4			
10th %ile Actuated Cycle: 46.9			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



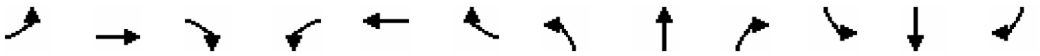
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	63	48	15	87	31	47	265	6	24	216	85
Future Volume (vph)	45	63	48	15	87	31	47	265	6	24	216	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.98			0.99			1.00			1.00	0.97
Frt		0.935			0.969			0.997				0.850
Flt Protected	0.950				0.994			0.993			0.995	
Satd. Flow (prot)	1546	1345	0	0	1663	0	0	1498	0	0	1745	1449
Flt Permitted	0.391				0.949			0.918			0.944	
Satd. Flow (perm)	634	1345	0	0	1582	0	0	1384	0	0	1653	1410
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	5		22	22		5	5		19	19		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	24%	17%	7%	13%	0%	57%	20%	17%	8%	9%	12%
Adj. Flow (vph)	50	70	53	17	97	34	52	294	7	27	240	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	123	0	0	148	0	0	353	0	0	267	94
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



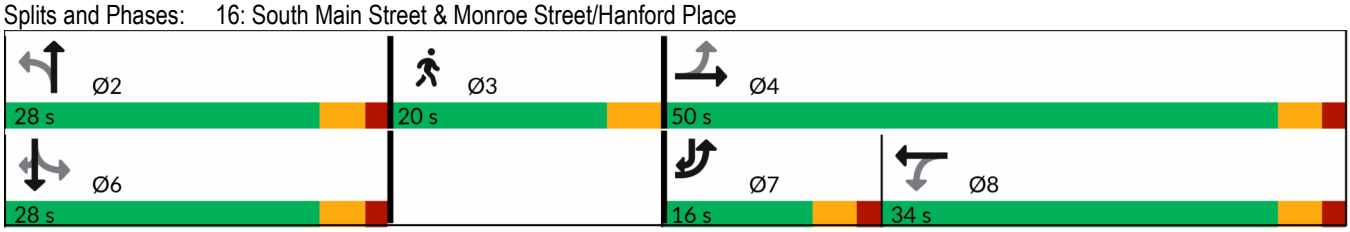
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	16.0	50.0		34.0	34.0		28.0	28.0		28.0	28.0	16.0
Total Split (%)	16.3%	51.0%		34.7%	34.7%		28.6%	28.6%		28.6%	28.6%	16.3%
Maximum Green (s)	11.1	45.1		29.1	29.1		23.1	23.1		23.1	23.1	11.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	25.4	25.4			14.4			31.0			31.0	36.4
Actuated g/C Ratio	0.36	0.36			0.20			0.44			0.44	0.51
v/c Ratio	0.13	0.26			0.46			0.58			0.37	0.13
Control Delay (s/veh)	19.2	20.8			36.6			34.1			27.2	9.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	19.2	20.8			36.6			34.1			27.2	9.2
LOS	B	C			D			C			C	A
Approach Delay (s/veh)		20.4			36.6			34.1			22.5	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.8	34.4		18.7	18.7		23.1	23.1		23.1	23.1	10.8
90th %ile Term Code	Gap	Hold		Gap	Gap		Max	Max		Max	Max	Gap
70th %ile Green (s)	10.0	30.1		15.2	15.2		23.1	23.1		23.1	23.1	10.0
70th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Max	Max	Min
50th %ile Green (s)	10.0	27.9		13.0	13.0		23.1	23.1		23.1	23.1	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
30th %ile Green (s)	10.0	25.7		10.8	10.8		23.1	23.1		23.1	23.1	10.0
30th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
10th %ile Green (s)	0.0	0.0		0.0	0.0		28.5	28.5		28.5	28.5	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Queue Length 50th (ft)	18	48			75			184			123	16
Queue Length 95th (ft)	42	90			135			#384			222	32
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	395	891			748			605			722	742
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.13	0.14			0.20			0.58			0.37	0.13

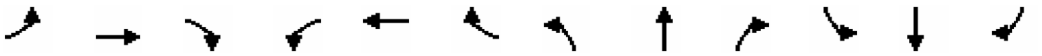
Intersection Summary			
Area Type:	Other		
Cycle Length: 98			
Actuated Cycle Length: 71			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 28.1		Intersection LOS: C	
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 91.3			
70th %ile Actuated Cycle: 87			
50th %ile Actuated Cycle: 84.8			
30th %ile Actuated Cycle: 58.6			
10th %ile Actuated Cycle: 33.4			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



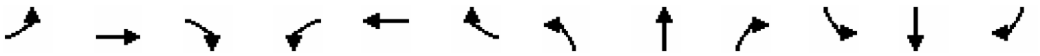
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	114	72	24	300	47	59	333	24	41	218	24
Future Volume (vph)	24	114	72	24	300	47	59	333	24	41	218	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99			1.00			0.99		0.99	0.99	
Frt		0.942			0.983			0.992			0.985	
Flt Protected	0.950				0.997			0.993		0.950		
Satd. Flow (prot)	1552	1549	0	0	1710	0	0	1673	0	1596	1644	0
Flt Permitted	0.381				0.973			0.915		0.391		
Satd. Flow (perm)	622	1549	0	0	1668	0	0	1537	0	652	1644	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	2		1	1		2	23		14	14		23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	4%	17%	7%	6%	12%	11%	29%	5%	8%	17%
Adj. Flow (vph)	26	124	78	26	326	51	64	362	26	45	237	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	202	0	0	403	0	0	452	0	45	263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



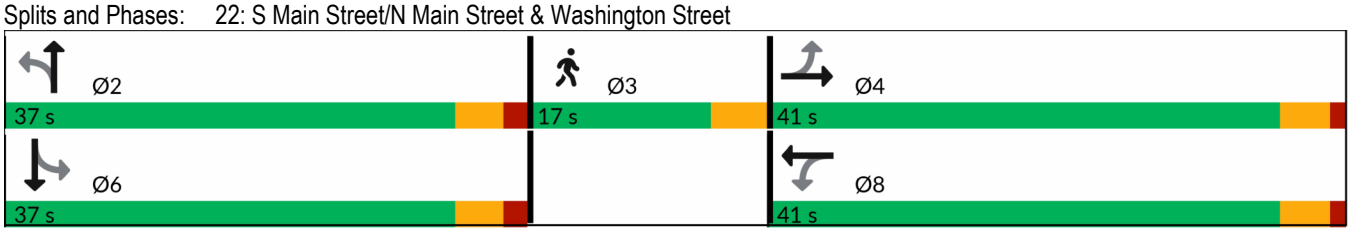
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	41.0	41.0		41.0	41.0		37.0	37.0		37.0	37.0	
Total Split (%)	43.2%	43.2%		43.2%	43.2%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	36.4	36.4		36.4	36.4		32.0	32.0		32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	25.5	25.5			25.5			27.6		27.6	27.6	
Actuated g/C Ratio	0.34	0.34			0.34			0.37		0.37	0.37	
v/c Ratio	0.12	0.38			0.70			0.79		0.19	0.43	
Control Delay (s/veh)	23.2	24.3			31.8			37.0		24.6	24.5	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	23.2	24.3			31.8			37.0		24.6	24.5	
LOS	C	C			C			D		C	C	
Approach Delay (s/veh)		24.2			31.8			37.0			24.5	
Approach LOS		C			C			D			C	
90th %ile Green (s)	36.4	36.4		36.4	36.4		32.0	32.0		32.0	32.0	
90th %ile Term Code	Hold	Hold		Max	Max		Max	Max		Hold	Hold	
70th %ile Green (s)	31.8	31.8		31.8	31.8		32.0	32.0		32.0	32.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
50th %ile Green (s)	26.2	26.2		26.2	26.2		32.0	32.0		32.0	32.0	
50th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
30th %ile Green (s)	16.7	16.7		16.7	16.7		21.3	21.3		21.3	21.3	
30th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		16.1	16.1		16.1	16.1	
10th %ile Term Code	Min	Min		Min	Min		Gap	Gap		Hold	Hold	
Queue Length 50th (ft)	11	91			209			226		17	111	
Queue Length 95th (ft)	31	152			316			#460		51	211	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	350	874			941			762		323	815	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	18%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	40
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.07	0.23			0.43			0.59		0.14	0.32	

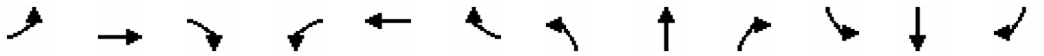
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 74.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 30.7		Intersection LOS: C	
Intersection Capacity Utilization 84.0%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 99			
70th %ile Actuated Cycle: 94.4			
50th %ile Actuated Cycle: 88.8			
30th %ile Actuated Cycle: 47.6			
10th %ile Actuated Cycle: 40.7			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



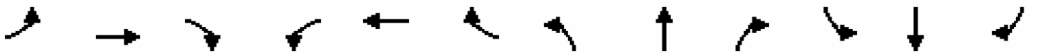
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	291	0	26	0	403	156	16	599	11
Future Volume (vph)	0	0	0	291	0	26	0	403	156	16	599	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	1.00			0.99			1.00	
Frt					0.975			0.958			0.997	
Flt Protected				0.950	0.960						0.999	
Satd. Flow (prot)	0	0	0	1579	1512	0	0	2977	0	0	3103	0
Flt Permitted				0.950	0.960						0.934	
Satd. Flow (perm)	0	0	0	1570	1505	0	0	2977	0	0	2900	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					99						3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)			5	5			9		9	9		9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	5%	0%	23%	0%	17%	10%	44%	12%	27%
Adj. Flow (vph)	0	0	0	313	0	28	0	433	168	17	644	12
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	0	0	172	169	0	0	601	0	0	673	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2			2		1	2	
Detector Template				Left	Thru			Thru		Left	Thru	
Leading Detector (ft)				20	100			100		20	100	
Trailing Detector (ft)				0	0			0		0	0	
Detector 1 Position(ft)				0	0			0		0	0	
Detector 1 Size(ft)				20	6			6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



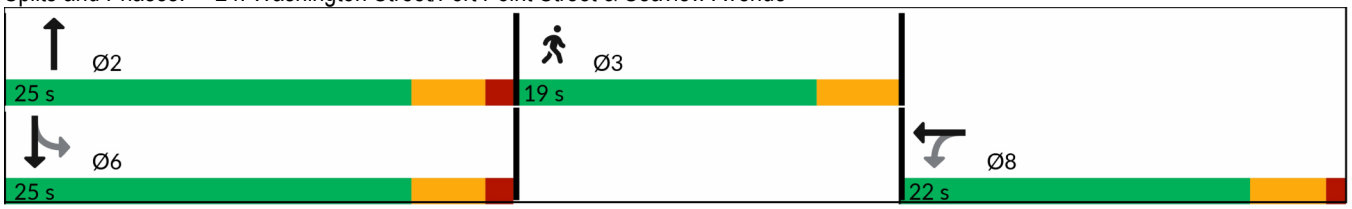
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				22.0	22.0			25.0		25.0	25.0	
Total Split (%)				33.3%	33.3%			37.9%		37.9%	37.9%	
Maximum Green (s)				17.3	17.3			20.0		20.0	20.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				12.0	12.0			20.6			20.6	
Actuated g/C Ratio				0.22	0.22			0.38			0.38	
v/c Ratio				0.50	0.42			0.53			0.61	
Control Delay (s/veh)				27.1	14.0			19.6			21.5	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				27.1	14.0			19.6			21.5	
LOS				C	B			B			C	
Approach Delay (s/veh)					20.6			19.6			21.5	
Approach LOS					C			B			C	
90th %ile Green (s)				17.3	17.3			20.0		20.0	20.0	
90th %ile Term Code				Max	Max			Max		Max	Max	
70th %ile Green (s)				15.6	15.6			20.0		20.0	20.0	
70th %ile Term Code				Gap	Gap			Max		Max	Max	
50th %ile Green (s)				12.2	12.2			20.0		20.0	20.0	
50th %ile Term Code				Gap	Gap			Hold		Max	Max	
30th %ile Green (s)				8.0	8.0			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				7.0	7.0			20.1		20.1	20.1	
10th %ile Term Code				Min	Min			Dwell		Dwell	Dwell	
Queue Length 50th (ft)				66	25			107			124	
Queue Length 95th (ft)				123	75			176			#225	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				554	595			1217			1187	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	29%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.31	0.28			0.49			0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 66			
Actuated Cycle Length: 54.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay (s/veh): 20.6		Intersection LOS: C	
Intersection Capacity Utilization 52.1%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 70			
70th %ile Actuated Cycle: 68.3			
50th %ile Actuated Cycle: 64.9			
30th %ile Actuated Cycle: 32.7			
10th %ile Actuated Cycle: 36.8			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	1	16	0	0	3	0	446	2	0	490	0
Future Vol, veh/h	43	1	16	0	0	3	0	446	2	0	490	0
Conflicting Peds, #/hr	0	0	0	0	0	0	18	0	6	6	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	0	6	0	0	33	0	16	50	0	11	0
Mvmt Flow	47	1	18	0	0	3	0	490	2	0	538	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1047	1055	556	1036	1054	497	-	0	0	-	-	0
Stage 1	556	556	-	497	497	-	-	-	-	-	-	-
Stage 2	490	498	-	539	556	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.7	6.36	7.1	6.5	6.53	-	-	-	-	-	-
Critical Hdwy Stg 1	6.35	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4	3.354	3.5	4	3.597	-	-	-	-	-	-
Pot Cap-1 Maneuver	192	215	515	211	228	515	0	-	-	0	-	-
Stage 1	494	500	-	559	548	-	0	-	-	0	-	-
Stage 2	539	532	-	530	516	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	188	210	507	202	223	512	-	-	-	-	-	-
Mov Cap-2 Maneuver	188	210	-	202	223	-	-	-	-	-	-	-
Stage 1	487	493	-	555	545	-	-	-	-	-	-	-
Stage 2	536	529	-	511	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	25.54	12.07	0	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	188	507	512	-	-
HCM Lane V/C Ratio	-	-	0.251	0.035	0.006	-	-
HCM Ctrl Dly (s/v)	-	-	30.4	12.4	12.1	-	-
HCM Lane LOS	-	-	D	B	B	-	-
HCM 95th %tile Q(veh)	-	-	1	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	7	3	12	8	477	8	18	488	74
Future Vol, veh/h	0	0	0	7	3	12	8	477	8	18	488	74
Conflicting Peds, #/hr	1	0	5	5	0	1	18	0	13	13	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	14	33	0	0	14	0	11	11	12
Mvmt Flow	0	0	0	8	3	13	9	530	9	20	542	82

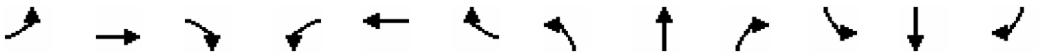
Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	1152	1248	548	642	0	0	552	0	0
Stage 1	565	565	-	-	-	-	-	-	-
Stage 2	587	682	-	-	-	-	-	-	-
Critical Hdwy	6.14	6.43	6	4.1	-	-	4.21	-	-
Critical Hdwy Stg 1	5.14	5.43	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.14	5.43	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.297	3.3	2.2	-	-	2.299	-	-
Pot Cap-1 Maneuver	235	173	556	952	-	-	974	-	-
Stage 1	581	491	-	-	-	-	-	-	-
Stage 2	569	438	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	222	0	551	952	-	-	966	-	-
Mov Cap-2 Maneuver	222	0	-	-	-	-	-	-	-
Stage 1	569	0	-	-	-	-	-	-	-
Stage 2	548	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.85	0.14	0.27
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	29	-	-	356	966	-	-
HCM Lane V/C Ratio	0.009	-	-	0.069	0.021	-	-
HCM Ctrl Dly (s/v)	8.8	0	-	15.9	8.8	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	1	22	1	0	1	24	284	1	0	281	98
Future Volume (vph)	66	1	22	1	0	1	24	284	1	0	281	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.97			1.00			0.99	
Frt		0.967			0.932						0.965	
Flt Protected		0.964			0.976			0.996				
Satd. Flow (prot)	0	1584	0	0	1694	0	0	1633	0	0	1570	0
Flt Permitted		0.780			0.854			0.962				
Satd. Flow (perm)	0	1253	0	0	1478	0	0	1577	0	0	1570	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			75						28	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	18		4	4		18	7		4	4		7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	17%	8%	0%	0%	9%	8%
Adj. Flow (vph)	67	1	22	1	0	1	24	290	1	0	287	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	2	0	0	315	0	0	387	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



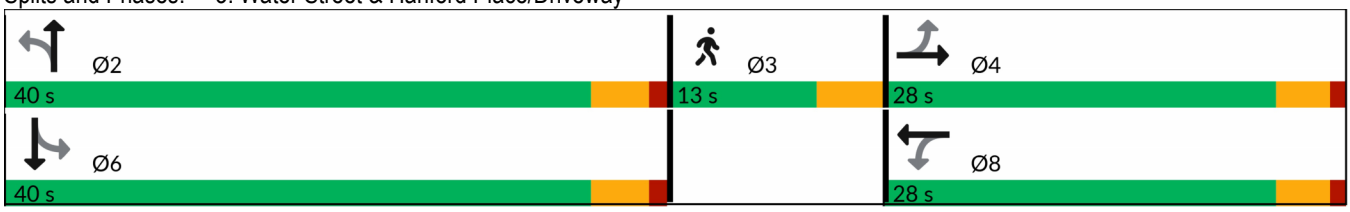
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Total Split (%)	34.6%	34.6%		34.6%	34.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	23.8	23.8		23.8	23.8		35.4	35.4		35.4	35.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		9.1			8.5			30.8			30.8	
Actuated g/C Ratio		0.20			0.18			0.67			0.67	
v/c Ratio		0.34			0.01			0.30			0.37	
Control Delay (s/veh)		20.2			0.0			10.7			10.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		20.2			0.0			10.7			10.7	
LOS		C			A			B			B	
Approach Delay (s/veh)		20.2						10.7			10.7	
Approach LOS		C						B			B	
90th %ile Green (s)	13.4	13.4		13.4	13.4		28.1	28.1		28.1	28.1	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	10.1	10.1		10.1	10.1		21.4	21.4		21.4	21.4	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	7.5	7.5		7.5	7.5		20.1	20.1		20.1	20.1	
50th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
30th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
30th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		12			0			28			33	
Queue Length 95th (ft)		63			0			157			190	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		710			860			1298			1297	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	16%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	33
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.13			0.00			0.24			0.30	

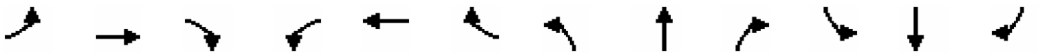
Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 46			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay (s/veh): 11.8		Intersection LOS: B	
Intersection Capacity Utilization 49.8%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 67.3			
70th %ile Actuated Cycle: 57.3			
50th %ile Actuated Cycle: 36.4			
30th %ile Actuated Cycle: 34.6			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



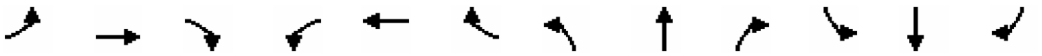
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	187	65	273	232	110	38	93	262	78	100	9
Future Volume (vph)	23	187	65	273	232	110	38	93	262	78	100	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.99		0.95		0.99		0.99	
Frt		0.968			0.952				0.850		0.994	
Flt Protected		0.996		0.950			0.950				0.980	
Satd. Flow (prot)	0	1724	0	1588	1612	0	1752	1881	1615	0	1709	0
Flt Permitted		0.945		0.319			0.579				0.827	
Satd. Flow (perm)	0	1634	0	529	1612	0	1017	1881	1594	0	1440	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		16			32				270			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			230			313	
Travel Time (s)		13.1			16.8			6.3			8.5	
Confl. Peds. (#/hr)	7		11	11		7	38		4	4		38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	4%	9%	11%	6%	14%	3%	1%	10%	5%	4%	0%
Adj. Flow (vph)	24	193	67	281	239	113	39	96	270	80	103	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	284	0	281	352	0	39	96	270	0	192	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



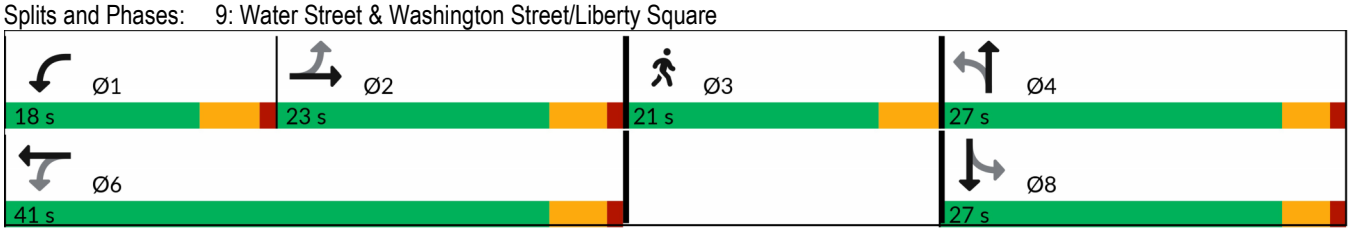
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	23.0	23.0		18.0	41.0		27.0	27.0		27.0	27.0	
Total Split (%)	25.8%	25.8%		20.2%	46.1%		30.3%	30.3%		30.3%	30.3%	
Maximum Green (s)	18.1	18.1		13.0	36.1		22.7	22.7		22.7	22.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		16.3		34.2	34.3		15.4	15.4	72.6		15.4	
Actuated g/C Ratio		0.22		0.47	0.47		0.21	0.21	1.00		0.21	
v/c Ratio		0.75		0.66	0.45		0.18	0.24	0.17		0.63	
Control Delay (s/veh)		44.1		27.4	18.7		30.7	29.7	0.2		40.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		44.1		27.4	18.7		30.7	29.7	0.2		40.0	
LOS		D		C	B		C	C	A		D	
Approach Delay (s/veh)		44.1			22.5			10.1			40.0	
Approach LOS		D			C			B			D	
90th %ile Green (s)	18.1	18.1		13.0	36.1		22.7	22.7		22.7	22.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	18.1	18.1		13.0	36.1		19.9	19.9		19.9	19.9	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	18.1	18.1		13.0	36.1		16.7	16.7		16.7	16.7	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	13.4	13.4		10.5	28.9		10.8	10.8		10.8	10.8	
30th %ile Term Code	Gap	Gap		Gap	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.3	10.3		8.6	23.9		7.9	7.9		7.9	7.9	
10th %ile Term Code	Gap	Gap		Gap	Hold		Hold	Hold		Gap	Gap	
Queue Length 50th (ft)		143		109	129		18	46	0		100	
Queue Length 95th (ft)		#302		#207	235		46	88	0		172	
Internal Link Dist (ft)		399			537			150			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		471		463	957		359	664	1594		508	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.60		0.61	0.37		0.11	0.14	0.17		0.38	

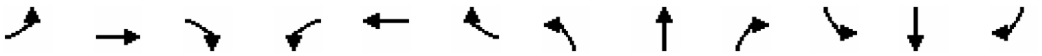
Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 72.6			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 25.5		Intersection LOS: C	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 91.2			
50th %ile Actuated Cycle: 88			
30th %ile Actuated Cycle: 48.9			
10th %ile Actuated Cycle: 41			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



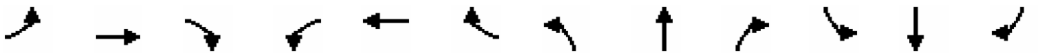
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	56	43	5	61	27	44	213	16	26	224	32
Future Volume (vph)	27	56	43	5	61	27	44	213	16	26	224	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.99			1.00	0.97
Frt		0.935			0.961			0.992				0.850
Flt Protected	0.950				0.997			0.992			0.995	
Satd. Flow (prot)	1465	1466	0	0	1633	0	0	1660	0	0	1759	1436
Flt Permitted	0.491				0.979			0.910			0.945	
Satd. Flow (perm)	752	1466	0	0	1600	0	0	1520	0	0	1667	1388
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	7		19	19		7	11		27	27		11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	15%	14%	7%	20%	11%	7%	25%	9%	19%	8%	8%	13%
Adj. Flow (vph)	31	64	49	6	69	31	50	242	18	30	255	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	113	0	0	106	0	0	310	0	0	285	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



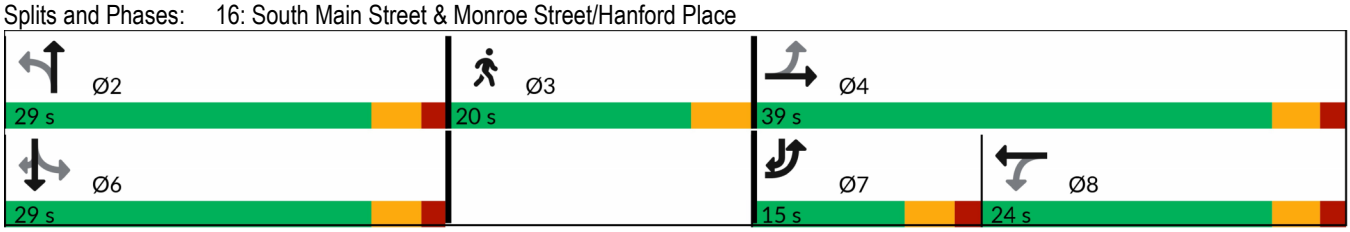
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	15.0	39.0		24.0	24.0		29.0	29.0		29.0	29.0	15.0
Total Split (%)	17.0%	44.3%		27.3%	27.3%		33.0%	33.0%		33.0%	33.0%	17.0%
Maximum Green (s)	10.1	34.1		19.1	19.1		24.1	24.1		24.1	24.1	10.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	20.3	20.3			13.4			29.7			29.7	36.2
Actuated g/C Ratio	0.31	0.31			0.20			0.45			0.45	0.55
v/c Ratio	0.09	0.25			0.32			0.45			0.38	0.05
Control Delay (s/veh)	20.4	21.7			33.8			27.0			24.9	8.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	20.4	21.7			33.8			27.0			24.9	8.3
LOS	C	C			C			C			C	A
Approach Delay (s/veh)		21.4			33.8			27.0			23.1	
Approach LOS		C			C			C			C	
90th %ile Green (s)	10.0	30.4		15.5	15.5		24.1	24.1		24.1	24.1	10.0
90th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Max	Max	Min
70th %ile Green (s)	10.0	27.6		12.7	12.7		24.1	24.1		24.1	24.1	10.0
70th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
50th %ile Green (s)	10.0	25.7		10.8	10.8		24.1	24.1		24.1	24.1	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
30th %ile Green (s)	0.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	0.0
30th %ile Term Code	Skip	Min		Min	Min		Min	Min		Min	Min	Skip
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Queue Length 50th (ft)	11	44			53			145			128	6
Queue Length 95th (ft)	30	83			99			#268			218	15
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	366	923			564			770			845	780
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	23%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.08	0.12			0.19			0.40			0.34	0.05

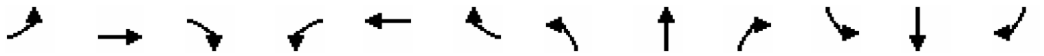
Intersection Summary			
Area Type:	Other		
Cycle Length: 88			
Actuated Cycle Length: 65.4			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay (s/veh): 25.5		Intersection LOS: C	
Intersection Capacity Utilization 49.6%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 88.3			
70th %ile Actuated Cycle: 85.5			
50th %ile Actuated Cycle: 83.6			
30th %ile Actuated Cycle: 34.8			
10th %ile Actuated Cycle: 34.9			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



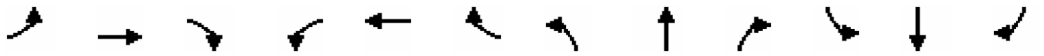
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	182	87	24	196	70	50	225	26	68	199	39
Future Volume (vph)	37	182	87	24	196	70	50	225	26	68	199	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.98			0.99		0.98	0.99	
Frt		0.951			0.967			0.988			0.976	
Flt Protected	0.950				0.996			0.992		0.950		
Satd. Flow (prot)	1596	1586	0	0	1689	0	0	1716	0	1538	1641	0
Flt Permitted	0.492				0.959			0.908		0.501		
Satd. Flow (perm)	804	1586	0	0	1622	0	0	1563	0	791	1641	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	36		32	32		36	30		30	30		30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	3%	5%	17%	5%	3%	4%	9%	12%	9%	8%	5%
Adj. Flow (vph)	38	188	90	25	202	72	52	232	27	70	205	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	278	0	0	299	0	0	311	0	70	245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



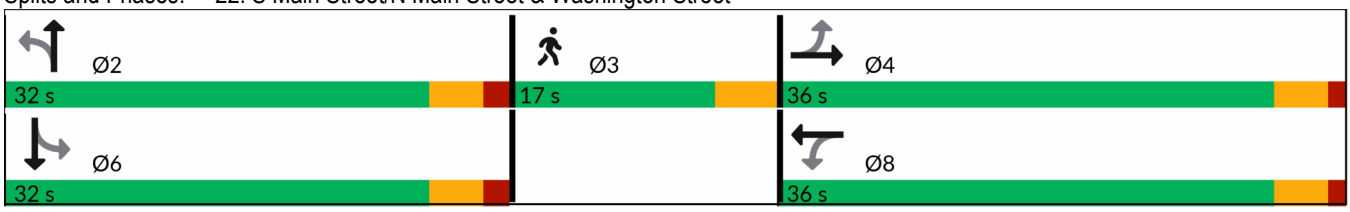
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		32.0	32.0		32.0	32.0	
Total Split (%)	42.4%	42.4%		42.4%	42.4%		37.6%	37.6%		37.6%	37.6%	
Maximum Green (s)	31.4	31.4		31.4	31.4		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	20.2	20.2			20.2			20.2		20.2	20.2	
Actuated g/C Ratio	0.33	0.33			0.33			0.33		0.33	0.33	
v/c Ratio	0.14	0.53			0.56			0.61		0.27	0.45	
Control Delay (s/veh)	21.3	24.8			25.2			27.0		23.6	23.4	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	21.3	24.8			25.2			27.0		23.6	23.4	
LOS	C	C			C			C		C	C	
Approach Delay (s/veh)		24.3			25.2			27.0			23.4	
Approach LOS		C			C			C			C	
90th %ile Green (s)	29.0	29.0		29.0	29.0		27.0	27.0		27.0	27.0	
90th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
70th %ile Green (s)	21.7	21.7		21.7	21.7		22.4	22.4		22.4	22.4	
70th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap		Hold	Hold	
50th %ile Green (s)	17.5	17.5		17.5	17.5		18.2	18.2		18.2	18.2	
50th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap		Hold	Hold	
30th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
30th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
10th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
10th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
Queue Length 50th (ft)	12	100			109			114		22	84	
Queue Length 95th (ft)	38	198			212			234		65	178	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	456	901			922			763		386	802	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	20%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.08	0.31			0.32			0.41		0.18	0.31	

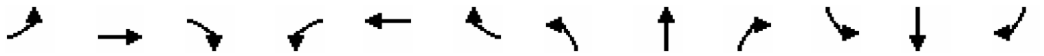
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 61.4			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay (s/veh): 25.0		Intersection LOS: C	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 86.6			
70th %ile Actuated Cycle: 74.7			
50th %ile Actuated Cycle: 66.3			
30th %ile Actuated Cycle: 39.6			
10th %ile Actuated Cycle: 39.6			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



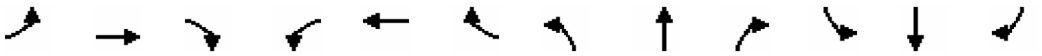
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	204	0	24	0	320	196	14	396	22
Future Volume (vph)	0	0	0	204	0	24	0	320	196	14	396	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				1.00	0.99			0.99			1.00	
Frt					0.967			0.943			0.992	
Flt Protected				0.950	0.962						0.998	
Satd. Flow (prot)	0	0	0	1549	1508	0	0	3104	0	0	3151	0
Flt Permitted				0.950	0.962						0.935	
Satd. Flow (perm)	0	0	0	1544	1504	0	0	3104	0	0	2952	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	4		3	3		4	8		4	4		8
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	7%	0%	8%	0%	12%	3%	21%	10%	14%
Adj. Flow (vph)	0	0	0	210	0	25	0	330	202	14	408	23
Shared Lane Traffic (%)				43%								
Lane Group Flow (vph)	0	0	0	120	115	0	0	532	0	0	445	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2			2		1	2	
Detector Template				Left	Thru			Thru		Left	Thru	
Leading Detector (ft)				20	100			100		20	100	
Trailing Detector (ft)				0	0			0		0	0	
Detector 1 Position(ft)				0	0			0		0	0	
Detector 1 Size(ft)				20	6			6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



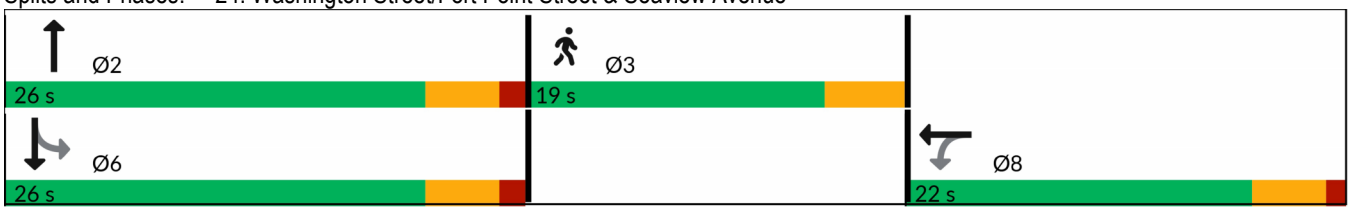
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				22.0	22.0			26.0		26.0	26.0	
Total Split (%)				32.8%	32.8%			38.8%		38.8%	38.8%	
Maximum Green (s)				17.3	17.3			21.0		21.0	21.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				10.5	10.5			23.8			23.8	
Actuated g/C Ratio				0.22	0.22			0.51			0.51	
v/c Ratio				0.35	0.28			0.34			0.30	
Control Delay (s/veh)				22.2	9.1			14.0			13.5	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				22.2	9.1			14.0			13.5	
LOS				C	A			B			B	
Approach Delay (s/veh)					15.8			14.0			13.5	
Approach LOS					B			B			B	
90th %ile Green (s)				15.9	15.9			21.0		21.0	21.0	
90th %ile Term Code				Gap	Gap			Max		Max	Max	
70th %ile Green (s)				11.9	11.9			19.2		19.2	19.2	
70th %ile Term Code				Gap	Gap			Gap		Hold	Hold	
50th %ile Green (s)				9.8	9.8			15.8		15.8	15.8	
50th %ile Term Code				Gap	Gap			Gap		Hold	Hold	
30th %ile Green (s)				7.0	7.0			15.0		15.0	15.0	
30th %ile Term Code				Min	Min			Min		Min	Min	
10th %ile Green (s)				0.0	0.0			30.0		30.0	30.0	
10th %ile Term Code				Skip	Skip			Dwell		Dwell	Dwell	
Queue Length 50th (ft)				18	2			31			25	
Queue Length 95th (ft)				91	45			147			121	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				632	674			1793			1708	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.19	0.17			0.30			0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 47.1			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay (s/veh): 14.1		Intersection LOS: B	
Intersection Capacity Utilization 43.1%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 69.6			
70th %ile Actuated Cycle: 63.8			
50th %ile Actuated Cycle: 35.3			
30th %ile Actuated Cycle: 31.7			
10th %ile Actuated Cycle: 35			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	0	17	0	0	1	0	362	0	1	378	0
Future Vol, veh/h	53	0	17	0	0	1	0	362	0	1	378	0
Conflicting Peds, #/hr	1	0	0	0	0	1	19	0	20	20	0	19
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	8	0	18	0	0	100	0	7	0	100	9	0
Mvmt Flow	55	0	18	0	0	1	0	373	0	1	390	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	766	-	390	785	785	394	-	0	0	393	0	0
Stage 1	392	-	-	393	393	-	-	-	-	-	-	-
Stage 2	374	-	-	392	392	-	-	-	-	-	-	-
Critical Hdwy	7.38	-	6.48	7.1	6.5	7.2	-	-	-	5.1	-	-
Critical Hdwy Stg 1	6.38	-	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.38	-	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	-	3.462	3.5	4	4.2	-	-	-	3.1	-	-
Pot Cap-1 Maneuver	299	0	618	313	327	486	0	-	-	784	-	0
Stage 1	608	0	-	636	609	-	0	-	-	-	-	0
Stage 2	622	0	-	637	610	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	298	-	618	298	320	476	-	-	-	769	-	-
Mov Cap-2 Maneuver	298	-	-	298	320	-	-	-	-	-	-	-
Stage 1	606	-	-	624	598	-	-	-	-	-	-	-
Stage 2	620	-	-	618	609	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	17.65	12.57	0	0.03
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	298	618	476	5	-
HCM Lane V/C Ratio	-	-	0.183	0.028	0.002	0.001	-
HCM Ctrl Dly (s/v)	-	-	19.8	11	12.6	9.7	0
HCM Lane LOS	-	-	C	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	0	0	-

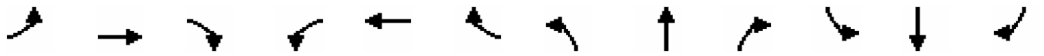
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	1	9	16	390	7	8	379	53
Future Vol, veh/h	0	0	0	6	1	9	16	390	7	8	379	53
Conflicting Peds, #/hr	8	0	11	11	0	8	23	0	24	24	0	23
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	6	8	0	0	9	9
Mvmt Flow	0	0	0	6	1	9	16	402	7	8	391	55

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	881	948	438	468	0	0	433	0	0
Stage 1	463	463	-	-	-	-	-	-	-
Stage 2	418	485	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	353	292	639	1073	-	-	1137	-	-
Stage 1	672	598	-	-	-	-	-	-	-
Stage 2	700	586	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	334	0	624	1073	-	-	1120	-	-
Mov Cap-2 Maneuver	334	0	-	-	-	-	-	-	-
Stage 1	648	0	-	-	-	-	-	-	-
Stage 2	687	0	-	-	-	-	-	-	-

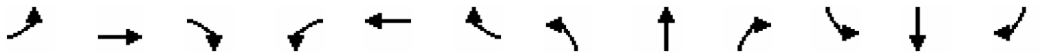
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.06	0.33	0.15
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	69	-	-	463	1120	-	-
HCM Lane V/C Ratio	0.015	-	-	0.036	0.007	-	-
HCM Ctrl Dly (s/v)	8.4	0	-	13.1	8.2	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	1	9	0	0	1	23	539	1	3	326	129
Future Volume (vph)	107	1	9	0	0	1	23	539	1	3	326	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.97			1.00			0.99	
Frt		0.990			0.865						0.962	
Flt Protected		0.956						0.998				
Satd. Flow (prot)	0	1752	0	0	1610	0	0	1726	0	0	1599	0
Flt Permitted		0.743						0.975			0.998	
Satd. Flow (perm)	0	1355	0	0	1610	0	0	1685	0	0	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			374						30	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	3		1	1		3	24		11	11		24
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	33%	0%	0%	0%	0%	3%	100%	33%	6%	5%
Adj. Flow (vph)	111	1	9	0	0	1	24	561	1	3	340	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	0	0	1	0	0	586	0	0	477	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



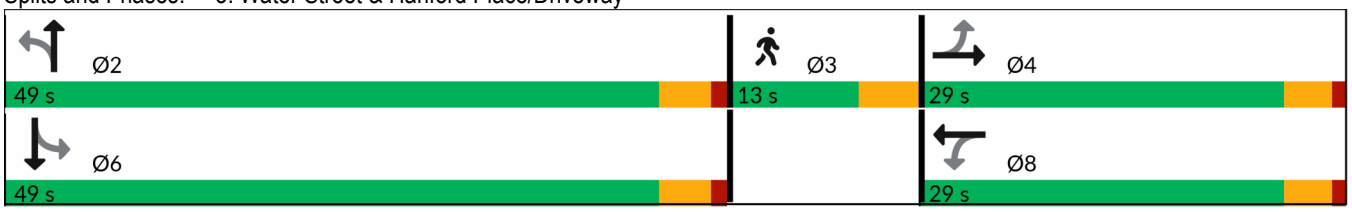
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	29.0	29.0		29.0	29.0		49.0	49.0		49.0	49.0	
Total Split (%)	31.9%	31.9%		31.9%	31.9%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.8	24.8		24.8	24.8		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		11.9			11.6			35.8			35.8	
Actuated g/C Ratio		0.21			0.20			0.62			0.62	
v/c Ratio		0.42			0.00			0.56			0.47	
Control Delay (s/veh)		29.3			0.0			14.3			12.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		29.3			0.0			14.3			12.2	
LOS		C			A			B			B	
Approach Delay (s/veh)		29.3						14.3			12.2	
Approach LOS		C						B			B	
90th %ile Green (s)	18.4	18.4		18.4	18.4		44.4	44.4		44.4	44.4	
90th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
70th %ile Green (s)	14.1	14.1		14.1	14.1		35.3	35.3		35.3	35.3	
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
50th %ile Green (s)	11.2	11.2		11.2	11.2		28.0	28.0		28.0	28.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
30th %ile Green (s)	8.4	8.4		8.4	8.4		22.8	22.8		22.8	22.8	
30th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		27			0			87			60	
Queue Length 95th (ft)		110			0			364			265	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		669			982			1353			1288	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	14%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	39
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.18			0.00			0.43			0.37	

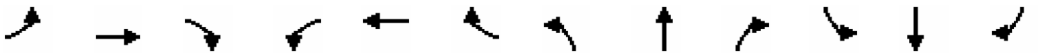
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 57.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay (s/veh): 15.0		Intersection LOS: B	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 88.6			
70th %ile Actuated Cycle: 75.2			
50th %ile Actuated Cycle: 48			
30th %ile Actuated Cycle: 40			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



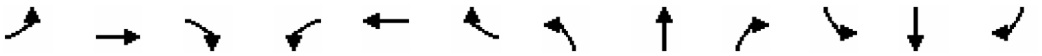
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	239	43	357	274	129	36	173	499	166	127	17
Future Volume (vph)	33	239	43	357	274	129	36	173	499	166	127	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.98		0.97		0.98		0.99	
Frt		0.982			0.952				0.850		0.993	
Flt Protected		0.995		0.950			0.950				0.974	
Satd. Flow (prot)	0	1812	0	1647	1684	0	1805	1863	1725	0	1744	0
Flt Permitted		0.924		0.326			0.561				0.692	
Satd. Flow (perm)	0	1677	0	559	1684	0	1030	1863	1698	0	1233	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		8			29				461			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			225			313	
Travel Time (s)		13.1			16.8			6.1			8.5	
Confl. Peds. (#/hr)	39		18	18		39	39		12	12		39
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	0%	7%	3%	2%	0%	2%	3%	1%	2%	0%
Adj. Flow (vph)	33	241	43	361	277	130	36	175	504	168	128	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	361	407	0	36	175	504	0	313	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



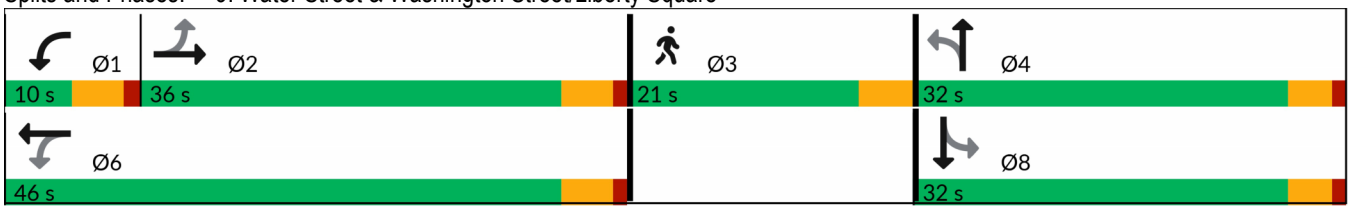
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	36.0	36.0		10.0	46.0		32.0	32.0		32.0	32.0	
Total Split (%)	36.4%	36.4%		10.1%	46.5%		32.3%	32.3%		32.3%	32.3%	
Maximum Green (s)	31.1	31.1		5.0	41.1		27.7	27.7		27.7	27.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		21.7		32.4	32.5		27.7	27.7	83.2		27.7	
Actuated g/C Ratio		0.26		0.39	0.39		0.33	0.33	1.00		0.33	
v/c Ratio		0.72		1.25	0.60		0.10	0.28	0.30		0.76	
Control Delay (s/veh)		39.3		166.7	25.6		27.6	27.6	0.4		44.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		39.3		166.7	25.6		27.6	27.6	0.4		44.7	
LOS		D		F	C		C	C	A		D	
Approach Delay (s/veh)		39.3			92.0			8.5			44.7	
Approach LOS		D			F			A			D	
90th %ile Green (s)	31.1	31.1		5.0	41.1		27.7	27.7		27.7	27.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	26.5	26.5		5.0	36.5		27.7	27.7		27.7	27.7	
70th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	22.5	22.5		5.0	32.5		27.7	27.7		27.7	27.7	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	18.9	18.9		5.0	28.9		27.7	27.7		27.7	27.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	11.1	11.1		5.0	21.1		21.1	21.1		21.1	21.1	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
Queue Length 50th (ft)		177		~271	196		16	83	0		180	
Queue Length 95th (ft)		272		#493	297		45	156	0		#378	
Internal Link Dist (ft)		399			537			145			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		680		288	910		370	668	1698		442	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.47		1.25	0.45		0.10	0.26	0.30		0.71	

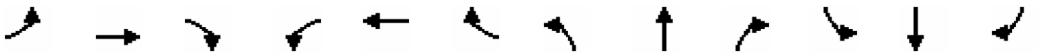
Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 83.2			
Natural Cycle: 105			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay (s/veh): 48.8		Intersection LOS: D	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 104			
70th %ile Actuated Cycle: 99.4			
50th %ile Actuated Cycle: 95.4			
30th %ile Actuated Cycle: 65.8			
10th %ile Actuated Cycle: 51.4			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



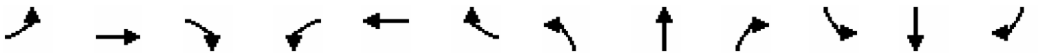
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	82	57	14	97	36	33	246	14	35	288	55
Future Volume (vph)	55	82	57	14	97	36	33	246	14	35	288	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.98			0.98			0.99			1.00	0.94
Frt		0.939			0.967			0.993				0.850
Flt Protected	0.950				0.995			0.994			0.995	
Satd. Flow (prot)	1620	1502	0	0	1733	0	0	1760	0	0	1798	1546
Flt Permitted	0.362				0.954			0.930			0.936	
Satd. Flow (perm)	608	1502	0	0	1652	0	0	1642	0	0	1685	1452
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	18		32	32		18	34		44	44		34
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	14%	0%	5%	3%	24%	4%	0%	3%	6%	5%
Adj. Flow (vph)	61	91	63	16	108	40	37	273	16	39	320	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	154	0	0	164	0	0	326	0	0	359	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



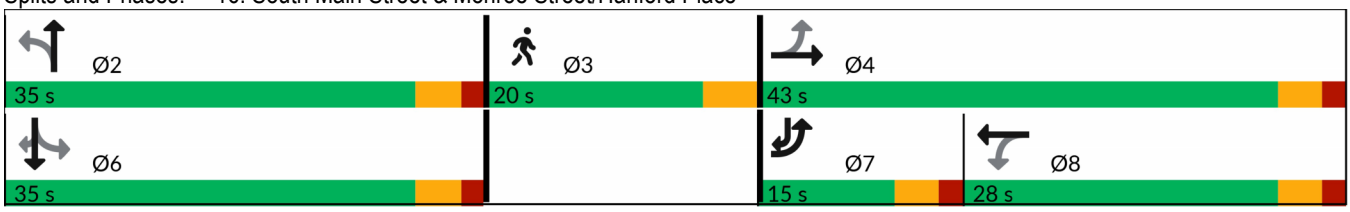
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	15.0	43.0		28.0	28.0		35.0	35.0		35.0	35.0	15.0
Total Split (%)	15.3%	43.9%		28.6%	28.6%		35.7%	35.7%		35.7%	35.7%	15.3%
Maximum Green (s)	10.1	38.1		23.1	23.1		30.1	30.1		30.1	30.1	10.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	27.9	27.9			17.2			33.1			33.1	37.1
Actuated g/C Ratio	0.38	0.38			0.24			0.46			0.46	0.51
v/c Ratio	0.14	0.27			0.42			0.44			0.47	0.08
Control Delay (s/veh)	21.4	22.8			36.9			27.5			28.0	8.7
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	21.4	22.8			36.9			27.5			28.0	8.7
LOS	C	C			D			C			C	A
Approach Delay (s/veh)		22.4			36.9			27.5			25.2	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.1	35.7		20.7	20.7		30.1	30.1		30.1	30.1	10.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	10.0	31.7		16.8	16.8		30.1	30.1		30.1	30.1	10.0
70th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
50th %ile Green (s)	10.0	28.9		14.0	14.0		25.8	25.8		25.8	25.8	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Gap	Gap		Hold	Hold	Min
30th %ile Green (s)	10.0	26.2		11.3	11.3		21.0	21.0		21.0	21.0	10.0
30th %ile Term Code	Min	Hold		Gap	Gap		Gap	Gap		Hold	Hold	Min
10th %ile Green (s)	0.0	0.0		0.0	0.0		17.6	17.6		17.6	17.6	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Queue Length 50th (ft)	24	64			87			160			180	10
Queue Length 95th (ft)	54	120			158			278			306	23
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	425	865			707			816			837	760
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.14	0.18			0.23			0.40			0.43	0.08

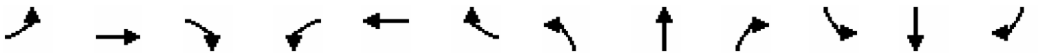
Intersection Summary			
Area Type:	Other		
Cycle Length: 98			
Actuated Cycle Length: 72.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay (s/veh): 27.1		Intersection LOS: C	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 99.6			
70th %ile Actuated Cycle: 95.6			
50th %ile Actuated Cycle: 88.5			
30th %ile Actuated Cycle: 57			
10th %ile Actuated Cycle: 22.5			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



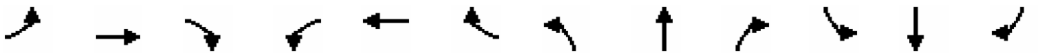
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	224	90	20	246	55	60	289	46	82	303	31
Future Volume (vph)	58	224	90	20	246	55	60	289	46	82	303	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.98		0.96	0.99	
Frt		0.957			0.977			0.984			0.986	
Flt Protected	0.950				0.997			0.992		0.950		
Satd. Flow (prot)	1676	1624	0	0	1783	0	0	1790	0	1660	1722	0
Flt Permitted	0.437				0.967			0.861		0.426		
Satd. Flow (perm)	765	1624	0	0	1727	0	0	1546	0	711	1722	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	10		25	25		10	47		75	75		47
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	3%	10%	2%	0%	2%	3%	2%	1%	4%	3%
Adj. Flow (vph)	60	233	94	21	256	57	63	301	48	85	316	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	327	0	0	334	0	0	412	0	85	348	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



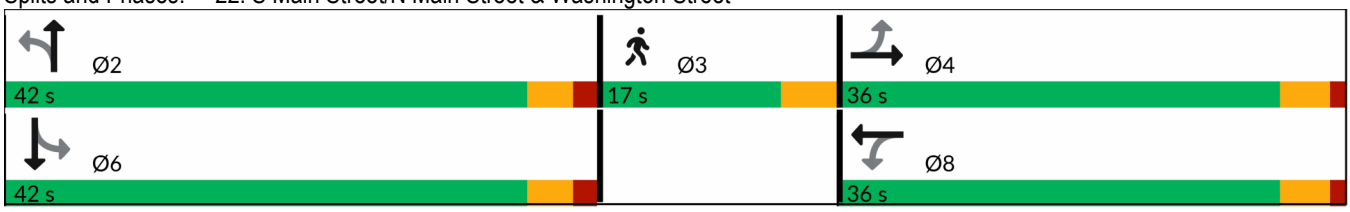
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		42.0	42.0		42.0	42.0	
Total Split (%)	37.9%	37.9%		37.9%	37.9%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.9	22.9			22.9			25.7		25.7	25.7	
Actuated g/C Ratio	0.33	0.33			0.33			0.37		0.37	0.37	
v/c Ratio	0.24	0.61			0.59			0.72		0.32	0.55	
Control Delay (s/veh)	26.7	30.3			29.2			30.5		24.4	24.2	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	26.7	30.3			29.2			30.5		24.4	24.2	
LOS	C	C			C			C		C	C	
Approach Delay (s/veh)		29.8			29.2			30.5			24.2	
Approach LOS		C			C			C			C	
90th %ile Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Hold	Hold	
70th %ile Green (s)	27.6	27.6		27.6	27.6		34.7	34.7		34.7	34.7	
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
50th %ile Green (s)	21.0	21.0		21.0	21.0		26.5	26.5		26.5	26.5	
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
30th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
30th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
10th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
10th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
Queue Length 50th (ft)	23	145			147			178		31	138	
Queue Length 95th (ft)	63	271			271			334		79	259	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	404	858			912			962		442	1072	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	18%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.15	0.38			0.37			0.43		0.19	0.32	

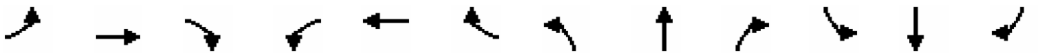
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 69.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 28.3		Intersection LOS: C	
Intersection Capacity Utilization 85.5%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 99			
70th %ile Actuated Cycle: 92.9			
50th %ile Actuated Cycle: 78.1			
30th %ile Actuated Cycle: 39.6			
10th %ile Actuated Cycle: 39.6			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



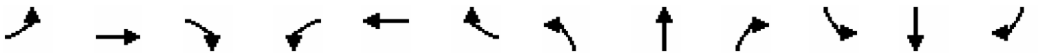
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	274	0	23	2	560	312	12	462	15
Future Volume (vph)	0	0	0	274	0	23	2	560	312	12	462	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	0.99			0.99			1.00	
Frt					0.977			0.946			0.995	
Flt Protected				0.950	0.959						0.999	
Satd. Flow (prot)	0	0	0	1609	1569	0	0	3311	0	0	3336	0
Flt Permitted				0.950	0.959			0.954			0.928	
Satd. Flow (perm)	0	0	0	1595	1558	0	0	3159	0	0	3098	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	3		9	9		3	8		7	7		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	3%	0%	9%	0%	3%	0%	8%	5%	0%
Adj. Flow (vph)	0	0	0	280	0	23	2	571	318	12	471	15
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	0	0	154	149	0	0	891	0	0	498	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2		1	2	
Detector Template				Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)				20	100		20	100		20	100	
Trailing Detector (ft)				0	0		0	0		0	0	
Detector 1 Position(ft)				0	0		0	0		0	0	
Detector 1 Size(ft)				20	6		20	6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



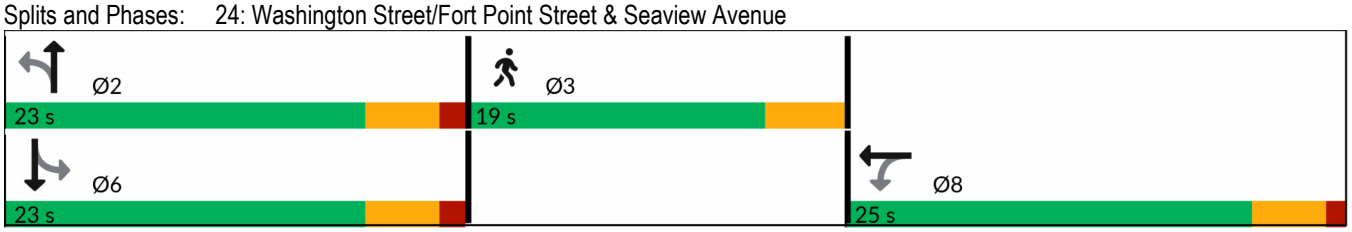
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8			2			6		
Detector Phase				8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7		20.0	20.0		20.0	20.0	
Total Split (s)				25.0	25.0		23.0	23.0		23.0	23.0	
Total Split (%)				37.3%	37.3%		34.3%	34.3%		34.3%	34.3%	
Maximum Green (s)				20.3	20.3		18.0	18.0		18.0	18.0	
Yellow Time (s)				3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode				None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				11.1	11.1			22.2			22.2	
Actuated g/C Ratio				0.20	0.20			0.40			0.40	
v/c Ratio				0.48	0.38			0.70			0.40	
Control Delay (s/veh)				26.5	12.3			24.8			17.5	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				26.5	12.3			24.8			17.5	
LOS				C	B			C			B	
Approach Delay (s/veh)					19.5			24.8			17.5	
Approach LOS					B			C			B	
90th %ile Green (s)				17.3	17.3		18.0	18.0		18.0	18.0	
90th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
70th %ile Green (s)				13.2	13.2		18.0	18.0		18.0	18.0	
70th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
50th %ile Green (s)				11.1	11.1		18.0	18.0		18.0	18.0	
50th %ile Term Code				Gap	Gap		Max	Max		Hold	Hold	
30th %ile Green (s)				7.6	7.6		18.0	18.0		18.0	18.0	
30th %ile Term Code				Gap	Gap		Max	Max		Hold	Hold	
10th %ile Green (s)				7.0	7.0		31.7	31.7		31.7	31.7	
10th %ile Term Code				Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)				55	16			171			81	
Queue Length 95th (ft)				107	61			#330			141	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				618	664			1265			1243	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.25	0.22			0.70			0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 55.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay (s/veh): 21.7		Intersection LOS: C	
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 68			
70th %ile Actuated Cycle: 63.9			
50th %ile Actuated Cycle: 61.8			
30th %ile Actuated Cycle: 35.3			
10th %ile Actuated Cycle: 48.4			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	0	28	0	0	0	0	655	0	0	449	0
Future Vol, veh/h	70	0	28	0	0	0	0	655	0	0	449	0
Conflicting Peds, #/hr	0	0	0	0	0	0	45	0	20	20	0	45
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	0	0	0	0	0	0	3	0	0	6	0
Mvmt Flow	72	0	29	0	0	0	0	675	0	0	463	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1138	-	463	1158	1158	695	-	0	0	695	0	0
Stage 1	463	-	-	695	695	-	-	-	-	-	-	-
Stage 2	675	-	-	463	463	-	-	-	-	-	-	-
Critical Hdwy	7.31	-	6.3	7.1	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.31	-	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.31	-	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.3	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	168	0	595	175	198	445	0	-	-	910	-	0
Stage 1	566	0	-	436	447	-	0	-	-	-	-	0
Stage 2	429	0	-	583	568	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	168	-	595	163	194	437	-	-	-	893	-	-
Mov Cap-2 Maneuver	168	-	-	163	194	-	-	-	-	-	-	-
Stage 1	566	-	-	427	438	-	-	-	-	-	-	-
Stage 2	429	-	-	555	568	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	32.9	0	0	0
HCM LOS	D	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	168	595	-	893	-
HCM Lane V/C Ratio	-	-	0.429	0.048	-	-	-
HCM Ctrl Dly (s/v)	-	-	41.5	11.4	0	0	-
HCM Lane LOS	-	-	E	B	A	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.2	-	0	-

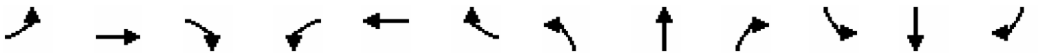
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	11	32	694	1	2	457	64
Future Vol, veh/h	0	0	0	1	0	11	32	694	1	2	457	64
Conflicting Peds, #/hr	0	0	5	5	0	0	49	0	22	22	0	49
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	5	5
Mvmt Flow	0	0	0	1	0	11	32	701	1	2	462	65

Major/Minor	Minor1		Major1				Major2		
Conflicting Flow All	1259	1367	724	575	0	0	724	0	0
Stage 1	788	788	-	-	-	-	-	-	-
Stage 2	471	579	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	219	173	447	1008	-	-	888	-	-
Stage 1	493	442	-	-	-	-	-	-	-
Stage 2	667	537	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	203	0	441	1008	-	-	875	-	-
Mov Cap-2 Maneuver	203	0	-	-	-	-	-	-	-
Stage 1	460	0	-	-	-	-	-	-	-
Stage 2	662	0	-	-	-	-	-	-	-

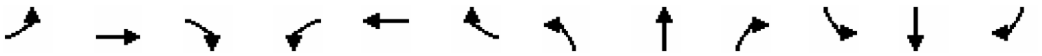
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	14.25	0.38	0.03
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	79	-	-	401	875	-	-
HCM Lane V/C Ratio	0.032	-	-	0.03	0.002	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	14.2	9.1	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	0	14	1	0	3	16	368	2	2	346	123
Future Volume (vph)	105	0	14	1	0	3	16	368	2	2	346	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			0.99	
Frt		0.984			0.899			0.999			0.965	
Flt Protected		0.958			0.988			0.998				
Satd. Flow (prot)	0	1728	0	0	1646	0	0	1702	0	0	1634	0
Flt Permitted		0.749			0.920			0.976			0.999	
Satd. Flow (perm)	0	1328	0	0	1532	0	0	1664	0	0	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75			75						27	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	12		2	2		12	16		12	12		16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	0%	21%	0%	0%	0%	13%	4%	0%	0%	5%	2%
Adj. Flow (vph)	111	0	15	1	0	3	17	387	2	2	364	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	4	0	0	406	0	0	495	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



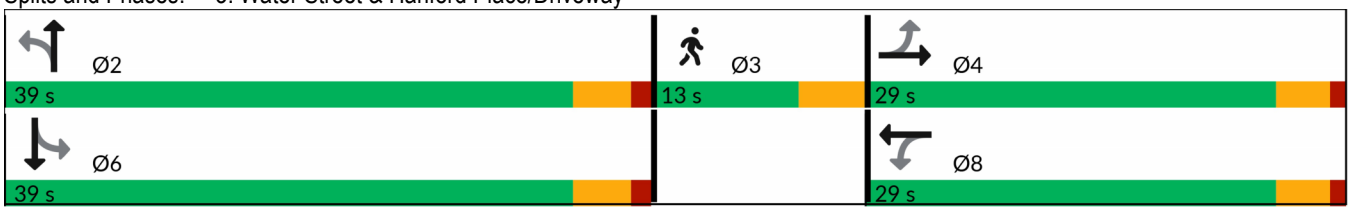
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	29.0	29.0		29.0	29.0		39.0	39.0		39.0	39.0	
Total Split (%)	35.8%	35.8%		35.8%	35.8%		48.1%	48.1%		48.1%	48.1%	
Maximum Green (s)	24.8	24.8		24.8	24.8		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		9.2			8.9			29.8			29.8	
Actuated g/C Ratio		0.19			0.18			0.61			0.61	
v/c Ratio		0.41			0.01			0.40			0.50	
Control Delay (s/veh)		16.0			0.0			11.4			12.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		16.0			0.0			11.4			12.1	
LOS		B			A			B			B	
Approach Delay (s/veh)		16.0						11.4			12.1	
Approach LOS		B						B			B	
90th %ile Green (s)	13.6	13.6		13.6	13.6		34.4	34.4		34.4	34.4	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	10.0	10.0		10.0	10.0		26.1	26.1		26.1	26.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	7.7	7.7		7.7	7.7		21.4	21.4		21.4	21.4	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	7.0	7.0		7.0	7.0		21.6	21.6		21.6	21.6	
30th %ile Term Code	Min	Min		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		9			0			39			48	
Queue Length 95th (ft)		67			0			204			255	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		769			882			1279			1260	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	16%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	42
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			0.00			0.32			0.39	

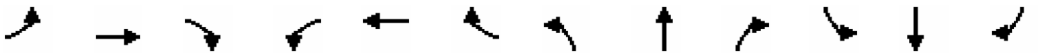
Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 49.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay (s/veh): 12.3		Intersection LOS: B	
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 73.8			
70th %ile Actuated Cycle: 61.9			
50th %ile Actuated Cycle: 37.9			
30th %ile Actuated Cycle: 37.4			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



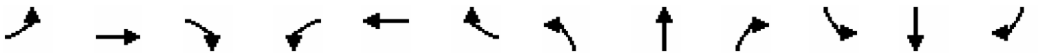
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	235	67	342	229	153	53	160	381	130	118	38
Future Volume (vph)	38	235	67	342	229	153	53	160	381	130	118	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.94		0.99		0.98	
Frt		0.973			0.940				0.850		0.982	
Flt Protected		0.994		0.950			0.950				0.978	
Satd. Flow (prot)	0	1804	0	1695	1682	0	1703	1881	1708	0	1711	0
Flt Permitted		0.913		0.268			0.517				0.699	
Satd. Flow (perm)	0	1646	0	474	1682	0	867	1881	1686	0	1221	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		13			48				397			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	48		15	15		48	65		3	3		65
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	4%	1%	0%	6%	1%	4%	0%	1%	3%
Adj. Flow (vph)	40	245	70	356	239	159	55	167	397	135	123	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	355	0	356	398	0	55	167	397	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



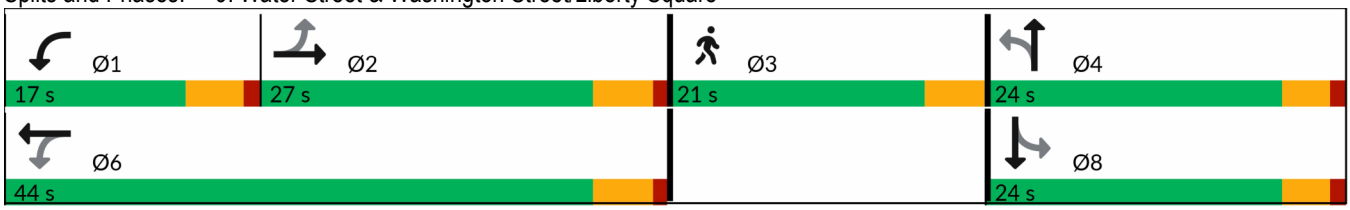
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	27.0	27.0		17.0	44.0		24.0	24.0		24.0	24.0	
Total Split (%)	30.3%	30.3%		19.1%	49.4%		27.0%	27.0%		27.0%	27.0%	
Maximum Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		19.6		37.2	37.4		20.6	20.6	81.0		20.6	
Actuated g/C Ratio		0.24		0.46	0.46		0.25	0.25	1.00		0.25	
v/c Ratio		0.87		0.87	0.50		0.25	0.35	0.24		0.96	
Control Delay (s/veh)		54.0		45.2	18.3		33.8	31.9	0.3		79.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		54.0		45.2	18.3		33.8	31.9	0.3		79.8	
LOS		D		D	B		C	C	A		E	
Approach Delay (s/veh)		54.0			31.0			11.8			79.8	
Approach LOS		D			C			B			E	
90th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	17.4	17.4		12.0	34.4		19.7	19.7		19.7	19.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	13.6	13.6		12.0	30.6		19.7	19.7		19.7	19.7	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
Queue Length 50th (ft)		199		~156	153		28	87	0		~213	
Queue Length 95th (ft)		#363		#311	244		64	149	0		#374	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		478		407	872		220	478	1686		310	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.74		0.87	0.46		0.25	0.35	0.24		0.96	

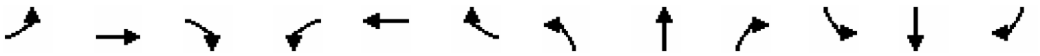
Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 81			
Natural Cycle: 105			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 36.4		Intersection LOS: D	
Intersection Capacity Utilization 81.9%		ICU Level of Service D	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 94			
50th %ile Actuated Cycle: 94			
30th %ile Actuated Cycle: 63.3			
10th %ile Actuated Cycle: 59.5			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



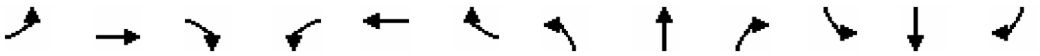
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	70	47	8	80	40	32	201	13	27	228	44
Future Volume (vph)	34	70	47	8	80	40	32	201	13	27	228	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.99			0.99	0.94
Frt		0.940			0.958			0.993				0.850
Flt Protected	0.950				0.997			0.993			0.995	
Satd. Flow (prot)	1652	1605	0	0	1770	0	0	1740	0	0	1819	1591
Flt Permitted	0.424				0.974			0.932			0.948	
Satd. Flow (perm)	730	1605	0	0	1726	0	0	1627	0	0	1724	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	11		17	17		11	25		46	46		25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	1%	1%	2%	0%	4%	8%	0%	0%	5%	2%
Adj. Flow (vph)	38	78	52	9	89	44	36	223	14	30	253	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	130	0	0	142	0	0	273	0	0	283	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



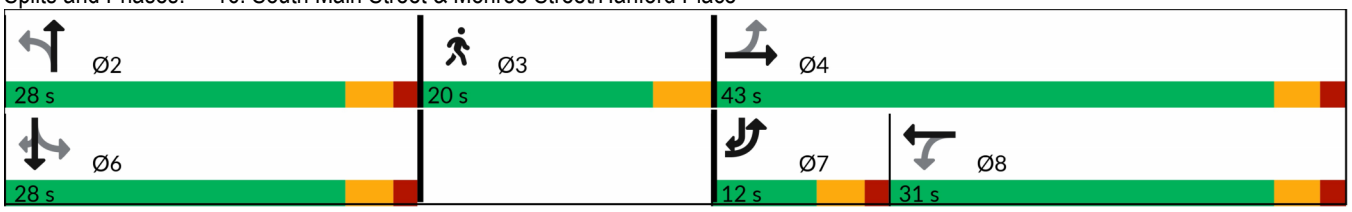
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	12.0	43.0		31.0	31.0		28.0	28.0		28.0	28.0	12.0
Total Split (%)	13.2%	47.3%		34.1%	34.1%		30.8%	30.8%		30.8%	30.8%	13.2%
Maximum Green (s)	7.1	38.1		26.1	26.1		23.1	23.1		23.1	23.1	7.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	18.3	19.4			13.9			28.0			28.0	31.9
Actuated g/C Ratio	0.29	0.31			0.22			0.45			0.45	0.51
v/c Ratio	0.11	0.26			0.37			0.37			0.37	0.06
Control Delay (s/veh)	20.2	21.3			31.6			24.6			24.3	8.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	20.2	21.3			31.6			24.6			24.3	8.8
LOS	C	C			C			C			C	A
Approach Delay (s/veh)		21.1			31.6			24.6			22.0	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.1	28.7		16.7	16.7		23.1	23.1		23.1	23.1	7.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	7.1	25.7		13.7	13.7		23.1	23.1		23.1	23.1	7.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Hold	Hold	Max
50th %ile Green (s)	7.1	23.7		11.7	11.7		20.1	20.1		20.1	20.1	7.1
50th %ile Term Code	Max	Hold		Gap	Gap		Gap	Gap		Hold	Hold	Max
30th %ile Green (s)	0.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	0.0
30th %ile Term Code	Skip	Min		Min	Min		Min	Min		Min	Min	Skip
10th %ile Green (s)	0.0	0.0		0.0	0.0		26.8	26.8		26.8	26.8	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Queue Length 50th (ft)	13	47			64			117			121	8
Queue Length 95th (ft)	35	93			123			211			215	19
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	340	1090			873			817			866	777
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	22%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.11	0.12			0.16			0.33			0.33	0.06

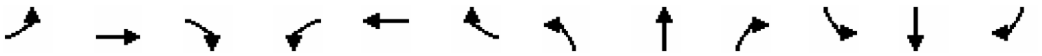
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 62.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay (s/veh): 24.1		Intersection LOS: C	
Intersection Capacity Utilization 52.9%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 85.6			
70th %ile Actuated Cycle: 82.6			
50th %ile Actuated Cycle: 77.6			
30th %ile Actuated Cycle: 34.8			
10th %ile Actuated Cycle: 31.7			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



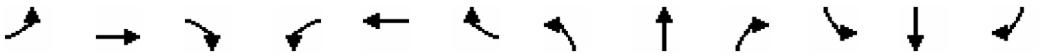
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	235	92	22	216	75	66	216	36	87	234	50
Future Volume (vph)	48	235	92	22	216	75	66	216	36	87	234	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.99			0.98			0.98		0.97	0.99	
Frt		0.958			0.968			0.985			0.973	
Flt Protected	0.950				0.997			0.990		0.950		
Satd. Flow (prot)	1643	1647	0	0	1748	0	0	1795	0	1676	1733	0
Flt Permitted	0.450				0.961			0.860		0.492		
Satd. Flow (perm)	758	1647	0	0	1684	0	0	1547	0	844	1733	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	31		10	10		31	48		40	40		48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	1%	3%	9%	1%	3%	0%	3%	8%	0%	1%	2%
Adj. Flow (vph)	51	247	97	23	227	79	69	227	38	92	246	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	344	0	0	329	0	0	334	0	92	299	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



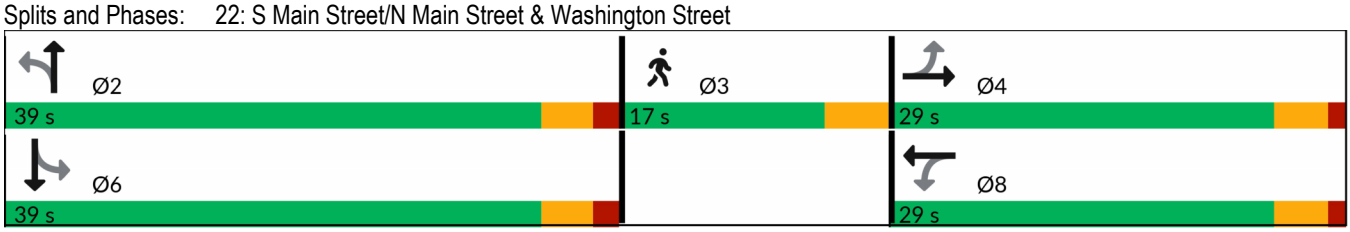
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	29.0	29.0		29.0	29.0		39.0	39.0		39.0	39.0	
Total Split (%)	34.1%	34.1%		34.1%	34.1%		45.9%	45.9%		45.9%	45.9%	
Maximum Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	20.6	20.6			20.6			21.9		21.9	21.9	
Actuated g/C Ratio	0.32	0.32			0.32			0.34		0.34	0.34	
v/c Ratio	0.21	0.64			0.60			0.63		0.32	0.50	
Control Delay (s/veh)	24.4	29.6			27.9			26.5		23.0	22.9	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	24.4	29.6			27.9			26.5		23.0	22.9	
LOS	C	C			C			C		C	C	
Approach Delay (s/veh)		28.9			27.9			26.5			22.9	
Approach LOS		C			C			C			C	
90th %ile Green (s)	24.4	24.4		24.4	24.4		32.3	32.3		32.3	32.3	
90th %ile Term Code	Max	Max		Max	Max		Gap	Gap		Hold	Hold	
70th %ile Green (s)	24.4	24.4		24.4	24.4		24.9	24.9		24.9	24.9	
70th %ile Term Code	Max	Max		Hold	Hold		Gap	Gap		Hold	Hold	
50th %ile Green (s)	19.9	19.9		19.9	19.9		20.5	20.5		20.5	20.5	
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
30th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
30th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
10th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
10th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
Queue Length 50th (ft)	17	136			128			132		32	112	
Queue Length 95th (ft)	53	#296			257			233		75	197	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	327	711			727			931		508	1043	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	20%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.16	0.48			0.45			0.36		0.18	0.29	

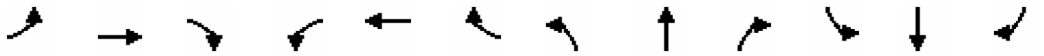
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 63.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 26.5		Intersection LOS: C	
Intersection Capacity Utilization 81.1%		ICU Level of Service D	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 87.3			
70th %ile Actuated Cycle: 79.9			
50th %ile Actuated Cycle: 71			
30th %ile Actuated Cycle: 39.6			
10th %ile Actuated Cycle: 39.6			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



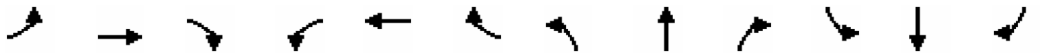
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	225	0	17	0	445	262	12	460	13
Future Volume (vph)	0	0	0	225	0	17	0	445	262	12	460	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	0.99			0.98			1.00	
Frt					0.979			0.944			0.996	
Flt Protected				0.950	0.959						0.999	
Satd. Flow (prot)	0	0	0	1641	1619	0	0	3270	0	0	3398	0
Flt Permitted				0.950	0.959						0.932	
Satd. Flow (perm)	0	0	0	1622	1603	0	0	3270	0	0	3170	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	10		11	11		10	19		12	12		19
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	2%	0%	3%	8%
Adj. Flow (vph)	0	0	0	239	0	18	0	473	279	13	489	14
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	0	0	129	128	0	0	752	0	0	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2			2		1	2	
Detector Template				Left	Thru			Thru		Left	Thru	
Leading Detector (ft)				20	100			100		20	100	
Trailing Detector (ft)				0	0			0		0	0	
Detector 1 Position(ft)				0	0			0		0	0	
Detector 1 Size(ft)				20	6			6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



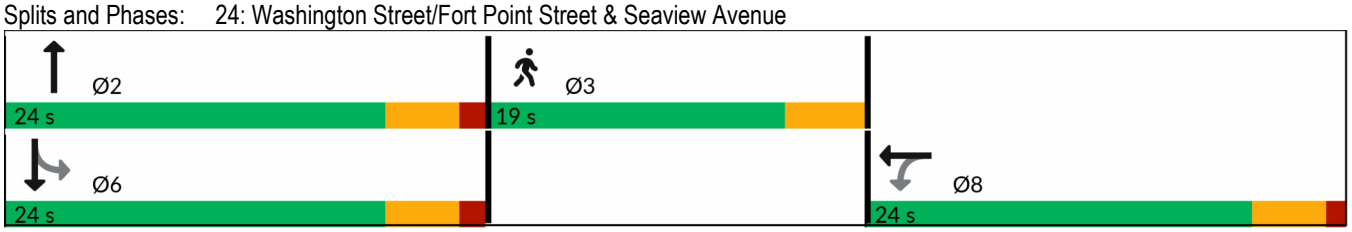
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				24.0	24.0			24.0		24.0	24.0	
Total Split (%)				35.8%	35.8%			35.8%		35.8%	35.8%	
Maximum Green (s)				19.3	19.3			19.0		19.0	19.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				10.5	10.5			24.5			24.5	
Actuated g/C Ratio				0.20	0.20			0.47			0.47	
v/c Ratio				0.39	0.32			0.49			0.34	
Control Delay (s/veh)				25.3	10.8			18.5			16.3	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				25.3	10.8			18.5			16.3	
LOS				C	B			B			B	
Approach Delay (s/veh)					18.1			18.5			16.3	
Approach LOS					B			B			B	
90th %ile Green (s)				15.7	15.7			19.0		19.0	19.0	
90th %ile Term Code				Gap	Gap			Max		Max	Max	
70th %ile Green (s)				11.9	11.9			19.0		19.0	19.0	
70th %ile Term Code				Gap	Gap			Max		Hold	Hold	
50th %ile Green (s)				10.1	10.1			19.0		19.0	19.0	
50th %ile Term Code				Gap	Gap			Max		Hold	Hold	
30th %ile Green (s)				7.2	7.2			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				0.0	0.0			30.0		30.0	30.0	
10th %ile Term Code				Skip	Skip			Dwell		Dwell	Dwell	
Queue Length 50th (ft)				46	10			131			82	
Queue Length 95th (ft)				93	51			#237			141	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				667	717			1624			1576	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.19	0.18			0.46			0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 51.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay (s/veh): 17.7		Intersection LOS: B	
Intersection Capacity Utilization 43.4%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 67.4			
70th %ile Actuated Cycle: 63.6			
50th %ile Actuated Cycle: 61.8			
30th %ile Actuated Cycle: 31.9			
10th %ile Actuated Cycle: 35			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	0	38	1	0	1	0	520	0	0	473	1
Future Vol, veh/h	75	0	38	1	0	1	0	520	0	0	473	1
Conflicting Peds, #/hr	1	0	0	0	0	1	32	0	13	13	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	0	5	100	0	100	0	3	0	0	3	0
Mvmt Flow	77	0	39	1	0	1	0	536	0	0	488	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1057	-	520	1037	1070	550	-	0	0	549	0	0
Stage 1	520	-	-	549	549	-	-	-	-	-	-	-
Stage 2	537	-	-	488	521	-	-	-	-	-	-	-
Critical Hdwy	7.31	-	6.35	8.1	6.5	7.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.31	-	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.31	-	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.345	4.4	4	4.2	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	192	0	542	140	223	387	0	-	-	1031	-	-
Stage 1	526	0	-	380	520	-	0	-	-	-	-	-
Stage 2	514	0	-	415	535	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	187	-	528	128	215	381	-	-	-	1018	-	-
Mov Cap-2 Maneuver	187	-	-	128	215	-	-	-	-	-	-	-
Stage 1	512	-	-	376	513	-	-	-	-	-	-	-
Stage 2	512	-	-	384	521	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	28.92	23.98	0	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	187	528	192	1018	-	-
HCM Lane V/C Ratio	-	-	0.414	0.074	0.011	-	-	-
HCM Ctrl Dly (s/v)	-	-	37.3	12.4	24	0	-	-
HCM Lane LOS	-	-	E	B	C	A	-	-
HCM 95th %tile Q(veh)	-	-	1.9	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	2	19	22	574	4	10	463	54
Future Vol, veh/h	0	0	0	6	2	19	22	574	4	10	463	54
Conflicting Peds, #/hr	10	0	16	16	0	10	29	0	25	25	0	29
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	3	0
Mvmt Flow	0	0	0	6	2	20	23	592	4	10	477	56

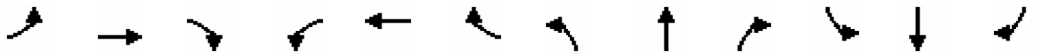
Major/Minor	Minor1		Major1				Major2			
Conflicting Flow All	1178	1247	629	562	0	0	621	0	0	
Stage 1	664	664	-	-	-	-	-	-	-	
Stage 2	514	583	-	-	-	-	-	-	-	
Critical Hdwy	6	6.1	6	4.1	-	-	4.1	-	-	
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-	
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-	
Pot Cap-1 Maneuver	243	201	503	1019	-	-	970	-	-	
Stage 1	555	497	-	-	-	-	-	-	-	
Stage 2	640	536	-	-	-	-	-	-	-	
Platoon blocked, %					-	-		-	-	
Mov Cap-1 Maneuver	224	0	491	1019	-	-	954	-	-	
Mov Cap-2 Maneuver	224	0	-	-	-	-	-	-	-	
Stage 1	528	0	-	-	-	-	-	-	-	
Stage 2	621	0	-	-	-	-	-	-	-	

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.17	0.32	0.17
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	66	-	-	382	954	-	-
HCM Lane V/C Ratio	0.022	-	-	0.073	0.011	-	-
HCM Ctrl Dly (s/v)	8.6	0	-	15.2	8.8	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	2	12	1	0	7	11	359	1	1	407	116
Future Volume (vph)	101	2	12	1	0	7	11	359	1	1	407	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.96			1.00			0.99	
Frt		0.986			0.880						0.970	
Flt Protected		0.958			0.994			0.999				
Satd. Flow (prot)	0	1501	0	0	1282	0	0	1551	0	0	1548	0
Flt Permitted		0.745			0.972			0.983				
Satd. Flow (perm)	0	1148	0	0	1253	0	0	1526	0	0	1548	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			67						25	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	8		2	2		8	8		5	5		8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	18%	50%	25%	0%	0%	29%	9%	15%	0%	0%	11%	11%
Adj. Flow (vph)	111	2	13	1	0	8	12	395	1	1	447	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	9	0	0	408	0	0	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



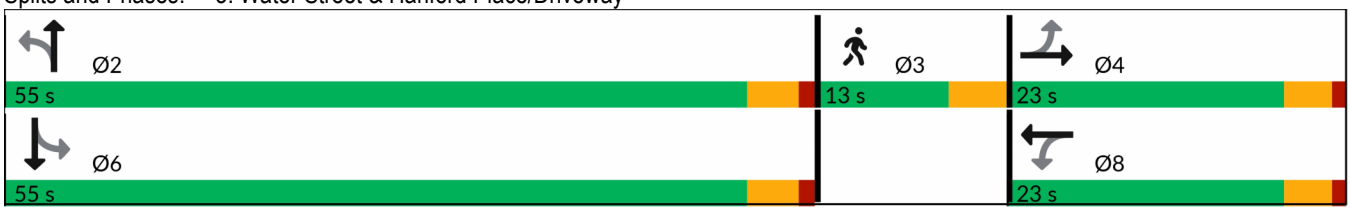
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		55.0	55.0	
Total Split (%)	25.3%	25.3%		25.3%	25.3%		60.4%	60.4%		60.4%	60.4%	
Maximum Green (s)	18.8	18.8		18.8	18.8		50.4	50.4		50.4	50.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		12.5			12.2			36.2			36.2	
Actuated g/C Ratio		0.21			0.21			0.62			0.62	
v/c Ratio		0.50			0.03			0.43			0.59	
Control Delay (s/veh)		33.0			0.1			12.3			14.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		33.0			0.1			12.3			14.7	
LOS		C			A			B			B	
Approach Delay (s/veh)		33.0			0.1			12.3			14.7	
Approach LOS		C			A			B			B	
90th %ile Green (s)	18.8	18.8		18.8	18.8		50.4	50.4		50.4	50.4	
90th %ile Term Code	Max	Max		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	16.0	16.0		16.0	16.0		39.6	39.6		39.6	39.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	10.4	10.4		10.4	10.4		20.9	20.9		20.9	20.9	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	8.8	8.8		8.8	8.8		22.6	22.6		22.6	22.6	
30th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		22			0			51			79	
Queue Length 95th (ft)		126			0			232			362	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		441			519			1266			1289	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	14%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	23
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.29			0.02			0.32			0.45	

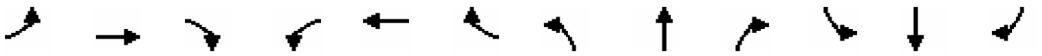
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 58.3			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay (s/veh): 15.8		Intersection LOS: B	
Intersection Capacity Utilization 49.5%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 95			
70th %ile Actuated Cycle: 81.4			
50th %ile Actuated Cycle: 40.1			
30th %ile Actuated Cycle: 40.2			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



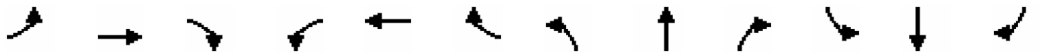
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	155	31	469	343	171	25	142	359	64	101	9
Future Volume (vph)	13	155	31	469	343	171	25	142	359	64	101	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.99		0.98		0.99		0.99	
Frt		0.979			0.950				0.850		0.993	
Flt Protected		0.997		0.950			0.950				0.982	
Satd. Flow (prot)	0	1677	0	1560	1632	0	1671	1810	1506	0	1743	0
Flt Permitted		0.948		0.394			0.556				0.794	
Satd. Flow (perm)	0	1594	0	646	1632	0	961	1810	1483	0	1404	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		9			35				386			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	7		3	3		7	12		9	9		12
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	9%	11%	10%	13%	8%	5%	8%	5%	18%	2%	0%	33%
Adj. Flow (vph)	14	167	33	504	369	184	27	153	386	69	109	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	504	553	0	27	153	386	0	188	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



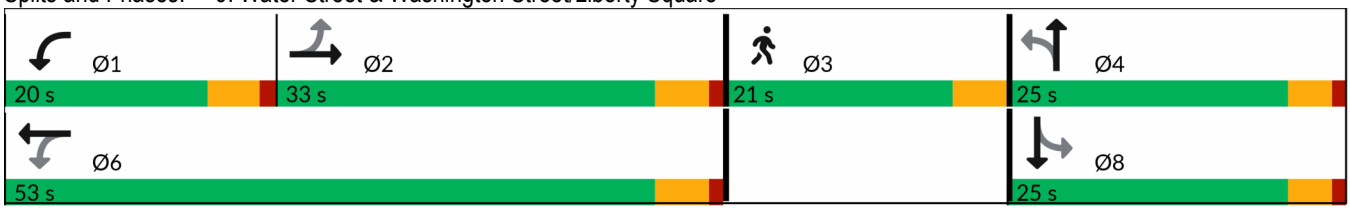
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	33.0	33.0		20.0	53.0		25.0	25.0		25.0	25.0	
Total Split (%)	33.3%	33.3%		20.2%	53.5%		25.3%	25.3%		25.3%	25.3%	
Maximum Green (s)	28.1	28.1		15.0	48.1		20.7	20.7		20.7	20.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		17.9		39.8	39.9		16.3	16.3	79.1		16.3	
Actuated g/C Ratio		0.23		0.50	0.50		0.21	0.21	1.00		0.21	
v/c Ratio		0.58		0.98	0.66		0.14	0.41	0.26		0.65	
Control Delay (s/veh)		36.5		60.2	22.5		34.2	35.6	0.4		44.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		36.5		60.2	22.5		34.2	35.6	0.4		44.9	
LOS		D		E	C		C	D	A		D	
Approach Delay (s/veh)		36.5			40.5			11.5			44.9	
Approach LOS		D			D			B			D	
90th %ile Green (s)	28.1	28.1		15.0	48.1		20.7	20.7		20.7	20.7	
90th %ile Term Code	Hold	Hold		Max	Max		Hold	Hold		Max	Max	
70th %ile Green (s)	21.9	21.9		15.0	41.9		20.7	20.7		20.7	20.7	
70th %ile Term Code	Hold	Hold		Max	Gap		Hold	Hold		Max	Max	
50th %ile Green (s)	16.7	16.7		15.0	36.7		17.6	17.6		17.6	17.6	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	13.5	13.5		15.0	33.5		14.2	14.2		14.2	14.2	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		15.0	30.0		8.3	8.3		8.3	8.3	
10th %ile Term Code	Min	Min		Max	Hold		Hold	Hold		Gap	Gap	
Queue Length 50th (ft)		110		~313	252		13	77	0		99	
Queue Length 95th (ft)		188		#603	404		40	153	0		#207	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		629		515	1101		277	521	1483		404	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.34		0.98	0.50		0.10	0.29	0.26		0.47	

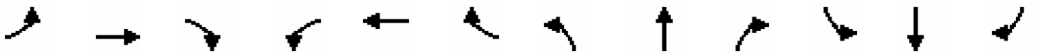
Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 79.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay (s/veh): 32.4		Intersection LOS: C	
Intersection Capacity Utilization 71.8%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 104			
70th %ile Actuated Cycle: 97.8			
50th %ile Actuated Cycle: 89.5			
30th %ile Actuated Cycle: 56.9			
10th %ile Actuated Cycle: 47.5			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



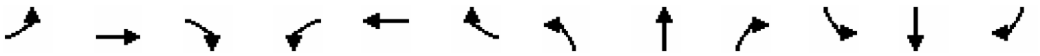
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	76	51	18	95	32	50	279	6	25	229	106
Future Volume (vph)	82	76	51	18	95	32	50	279	6	25	229	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.98			0.99			1.00			1.00	0.97
Frt		0.939			0.970			0.997				0.850
Flt Protected	0.950				0.994			0.993			0.995	
Satd. Flow (prot)	1546	1350	0	0	1664	0	0	1497	0	0	1745	1449
Flt Permitted	0.447				0.950			0.908			0.947	
Satd. Flow (perm)	724	1350	0	0	1585	0	0	1368	0	0	1658	1410
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	5		22	22		5	5		19	19		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	24%	17%	7%	13%	0%	57%	20%	17%	8%	9%	12%
Adj. Flow (vph)	91	84	57	20	106	36	56	310	7	28	254	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	141	0	0	162	0	0	373	0	0	282	118
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



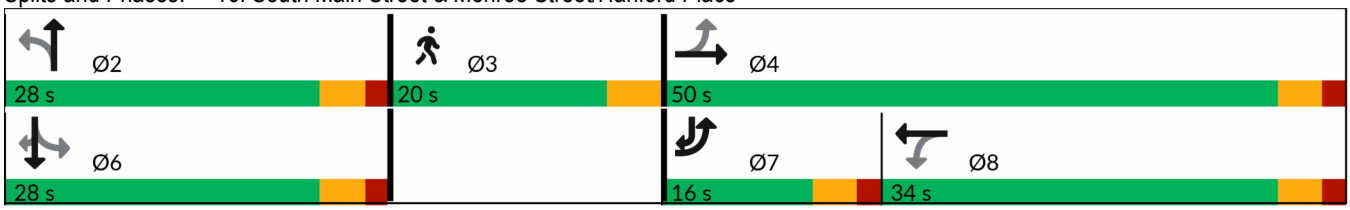
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	16.0	50.0		34.0	34.0		28.0	28.0		28.0	28.0	16.0
Total Split (%)	16.3%	51.0%		34.7%	34.7%		28.6%	28.6%		28.6%	28.6%	16.3%
Maximum Green (s)	11.1	45.1		29.1	29.1		23.1	23.1		23.1	23.1	11.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.1	26.1			14.6			25.2			25.2	36.5
Actuated g/C Ratio	0.35	0.35			0.20			0.34			0.34	0.49
v/c Ratio	0.24	0.30			0.52			0.80			0.50	0.17
Control Delay (s/veh)	20.0	21.0			37.8			45.2			30.0	9.7
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	20.0	21.0			37.8			45.2			30.0	9.7
LOS	B	C			D			D			C	A
Approach Delay (s/veh)		20.6			37.8			45.2			24.0	
Approach LOS		C			D			D			C	
90th %ile Green (s)	11.1	36.0		20.0	20.0		23.1	23.1		23.1	23.1	11.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	11.1	32.2		16.2	16.2		23.1	23.1		23.1	23.1	11.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	10.0	28.7		13.8	13.8		23.1	23.1		23.1	23.1	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
30th %ile Green (s)	10.0	26.5		11.6	11.6		23.1	23.1		23.1	23.1	10.0
30th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
10th %ile Green (s)	0.0	10.0		10.0	10.0		23.1	23.1		23.1	23.1	0.0
10th %ile Term Code	Skip	Hold		Min	Min		Max	Max		Hold	Hold	Skip
Queue Length 50th (ft)	34	56			82			~204			134	20
Queue Length 95th (ft)	68	102			147			#425			240	40
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	393	885			680			466			565	718
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.23	0.16			0.24			0.80			0.50	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 98			
Actuated Cycle Length: 74			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 32.0		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 92.9			
70th %ile Actuated Cycle: 89.1			
50th %ile Actuated Cycle: 85.6			
30th %ile Actuated Cycle: 59.4			
10th %ile Actuated Cycle: 42.9			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place

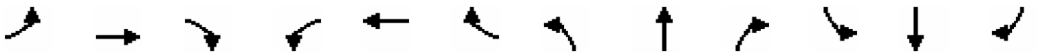


Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	117	93	28	309	48	81	380	28	42	255	25
Future Volume (vph)	25	117	93	28	309	48	81	380	28	42	255	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99			1.00			0.99		0.99	1.00	
Frt		0.934			0.983			0.992			0.987	
Flt Protected	0.950				0.996			0.992		0.950		
Satd. Flow (prot)	1552	1537	0	0	1707	0	0	1671	0	1596	1650	0
Flt Permitted	0.331				0.966			0.871		0.374		
Satd. Flow (perm)	540	1537	0	0	1655	0	0	1463	0	624	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	2		1	1		2	23		14	14		23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	4%	17%	7%	6%	12%	11%	29%	5%	8%	17%
Adj. Flow (vph)	27	127	101	30	336	52	88	413	30	46	277	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	228	0	0	418	0	0	531	0	46	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



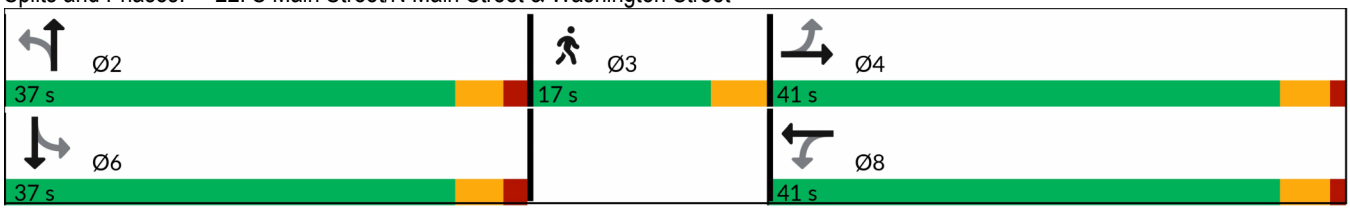
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	41.0	41.0		41.0	41.0		37.0	37.0		37.0	37.0	
Total Split (%)	43.2%	43.2%		43.2%	43.2%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	36.4	36.4		36.4	36.4		32.0	32.0		32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	25.3	25.3			25.3			34.0		34.0	34.0	
Actuated g/C Ratio	0.32	0.32			0.32			0.42		0.42	0.42	
v/c Ratio	0.16	0.47			0.80			0.86		0.17	0.43	
Control Delay (s/veh)	24.2	26.6			38.7			42.9		24.5	24.3	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	24.2	26.6			38.7			42.9		24.5	24.3	
LOS	C	C			D			D		C	C	
Approach Delay (s/veh)		26.4			38.7			42.9			24.4	
Approach LOS		C			D			D			C	
90th %ile Green (s)	36.4	36.4		36.4	36.4		32.0	32.0		32.0	32.0	
90th %ile Term Code	Hold	Hold		Max	Max		Max	Max		Hold	Hold	
70th %ile Green (s)	33.3	33.3		33.3	33.3		32.0	32.0		32.0	32.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
50th %ile Green (s)	27.4	27.4		27.4	27.4		32.0	32.0		32.0	32.0	
50th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
30th %ile Green (s)	17.3	17.3		17.3	17.3		32.0	32.0		32.0	32.0	
30th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		32.0	32.0		32.0	32.0	
10th %ile Term Code	Min	Min		Min	Min		Max	Max		Hold	Hold	
Queue Length 50th (ft)	11	105			220			~311		18	135	
Queue Length 95th (ft)	32	172			332			#591		52	246	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	260	741			798			620		264	699	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	18%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.10	0.31			0.52			0.86		0.17	0.43	

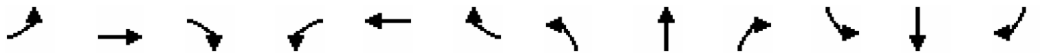
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 80.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay (s/veh): 34.9		Intersection LOS: C	
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 99			
70th %ile Actuated Cycle: 95.9			
50th %ile Actuated Cycle: 90			
30th %ile Actuated Cycle: 58.9			
10th %ile Actuated Cycle: 56.6			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



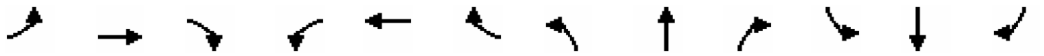
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	300	0	27	0	425	165	16	624	11
Future Volume (vph)	0	0	0	300	0	27	0	425	165	16	624	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	1.00			0.99			1.00	
Frt					0.975			0.958			0.997	
Flt Protected				0.950	0.960						0.999	
Satd. Flow (prot)	0	0	0	1579	1512	0	0	2977	0	0	3104	0
Flt Permitted				0.950	0.960						0.933	
Satd. Flow (perm)	0	0	0	1570	1505	0	0	2977	0	0	2898	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					99						3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)			5	5			9		9	9		9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	5%	0%	23%	0%	17%	10%	44%	12%	27%
Adj. Flow (vph)	0	0	0	323	0	29	0	457	177	17	671	12
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	0	0	178	174	0	0	634	0	0	700	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2			2		1	2	
Detector Template				Left	Thru			Thru		Left	Thru	
Leading Detector (ft)				20	100			100		20	100	
Trailing Detector (ft)				0	0			0		0	0	
Detector 1 Position(ft)				0	0			0		0	0	
Detector 1 Size(ft)				20	6			6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



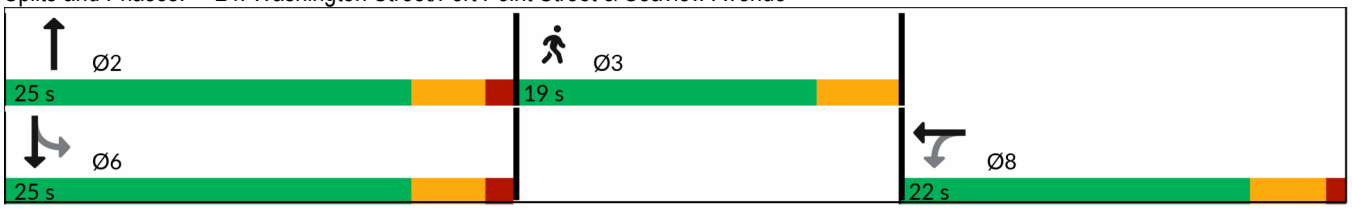
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				22.0	22.0			25.0		25.0	25.0	
Total Split (%)				33.3%	33.3%			37.9%		37.9%	37.9%	
Maximum Green (s)				17.3	17.3			20.0		20.0	20.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				12.2	12.2			20.3			20.3	
Actuated g/C Ratio				0.22	0.22			0.37			0.37	
v/c Ratio				0.51	0.42			0.57			0.65	
Control Delay (s/veh)				27.1	14.2			20.4			22.4	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				27.1	14.2			20.4			22.4	
LOS				C	B			C			C	
Approach Delay (s/veh)					20.7			20.4			22.4	
Approach LOS					C			C			C	
90th %ile Green (s)				17.3	17.3			20.0		20.0	20.0	
90th %ile Term Code				Max	Max			Max		Max	Max	
70th %ile Green (s)				15.9	15.9			20.0		20.0	20.0	
70th %ile Term Code				Gap	Gap			Max		Max	Max	
50th %ile Green (s)				12.5	12.5			20.0		20.0	20.0	
50th %ile Term Code				Gap	Gap			Max		Max	Max	
30th %ile Green (s)				8.3	8.3			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				7.0	7.0			18.3		18.3	18.3	
10th %ile Term Code				Min	Min			Dwell		Dwell	Dwell	
Queue Length 50th (ft)				68	27			115			131	
Queue Length 95th (ft)				127	78			187			#240	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				560	600			1227			1196	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	29%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.32	0.29			0.52			0.59	

Intersection Summary			
Area Type:	Other		
Cycle Length: 66			
Actuated Cycle Length: 54.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay (s/veh): 21.3		Intersection LOS: C	
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 70			
70th %ile Actuated Cycle: 68.6			
50th %ile Actuated Cycle: 65.2			
30th %ile Actuated Cycle: 33			
10th %ile Actuated Cycle: 35			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	1	16	0	0	3	0	471	2	0	513	0
Future Vol, veh/h	52	1	16	0	0	3	0	471	2	0	513	0
Conflicting Peds, #/hr	0	0	0	0	0	0	18	0	6	6	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	0	6	0	0	33	0	16	50	0	11	0
Mvmt Flow	57	1	18	0	0	3	0	518	2	0	564	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1081	1090	564	1089	1088	525	-	0	0	526	0	0
Stage 1	564	564	-	525	525	-	-	-	-	-	-	-
Stage 2	518	526	-	564	564	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.7	6.36	7.1	6.5	6.53	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4	3.354	3.5	4	3.597	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	181	204	510	195	217	496	0	-	-	1051	-	0
Stage 1	490	496	-	540	533	-	0	-	-	-	-	0
Stage 2	520	517	-	514	512	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	180	203	510	186	216	494	-	-	-	1045	-	-
Mov Cap-2 Maneuver	180	203	-	186	216	-	-	-	-	-	-	-
Stage 1	490	496	-	537	530	-	-	-	-	-	-	-
Stage 2	517	514	-	495	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	28.88	12.34	0	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	180	510	494	1045	-
HCM Lane V/C Ratio	-	-	0.317	0.034	0.007	-	-
HCM Ctrl Dly (s/v)	-	-	34	12.3	12.3	0	-
HCM Lane LOS	-	-	D	B	B	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	0	0	-

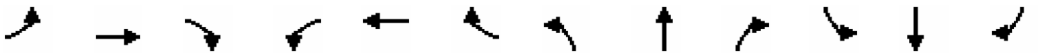
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	7	3	12	8	510	8	19	511	76
Future Vol, veh/h	0	0	0	7	3	12	8	510	8	19	511	76
Conflicting Peds, #/hr	1	0	5	5	0	1	18	0	13	13	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	14	33	0	0	14	0	11	11	12
Mvmt Flow	0	0	0	8	3	13	9	567	9	21	568	84

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	1217	1314	585	670	0	0	589	0	0
Stage 1	602	602	-	-	-	-	-	-	-
Stage 2	615	712	-	-	-	-	-	-	-
Critical Hdwy	6.14	6.43	6	4.1	-	-	4.21	-	-
Critical Hdwy Stg 1	5.14	5.43	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.14	5.43	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.297	3.3	2.2	-	-	2.299	-	-
Pot Cap-1 Maneuver	216	159	532	930	-	-	944	-	-
Stage 1	561	474	-	-	-	-	-	-	-
Stage 2	553	425	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	203	0	527	930	-	-	936	-	-
Mov Cap-2 Maneuver	203	0	-	-	-	-	-	-	-
Stage 1	548	0	-	-	-	-	-	-	-
Stage 2	531	0	-	-	-	-	-	-	-

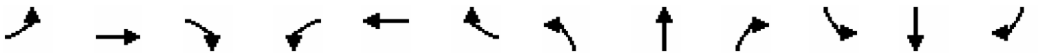
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.72	0.14	0.28
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	27	-	-	332	936	-	-
HCM Lane V/C Ratio	0.01	-	-	0.074	0.023	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	16.7	8.9	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	1	23	1	0	1	25	293	1	0	290	115
Future Volume (vph)	77	1	23	1	0	1	25	293	1	0	290	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.97			1.00			0.99	
Frt		0.970			0.932						0.962	
Flt Protected		0.963			0.976			0.996				
Satd. Flow (prot)	0	1595	0	0	1694	0	0	1633	0	0	1565	0
Flt Permitted		0.775			0.874			0.956				
Satd. Flow (perm)	0	1253	0	0	1512	0	0	1567	0	0	1565	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			75						31	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	18		4	4		18	7		4	4		7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	6%	0%	27%	0%	0%	0%	17%	8%	0%	0%	9%	8%
Adj. Flow (vph)	79	1	23	1	0	1	26	299	1	0	296	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	2	0	0	326	0	0	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



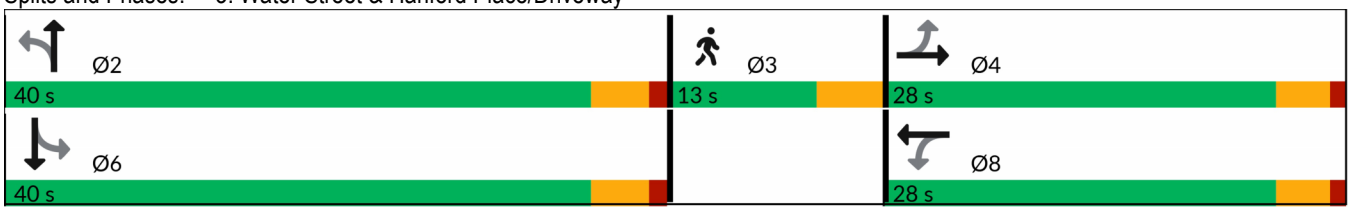
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Total Split (%)	34.6%	34.6%		34.6%	34.6%		49.4%	49.4%		49.4%	49.4%	
Maximum Green (s)	23.8	23.8		23.8	23.8		35.4	35.4		35.4	35.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		9.8			9.5			29.4			29.4	
Actuated g/C Ratio		0.20			0.19			0.60			0.60	
v/c Ratio		0.39			0.01			0.35			0.44	
Control Delay (s/veh)		22.5			0.0			11.8			12.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		22.5			0.0			11.8			12.0	
LOS		C			A			B			B	
Approach Delay (s/veh)		22.5						11.8			12.0	
Approach LOS		C						B			B	
90th %ile Green (s)	15.3	15.3		15.3	15.3		31.9	31.9		31.9	31.9	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
70th %ile Green (s)	11.2	11.2		11.2	11.2		23.2	23.2		23.2	23.2	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	7.9	7.9		7.9	7.9		16.7	16.7		16.7	16.7	
50th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
30th %ile Green (s)	7.2	7.2		7.2	7.2		30.0	30.0		30.0	30.0	
30th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		12			0			31			38	
Queue Length 95th (ft)		76			0			170			213	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		669			833			1204			1210	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	16%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	33
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.15			0.00			0.27			0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 49.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay (s/veh): 13.2		Intersection LOS: B	
Intersection Capacity Utilization 52.3%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 73			
70th %ile Actuated Cycle: 60.2			
50th %ile Actuated Cycle: 33.4			
30th %ile Actuated Cycle: 46			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway

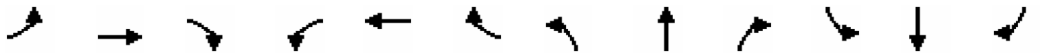


Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	195	67	291	239	113	39	100	287	80	109	12
Future Volume (vph)	26	195	67	291	239	113	39	100	287	80	109	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.99		0.95		0.99		0.99	
Frt		0.969			0.952				0.850		0.992	
Flt Protected		0.995		0.950			0.950				0.980	
Satd. Flow (prot)	0	1724	0	1588	1612	0	1752	1881	1615	0	1705	0
Flt Permitted		0.939		0.306			0.555				0.830	
Satd. Flow (perm)	0	1626	0	508	1612	0	977	1881	1594	0	1442	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		15			32				296			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			230			313	
Travel Time (s)		13.1			16.8			6.3			8.5	
Confl. Peds. (#/hr)	7		11	11		7	38		4	4		38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	4%	9%	11%	6%	14%	3%	1%	10%	5%	4%	0%
Adj. Flow (vph)	27	201	69	300	246	116	40	103	296	82	112	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	297	0	300	362	0	40	103	296	0	206	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



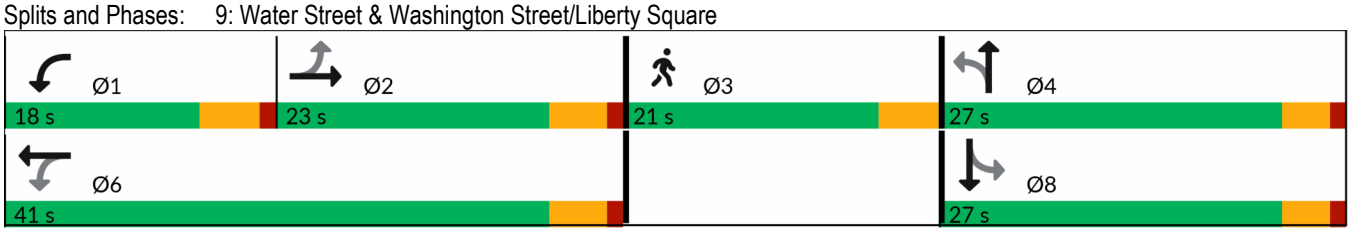
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	23.0	23.0		18.0	41.0		27.0	27.0		27.0	27.0	
Total Split (%)	25.8%	25.8%		20.2%	46.1%		30.3%	30.3%		30.3%	30.3%	
Maximum Green (s)	18.1	18.1		13.0	36.1		22.7	22.7		22.7	22.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		16.9		35.5	35.6		16.0	16.0	74.4		16.0	
Actuated g/C Ratio		0.23		0.48	0.48		0.22	0.22	1.00		0.22	
v/c Ratio		0.78		0.69	0.46		0.19	0.26	0.19		0.67	
Control Delay (s/veh)		46.9		29.8	19.0		30.8	29.8	0.3		41.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		46.9		29.8	19.0		30.8	29.8	0.3		41.6	
LOS		D		C	B		C	C	A		D	
Approach Delay (s/veh)		46.9			23.9			10.0			41.6	
Approach LOS		D			C			A			D	
90th %ile Green (s)	18.1	18.1		13.0	36.1		22.7	22.7		22.7	22.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	18.1	18.1		13.0	36.1		21.1	21.1		21.1	21.1	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	18.1	18.1		13.0	36.1		17.6	17.6		17.6	17.6	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	14.9	14.9		12.2	32.1		11.3	11.3		11.3	11.3	
30th %ile Term Code	Gap	Gap		Gap	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	11.5	11.5		10.0	26.5		8.4	8.4		8.4	8.4	
10th %ile Term Code	Gap	Gap		Gap	Hold		Hold	Hold		Gap	Gap	
Queue Length 50th (ft)		155		121	137		19	49	0		109	
Queue Length 95th (ft)		#323		#239	243		47	93	0		184	
Internal Link Dist (ft)		399			537			150			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		448		450	880		329	635	1594		487	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.66		0.67	0.41		0.12	0.16	0.19		0.42	

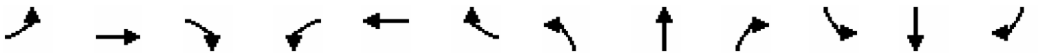
Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 74.4			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay (s/veh): 26.6		Intersection LOS: C	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 92.4			
50th %ile Actuated Cycle: 88.9			
30th %ile Actuated Cycle: 52.6			
10th %ile Actuated Cycle: 44.1			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



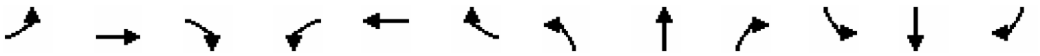
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	67	46	9	73	28	48	226	16	27	243	62
Future Volume (vph)	64	67	46	9	73	28	48	226	16	27	243	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.99			1.00	0.97
Frt		0.939			0.965			0.993				0.850
Flt Protected	0.950				0.996			0.992			0.995	
Satd. Flow (prot)	1465	1471	0	0	1635	0	0	1662	0	0	1759	1436
Flt Permitted	0.415				0.965			0.900			0.944	
Satd. Flow (perm)	636	1471	0	0	1579	0	0	1505	0	0	1665	1388
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	7		19	19		7	11		27	27		11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	15%	14%	7%	20%	11%	7%	25%	9%	19%	8%	8%	13%
Adj. Flow (vph)	73	76	52	10	83	32	55	257	18	31	276	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	128	0	0	125	0	0	330	0	0	307	70
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



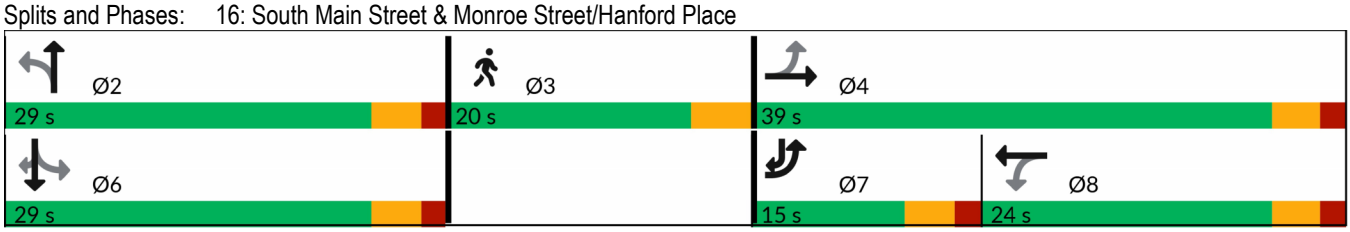
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	15.0	39.0		24.0	24.0		29.0	29.0		29.0	29.0	15.0
Total Split (%)	17.0%	44.3%		27.3%	27.3%		33.0%	33.0%		33.0%	33.0%	17.0%
Maximum Green (s)	10.1	34.1		19.1	19.1		24.1	24.1		24.1	24.1	10.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	24.2	24.2			13.2			32.2			32.2	37.8
Actuated g/C Ratio	0.34	0.34			0.18			0.45			0.45	0.53
v/c Ratio	0.21	0.26			0.43			0.49			0.41	0.09
Control Delay (s/veh)	21.0	21.5			37.0			29.4			26.9	8.7
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	21.0	21.5			37.0			29.4			26.9	8.7
LOS	C	C			D			C			C	A
Approach Delay (s/veh)		21.3			37.0			29.4			23.5	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.1	32.3		17.3	17.3		24.1	24.1		24.1	24.1	10.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	10.1	29.0		14.0	14.0		24.1	24.1		24.1	24.1	10.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	10.0	26.7		11.8	11.8		24.1	24.1		24.1	24.1	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
30th %ile Green (s)	10.0	24.9		10.0	10.0		24.1	24.1		24.1	24.1	10.0
30th %ile Term Code	Min	Hold		Min	Min		Max	Max		Hold	Hold	Min
10th %ile Green (s)	0.0	0.0		0.0	0.0		34.3	34.3		34.3	34.3	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Queue Length 50th (ft)	28	51			63			160			143	12
Queue Length 95th (ft)	57	91			114			#307			242	24
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	343	771			464			674			745	738
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	23%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.21	0.17			0.27			0.49			0.41	0.09

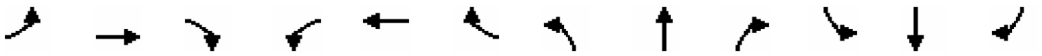
Intersection Summary			
Area Type:	Other		
Cycle Length: 88			
Actuated Cycle Length: 71.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay (s/veh): 26.6		Intersection LOS: C	
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 90.2			
70th %ile Actuated Cycle: 86.9			
50th %ile Actuated Cycle: 84.6			
30th %ile Actuated Cycle: 58.8			
10th %ile Actuated Cycle: 39.2			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



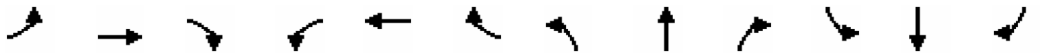
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	188	113	30	202	72	68	268	31	70	250	40
Future Volume (vph)	38	188	113	30	202	72	68	268	31	70	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.98			0.99		0.98	0.99	
Frt		0.944			0.968			0.989			0.979	
Flt Protected	0.950				0.995			0.991		0.950		
Satd. Flow (prot)	1596	1568	0	0	1686	0	0	1718	0	1538	1648	0
Flt Permitted	0.469				0.945			0.876		0.453		
Satd. Flow (perm)	767	1568	0	0	1598	0	0	1511	0	718	1648	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	36		32	32		36	30		30	30		30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	3%	5%	17%	5%	3%	4%	9%	12%	9%	8%	5%
Adj. Flow (vph)	39	194	116	31	208	74	70	276	32	72	258	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	310	0	0	313	0	0	378	0	72	299	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



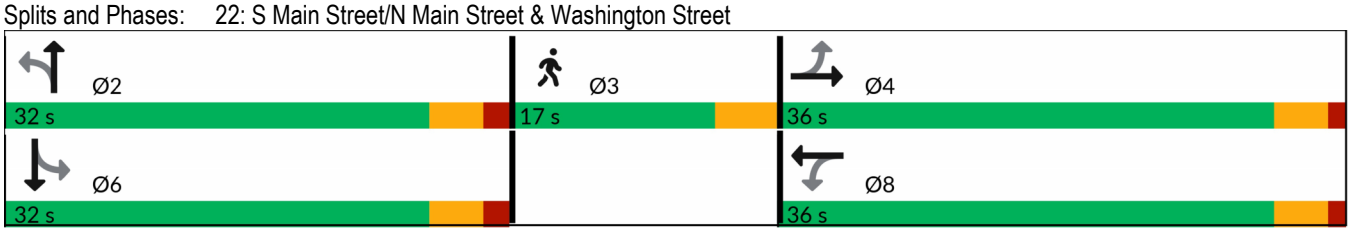
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		32.0	32.0		32.0	32.0	
Total Split (%)	42.4%	42.4%		42.4%	42.4%		37.6%	37.6%		37.6%	37.6%	
Maximum Green (s)	31.4	31.4		31.4	31.4		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	21.7	21.7			21.7			23.6		23.6	23.6	
Actuated g/C Ratio	0.33	0.33			0.33			0.36		0.36	0.36	
v/c Ratio	0.16	0.60			0.60			0.70		0.28	0.51	
Control Delay (s/veh)	22.4	28.0			27.7			31.3		24.4	24.4	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	22.4	28.0			27.7			31.3		24.4	24.4	
LOS	C	C			C			C		C	C	
Approach Delay (s/veh)		27.3			27.7			31.3			24.4	
Approach LOS		C			C			C			C	
90th %ile Green (s)	31.2	31.2		31.2	31.2		27.0	27.0		27.0	27.0	
90th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Max	Max	
70th %ile Green (s)	24.0	24.0		24.0	24.0		27.0	27.0		27.0	27.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
50th %ile Green (s)	20.3	20.3		20.3	20.3		27.0	27.0		27.0	27.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
30th %ile Green (s)	15.0	15.0		15.0	15.0		17.9	17.9		17.9	17.9	
30th %ile Term Code	Min	Min		Min	Min		Gap	Gap		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
10th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
Queue Length 50th (ft)	15	138			140			157		25	114	
Queue Length 95th (ft)	38	223			223			#347		70	227	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	410	838			854			694		330	757	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	20%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.10	0.37			0.37			0.54		0.22	0.39	

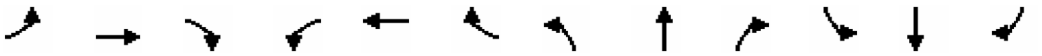
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 66.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay (s/veh): 27.7		Intersection LOS: C	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 88.8			
70th %ile Actuated Cycle: 81.6			
50th %ile Actuated Cycle: 77.9			
30th %ile Actuated Cycle: 42.5			
10th %ile Actuated Cycle: 39.6			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



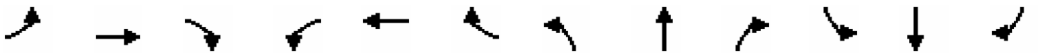
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	211	0	25	0	343	208	14	417	23
Future Volume (vph)	0	0	0	211	0	25	0	343	208	14	417	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				1.00	0.99			0.99			1.00	
Frt					0.967			0.943			0.992	
Flt Protected				0.950	0.962						0.999	
Satd. Flow (prot)	0	0	0	1549	1508	0	0	3103	0	0	3155	0
Flt Permitted				0.950	0.962						0.935	
Satd. Flow (perm)	0	0	0	1544	1504	0	0	3103	0	0	2952	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	4		3	3		4	8		4	4		8
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	7%	0%	8%	0%	12%	3%	21%	10%	14%
Adj. Flow (vph)	0	0	0	218	0	26	0	354	214	14	430	24
Shared Lane Traffic (%)				43%								
Lane Group Flow (vph)	0	0	0	124	120	0	0	568	0	0	468	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2			2		1	2	
Detector Template				Left	Thru			Thru		Left	Thru	
Leading Detector (ft)				20	100			100		20	100	
Trailing Detector (ft)				0	0			0		0	0	
Detector 1 Position(ft)				0	0			0		0	0	
Detector 1 Size(ft)				20	6			6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



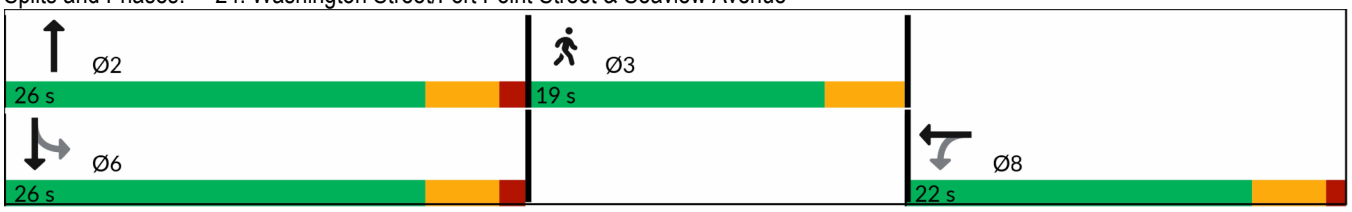
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				22.0	22.0			26.0		26.0	26.0	
Total Split (%)				32.8%	32.8%			38.8%		38.8%	38.8%	
Maximum Green (s)				17.3	17.3			21.0		21.0	21.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				10.6	10.6			24.2			24.2	
Actuated g/C Ratio				0.22	0.22			0.51			0.51	
v/c Ratio				0.36	0.29			0.36			0.31	
Control Delay (s/veh)				22.5	9.6			14.2			13.7	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				22.5	9.6			14.2			13.7	
LOS				C	A			B			B	
Approach Delay (s/veh)					16.1			14.2			13.7	
Approach LOS					B			B			B	
90th %ile Green (s)				16.2	16.2			21.0		21.0	21.0	
90th %ile Term Code				Gap	Gap			Max		Max	Max	
70th %ile Green (s)				12.2	12.2			20.1		20.1	20.1	
70th %ile Term Code				Gap	Gap			Gap		Hold	Hold	
50th %ile Green (s)				10.0	10.0			16.6		16.6	16.6	
50th %ile Term Code				Gap	Gap			Gap		Hold	Hold	
30th %ile Green (s)				7.0	7.0			15.0		15.0	15.0	
30th %ile Term Code				Min	Min			Min		Min	Min	
10th %ile Green (s)				0.0	0.0			30.0		30.0	30.0	
10th %ile Term Code				Skip	Skip			Dwell		Dwell	Dwell	
Queue Length 50th (ft)				20	3			35			27	
Queue Length 95th (ft)				94	48			158			128	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				626	668			1777			1694	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.20	0.18			0.32			0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 47.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay (s/veh): 14.4		Intersection LOS: B	
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 69.9			
70th %ile Actuated Cycle: 65			
50th %ile Actuated Cycle: 36.3			
30th %ile Actuated Cycle: 31.7			
10th %ile Actuated Cycle: 35			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	0	18	0	0	1	0	382	0	1	403	0
Future Vol, veh/h	67	0	18	0	0	1	0	382	0	1	403	0
Conflicting Peds, #/hr	1	0	0	0	0	1	19	0	20	20	0	19
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	8	0	18	0	0	100	0	7	0	100	9	0
Mvmt Flow	69	0	19	0	0	1	0	394	0	1	415	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	812	-	415	831	831	415	-	0	0	414	0	0
Stage 1	418	-	-	414	414	-	-	-	-	-	-	-
Stage 2	395	-	-	418	418	-	-	-	-	-	-	-
Critical Hdwy	7.38	-	6.48	7.1	6.5	7.2	-	-	-	5.1	-	-
Critical Hdwy Stg 1	6.38	-	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.38	-	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	-	3.462	3.5	4	4.2	-	-	-	3.1	-	-
Pot Cap-1 Maneuver	278	0	597	291	307	472	0	-	-	768	-	0
Stage 1	587	0	-	620	597	-	0	-	-	-	-	0
Stage 2	605	0	-	617	594	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	276	-	597	276	301	462	-	-	-	753	-	-
Mov Cap-2 Maneuver	276	-	-	276	301	-	-	-	-	-	-	-
Stage 1	586	-	-	608	585	-	-	-	-	-	-	-
Stage 2	603	-	-	597	593	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	19.97	12.81	0	0.02
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	276	597	462	4	-
HCM Lane V/C Ratio	-	-	0.25	0.031	0.002	0.001	-
HCM Ctrl Dly (s/v)	-	-	22.3	11.2	12.8	9.8	0
HCM Lane LOS	-	-	C	B	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0.1	0	0	-

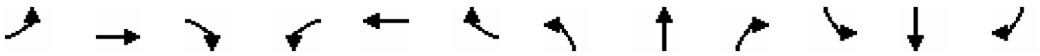
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	1	9	16	423	7	8	404	55
Future Vol, veh/h	0	0	0	6	1	9	16	423	7	8	404	55
Conflicting Peds, #/hr	8	0	11	11	0	8	23	0	24	24	0	23
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	6	8	0	0	9	9
Mvmt Flow	0	0	0	6	1	9	16	436	7	8	416	57

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	941	1009	472	496	0	0	467	0	0
Stage 1	497	497	-	-	-	-	-	-	-
Stage 2	444	513	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	327	271	612	1047	-	-	1105	-	-
Stage 1	651	579	-	-	-	-	-	-	-
Stage 2	684	571	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	309	0	599	1047	-	-	1088	-	-
Mov Cap-2 Maneuver	309	0	-	-	-	-	-	-	-
Stage 1	627	0	-	-	-	-	-	-	-
Stage 2	670	0	-	-	-	-	-	-	-

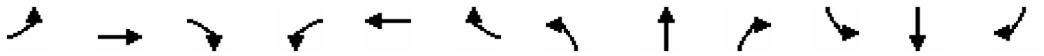
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.59	0.3	0.14
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	64	-	-	436	1088	-	-
HCM Lane V/C Ratio	0.016	-	-	0.038	0.008	-	-
HCM Ctrl Dly (s/v)	8.5	0	-	13.6	8.3	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1	9	0	0	1	24	555	1	3	336	147
Future Volume (vph)	119	1	9	0	0	1	24	555	1	3	336	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.97			1.00			0.99	
Frt		0.991			0.865						0.959	
Flt Protected		0.956						0.998				
Satd. Flow (prot)	0	1758	0	0	1610	0	0	1726	0	0	1593	0
Flt Permitted		0.742						0.973			0.998	
Satd. Flow (perm)	0	1358	0	0	1610	0	0	1682	0	0	1590	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			365						33	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	3		1	1		3	24		11	11		24
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	33%	0%	0%	0%	0%	3%	100%	33%	6%	5%
Adj. Flow (vph)	124	1	9	0	0	1	25	578	1	3	350	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	0	0	1	0	0	604	0	0	506	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



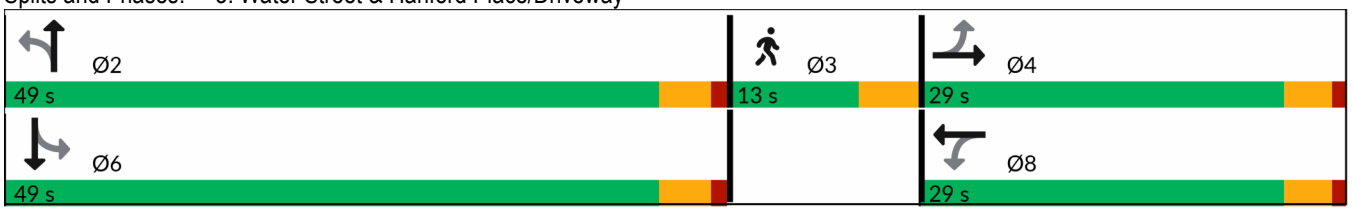
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	29.0	29.0		29.0	29.0		49.0	49.0		49.0	49.0	
Total Split (%)	31.9%	31.9%		31.9%	31.9%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.8	24.8		24.8	24.8		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		12.7			12.4			36.3			36.3	
Actuated g/C Ratio		0.22			0.21			0.62			0.62	
v/c Ratio		0.45			0.00			0.58			0.51	
Control Delay (s/veh)		29.9			0.0			15.2			13.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		29.9			0.0			15.2			13.1	
LOS		C			A			B			B	
Approach Delay (s/veh)		29.9						15.2			13.1	
Approach LOS		C						B			B	
90th %ile Green (s)	19.8	19.8		19.8	19.8		44.4	44.4		44.4	44.4	
90th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
70th %ile Green (s)	15.3	15.3		15.3	15.3		37.5	37.5		37.5	37.5	
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
50th %ile Green (s)	12.2	12.2		12.2	12.2		30.5	30.5		30.5	30.5	
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
30th %ile Green (s)	8.7	8.7		8.7	8.7		20.2	20.2		20.2	20.2	
30th %ile Term Code	Gap	Gap		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		33			0			98			70	
Queue Length 95th (ft)		120			0			395			297	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		666			974			1319			1254	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	14%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	39
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.20			0.00			0.46			0.40	

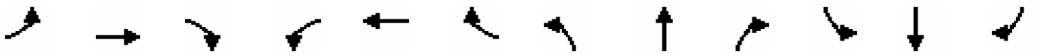
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 58.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 15.9		Intersection LOS: B	
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 90			
70th %ile Actuated Cycle: 78.6			
50th %ile Actuated Cycle: 51.5			
30th %ile Actuated Cycle: 37.7			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



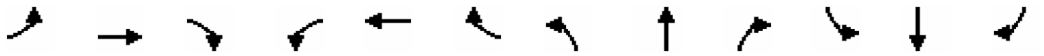
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	248	44	378	282	133	37	182	531	171	137	21
Future Volume (vph)	36	248	44	378	282	133	37	182	531	171	137	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.98		0.97		0.98		0.99	
Frt		0.982			0.952				0.850		0.991	
Flt Protected		0.995		0.950			0.950				0.975	
Satd. Flow (prot)	0	1813	0	1647	1684	0	1805	1863	1725	0	1741	0
Flt Permitted		0.917		0.314			0.549				0.685	
Satd. Flow (perm)	0	1664	0	539	1684	0	1009	1863	1698	0	1217	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		8			29				466			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			225			313	
Travel Time (s)		13.1			16.8			6.1			8.5	
Confl. Peds. (#/hr)	39		18	18		39	39		12	12		39
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	0%	7%	3%	2%	0%	2%	3%	1%	2%	0%
Adj. Flow (vph)	36	251	44	382	285	134	37	184	536	173	138	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	331	0	382	419	0	37	184	536	0	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



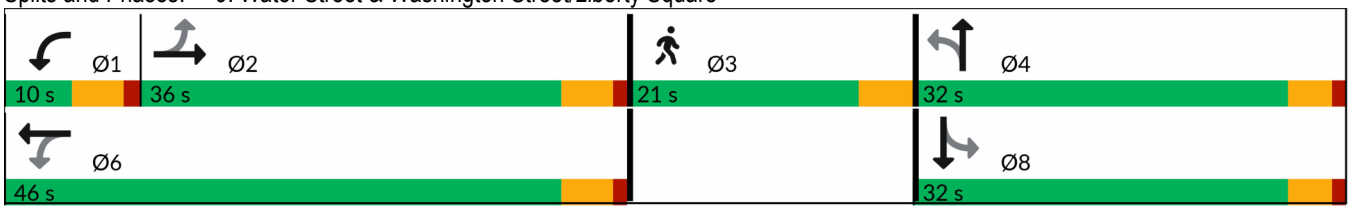
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	36.0	36.0		10.0	46.0		32.0	32.0		32.0	32.0	
Total Split (%)	36.4%	36.4%		10.1%	46.5%		32.3%	32.3%		32.3%	32.3%	
Maximum Green (s)	31.1	31.1		5.0	41.1		27.7	27.7		27.7	27.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		22.4		32.9	33.0		29.3	29.3	85.3		29.3	
Actuated g/C Ratio		0.26		0.39	0.39		0.34	0.34	1.00		0.34	
v/c Ratio		0.75		1.38	0.63		0.11	0.29	0.32		0.79	
Control Delay (s/veh)		41.1		218.3	26.3		28.0	27.7	0.5		47.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		41.1		218.3	26.3		28.0	27.7	0.5		47.5	
LOS		D		F	C		C	C	A		D	
Approach Delay (s/veh)		41.1			117.8			8.5			47.5	
Approach LOS		D			F			A			D	
90th %ile Green (s)	31.1	31.1		5.0	41.1		27.7	27.7		27.7	27.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	27.9	27.9		5.0	37.9		27.7	27.7		27.7	27.7	
70th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	23.6	23.6		5.0	33.6		27.7	27.7		27.7	27.7	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	19.8	19.8		5.0	29.8		27.7	27.7		27.7	27.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	11.5	11.5		5.0	21.5		27.7	27.7		27.7	27.7	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
Queue Length 50th (ft)		187		~306	203		17	89	0		199	
Queue Length 95th (ft)		286		#530	309		46	164	0		#410	
Internal Link Dist (ft)		399			537			145			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		646		276	872		346	639	1698		418	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.51		1.38	0.48		0.11	0.29	0.32		0.79	

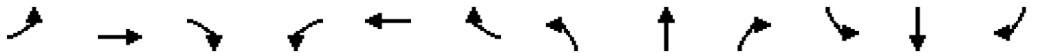
Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 85.3			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay (s/veh): 58.6		Intersection LOS: E	
Intersection Capacity Utilization 85.0%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 104			
70th %ile Actuated Cycle: 100.8			
50th %ile Actuated Cycle: 96.5			
30th %ile Actuated Cycle: 66.7			
10th %ile Actuated Cycle: 58.4			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



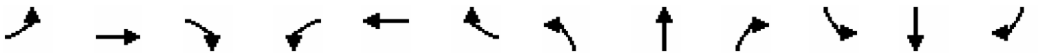
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	93	61	18	110	37	37	260	14	36	309	86
Future Volume (vph)	93	93	61	18	110	37	37	260	14	36	309	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.98			0.99			1.00	0.94
Frt		0.940			0.970			0.994				0.850
Flt Protected	0.950				0.995			0.994			0.995	
Satd. Flow (prot)	1620	1507	0	0	1740	0	0	1761	0	0	1798	1546
Flt Permitted	0.424				0.954			0.866			0.940	
Satd. Flow (perm)	712	1507	0	0	1659	0	0	1529	0	0	1692	1452
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	18		32	32		18	34		44	44		34
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	14%	0%	5%	3%	24%	4%	0%	3%	6%	5%
Adj. Flow (vph)	103	103	68	20	122	41	41	289	16	40	343	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	171	0	0	183	0	0	346	0	0	383	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



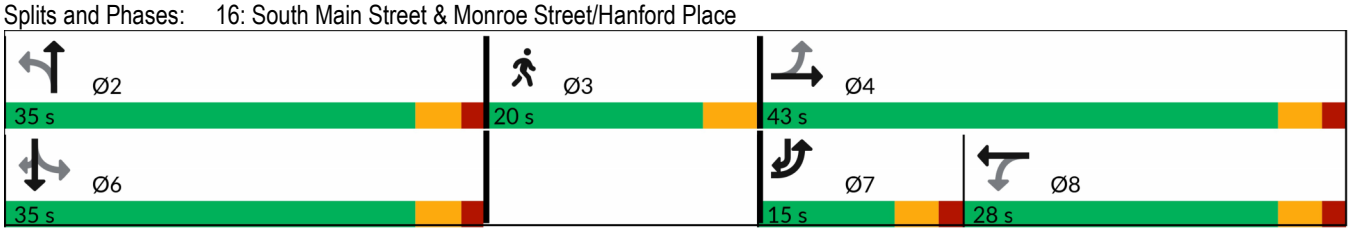
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	15.0	43.0		28.0	28.0		35.0	35.0		35.0	35.0	15.0
Total Split (%)	15.3%	43.9%		28.6%	28.6%		35.7%	35.7%		35.7%	35.7%	15.3%
Maximum Green (s)	10.1	38.1		23.1	23.1		30.1	30.1		30.1	30.1	10.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	27.4	27.4			16.6			28.1			28.1	39.9
Actuated g/C Ratio	0.35	0.35			0.21			0.36			0.36	0.51
v/c Ratio	0.27	0.33			0.52			0.63			0.63	0.13
Control Delay (s/veh)	23.0	23.9			39.8			33.1			32.3	9.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	23.0	23.9			39.8			33.1			32.3	9.2
LOS	C	C			D			C			C	A
Approach Delay (s/veh)		23.6			39.8			33.1			27.6	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.1	37.5		22.5	22.5		30.1	30.1		30.1	30.1	10.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	10.1	33.2		18.2	18.2		30.1	30.1		30.1	30.1	10.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	10.1	30.5		15.5	15.5		30.1	30.1		30.1	30.1	10.1
50th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Hold	Hold	Max
30th %ile Green (s)	10.0	27.7		12.8	12.8		27.4	27.4		27.4	27.4	10.0
30th %ile Term Code	Min	Hold		Gap	Gap		Gap	Gap		Hold	Hold	Min
10th %ile Green (s)	0.0	10.0		10.0	10.0		15.6	15.6		15.6	15.6	0.0
10th %ile Term Code	Skip	Hold		Min	Min		Gap	Gap		Hold	Hold	Skip
Queue Length 50th (ft)	44	78			104			181			201	16
Queue Length 95th (ft)	82	132			173			#336			#361	36
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	385	831			570			684			757	751
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.27	0.21			0.32			0.51			0.51	0.13

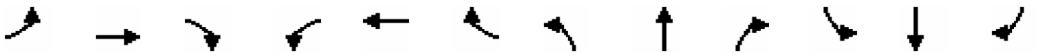
Intersection Summary			
Area Type:	Other		
Cycle Length: 98			
Actuated Cycle Length: 78.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay (s/veh): 30.0		Intersection LOS: C	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 101.4			
70th %ile Actuated Cycle: 97.1			
50th %ile Actuated Cycle: 94.4			
30th %ile Actuated Cycle: 64.9			
10th %ile Actuated Cycle: 35.4			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



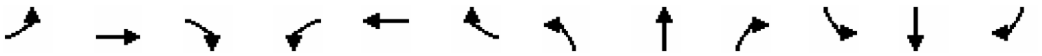
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	231	116	26	253	57	78	334	51	84	357	32
Future Volume (vph)	60	231	116	26	253	57	78	334	51	84	357	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.98		0.96	0.99	
Frt		0.950			0.977			0.985			0.988	
Flt Protected	0.950				0.996			0.992		0.950		
Satd. Flow (prot)	1676	1607	0	0	1779	0	0	1794	0	1660	1726	0
Flt Permitted	0.364				0.853			0.803		0.417		
Satd. Flow (perm)	638	1607	0	0	1521	0	0	1445	0	700	1726	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	10		25	25		10	47		75	75		47
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	3%	10%	2%	0%	2%	3%	2%	1%	4%	3%
Adj. Flow (vph)	63	241	121	27	264	59	81	348	53	88	372	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	362	0	0	350	0	0	482	0	88	405	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



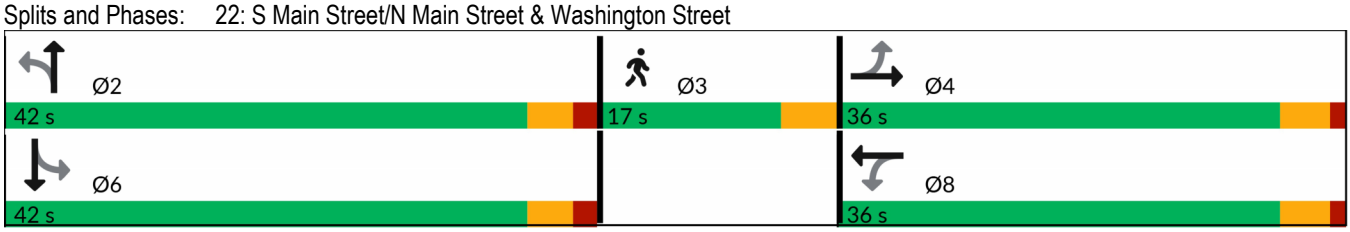
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		42.0	42.0		42.0	42.0	
Total Split (%)	37.9%	37.9%		37.9%	37.9%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	23.7	23.7			23.7			37.5		37.5	37.5	
Actuated g/C Ratio	0.29	0.29			0.29			0.46		0.46	0.46	
v/c Ratio	0.34	0.78			0.80			0.73		0.28	0.51	
Control Delay (s/veh)	31.7	41.2			43.2			31.7		23.3	23.3	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	31.7	41.2			43.2			31.7		23.3	23.3	
LOS	C	D			D			C		C	C	
Approach Delay (s/veh)		39.8			43.2			31.7			23.3	
Approach LOS		D			D			C			C	
90th %ile Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
70th %ile Term Code	Max	Max		Hold	Hold		Max	Max		Hold	Hold	
50th %ile Green (s)	25.8	25.8		25.8	25.8		37.0	37.0		37.0	37.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
30th %ile Green (s)	16.8	16.8		16.8	16.8		35.7	35.7		35.7	35.7	
30th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		32.3	32.3		32.3	32.3	
10th %ile Term Code	Min	Min		Min	Min		Gap	Gap		Hold	Hold	
Queue Length 50th (ft)	30	200			195			253		35	185	
Queue Length 95th (ft)	69	307			302			#475		83	310	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	258	651			617			690		334	825	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	18%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.24	0.56			0.57			0.70		0.26	0.49	

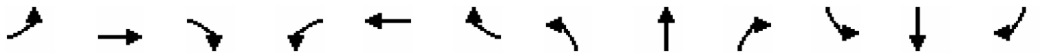
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 82.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 33.6		Intersection LOS: C	
Intersection Capacity Utilization 97.7%		ICU Level of Service F	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 99			
70th %ile Actuated Cycle: 99			
50th %ile Actuated Cycle: 93.4			
30th %ile Actuated Cycle: 62.1			
10th %ile Actuated Cycle: 56.9			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



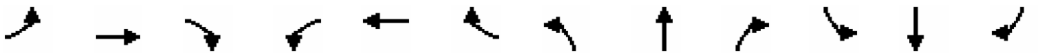
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	283	0	24	2	590	327	12	485	15
Future Volume (vph)	0	0	0	283	0	24	2	590	327	12	485	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	0.99			0.99			1.00	
Frt					0.977			0.947			0.996	
Flt Protected				0.950	0.960						0.999	
Satd. Flow (prot)	0	0	0	1609	1571	0	0	3315	0	0	3339	0
Flt Permitted				0.950	0.960			0.954			0.928	
Satd. Flow (perm)	0	0	0	1595	1559	0	0	3162	0	0	3102	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	3		9	9		3	8		7	7		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	3%	0%	9%	0%	3%	0%	8%	5%	0%
Adj. Flow (vph)	0	0	0	289	0	24	2	602	334	12	495	15
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	0	0	159	154	0	0	938	0	0	522	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2		1	2	
Detector Template				Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)				20	100		20	100		20	100	
Trailing Detector (ft)				0	0		0	0		0	0	
Detector 1 Position(ft)				0	0		0	0		0	0	
Detector 1 Size(ft)				20	6		20	6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



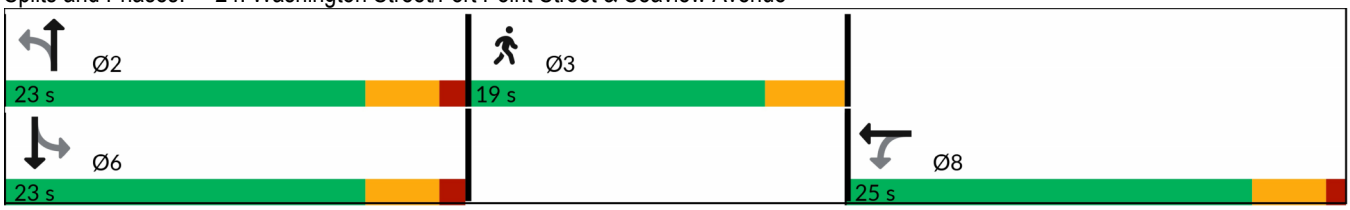
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8			2			6		
Detector Phase				8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7		20.0	20.0		20.0	20.0	
Total Split (s)				25.0	25.0		23.0	23.0		23.0	23.0	
Total Split (%)				37.3%	37.3%		34.3%	34.3%		34.3%	34.3%	
Maximum Green (s)				20.3	20.3		18.0	18.0		18.0	18.0	
Yellow Time (s)				3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode				None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				11.2	11.2			21.7			21.7	
Actuated g/C Ratio				0.20	0.20			0.39			0.39	
v/c Ratio				0.49	0.39			0.75			0.43	
Control Delay (s/veh)				26.5	12.6			26.6			17.9	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				26.5	12.6			26.6			17.9	
LOS				C	B			C			B	
Approach Delay (s/veh)					19.7			26.6			17.9	
Approach LOS					B			C			B	
90th %ile Green (s)				17.6	17.6		18.0	18.0		18.0	18.0	
90th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
70th %ile Green (s)				13.4	13.4		18.0	18.0		18.0	18.0	
70th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
50th %ile Green (s)				11.3	11.3		18.0	18.0		18.0	18.0	
50th %ile Term Code				Gap	Gap		Max	Max		Hold	Hold	
30th %ile Green (s)				7.7	7.7		18.0	18.0		18.0	18.0	
30th %ile Term Code				Gap	Gap		Max	Max		Hold	Hold	
10th %ile Green (s)				7.0	7.0		28.6	28.6		28.6	28.6	
10th %ile Term Code				Min	Min		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)				57	18			~191			86	
Queue Length 95th (ft)				110	64			#356			150	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				626	671			1248			1227	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.25	0.23			0.75			0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 55			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 22.9		Intersection LOS: C	
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 68.3			
70th %ile Actuated Cycle: 64.1			
50th %ile Actuated Cycle: 62			
30th %ile Actuated Cycle: 35.4			
10th %ile Actuated Cycle: 45.3			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	84	0	29	0	0	0	0	684	0	0	477	0
Future Vol, veh/h	84	0	29	0	0	0	0	684	0	0	477	0
Conflicting Peds, #/hr	0	0	0	0	0	0	45	0	20	20	0	45
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	0	0	0	0	0	0	3	0	0	6	0
Mvmt Flow	87	0	30	0	0	0	0	705	0	0	492	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1197	-	492	1217	1217	725	-	0	0	725	0	0
Stage 1	492	-	-	725	725	-	-	-	-	-	-	-
Stage 2	705	-	-	492	492	-	-	-	-	-	-	-
Critical Hdwy	7.31	-	6.3	7.1	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.31	-	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.31	-	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.3	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	153	0	573	159	182	428	0	-	-	887	-	0
Stage 1	545	0	-	420	433	-	0	-	-	-	-	0
Stage 2	412	0	-	562	551	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	153	-	573	148	179	420	-	-	-	870	-	-
Mov Cap-2 Maneuver	153	-	-	148	179	-	-	-	-	-	-	-
Stage 1	545	-	-	412	425	-	-	-	-	-	-	-
Stage 2	412	-	-	533	551	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	44.25	0	0	0
HCM LOS	E	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	153	573	-	870	-
HCM Lane V/C Ratio	-	-	0.566	0.052	-	-	-
HCM Ctrl Dly (s/v)	-	-	55.5	11.6	0	0	-
HCM Lane LOS	-	-	F	B	A	A	-
HCM 95th %tile Q(veh)	-	-	2.9	0.2	-	0	-

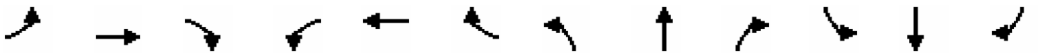
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	11	33	736	1	2	485	66
Future Vol, veh/h	0	0	0	1	0	11	33	736	1	2	485	66
Conflicting Peds, #/hr	0	0	5	5	0	0	49	0	22	22	0	49
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	5	5
Mvmt Flow	0	0	0	1	0	11	33	743	1	2	490	67

Major/Minor	Minor1		Major1				Major2		
Conflicting Flow All	1332	1442	766	606	0	0	766	0	0
Stage 1	833	833	-	-	-	-	-	-	-
Stage 2	499	610	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	199	157	424	982	-	-	856	-	-
Stage 1	472	424	-	-	-	-	-	-	-
Stage 2	649	522	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	184	0	418	982	-	-	844	-	-
Mov Cap-2 Maneuver	184	0	-	-	-	-	-	-	-
Stage 1	439	0	-	-	-	-	-	-	-
Stage 2	644	0	-	-	-	-	-	-	-

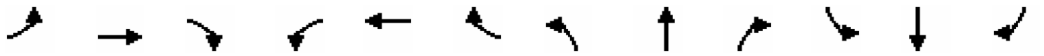
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	14.85	0.38	0.03
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	77	-	-	378	844	-	-
HCM Lane V/C Ratio	0.034	-	-	0.032	0.002	-	-
HCM Ctrl Dly (s/v)	8.8	0	-	14.8	9.3	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	0	14	1	0	3	16	379	2	2	356	139
Future Volume (vph)	120	0	14	1	0	3	16	379	2	2	356	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		0%			-1%			-1%			-1%	
Storage Length (ft)	150		150	150		150	150		150	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00			0.99	
Frt		0.986			0.899			0.999			0.962	
Flt Protected		0.957			0.988			0.998				
Satd. Flow (prot)	0	1734	0	0	1646	0	0	1703	0	0	1629	0
Flt Permitted		0.746			0.923			0.976			0.999	
Satd. Flow (perm)	0	1328	0	0	1537	0	0	1665	0	0	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75			75						30	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			175			356			363	
Travel Time (s)		9.7			4.8			9.7			9.9	
Confl. Peds. (#/hr)	12		2	2		12	16		12	12		16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	0%	21%	0%	0%	0%	13%	4%	0%	0%	5%	2%
Adj. Flow (vph)	126	0	15	1	0	3	17	399	2	2	375	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	141	0	0	4	0	0	418	0	0	523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.99	0.99	0.99	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



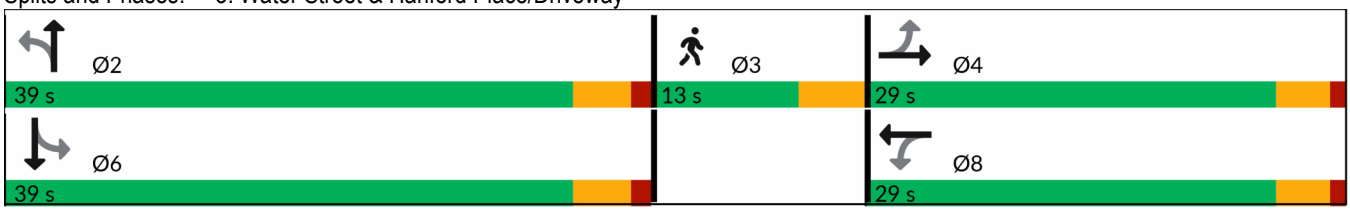
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		6.0	6.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.2	11.2		10.2	10.2		19.6	19.6		19.6	19.6	
Total Split (s)	29.0	29.0		29.0	29.0		39.0	39.0		39.0	39.0	
Total Split (%)	35.8%	35.8%		35.8%	35.8%		48.1%	48.1%		48.1%	48.1%	
Maximum Green (s)	24.8	24.8		24.8	24.8		34.4	34.4		34.4	34.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.2			4.2			4.6			4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		9.9			9.6			30.2			30.2	
Actuated g/C Ratio		0.20			0.19			0.60			0.60	
v/c Ratio		0.44			0.01			0.42			0.53	
Control Delay (s/veh)		17.3			0.0			11.9			13.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		17.3			0.0			11.9			13.0	
LOS		B			A			B			B	
Approach Delay (s/veh)		17.3						11.9			13.0	
Approach LOS		B						B			B	
90th %ile Green (s)	15.0	15.0		15.0	15.0		34.4	34.4		34.4	34.4	
90th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	11.3	11.3		11.3	11.3		29.6	29.6		29.6	29.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	8.6	8.6		8.6	8.6		23.2	23.2		23.2	23.2	
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	7.0	7.0		7.0	7.0		18.1	18.1		18.1	18.1	
30th %ile Term Code	Min	Min		Hold	Hold		Dwell	Dwell		Dwell	Dwell	
10th %ile Green (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	
Queue Length 50th (ft)		13			0			44			56	
Queue Length 95th (ft)		76			0			219			286	
Internal Link Dist (ft)		274			95			276			283	
Turn Bay Length (ft)												
Base Capacity (vph)		766			882			1270			1248	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	9.0
Minimum Split (s)	17.0
Total Split (s)	13.0
Total Split (%)	16%
Maximum Green (s)	9.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	6.0
Pedestrian Calls (#/hr)	42
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	13.0
90th %ile Term Code	Ped
70th %ile Green (s)	13.0
70th %ile Term Code	Ped
50th %ile Green (s)	0.0
50th %ile Term Code	Skip
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.18			0.00			0.33			0.42	

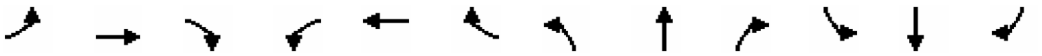
Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 50.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay (s/veh): 13.1		Intersection LOS: B	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 75.2			
70th %ile Actuated Cycle: 66.7			
50th %ile Actuated Cycle: 40.6			
30th %ile Actuated Cycle: 33.9			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place/Driveway



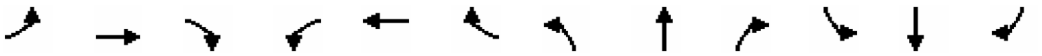
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	244	69	363	236	158	55	170	409	134	125	41
Future Volume (vph)	41	244	69	363	236	158	55	170	409	134	125	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.94		0.99		0.98	
Frt		0.974			0.940				0.850		0.981	
Flt Protected		0.994		0.950			0.950				0.978	
Satd. Flow (prot)	0	1806	0	1695	1682	0	1703	1881	1708	0	1708	0
Flt Permitted		0.907		0.266			0.504				0.678	
Satd. Flow (perm)	0	1637	0	471	1682	0	847	1881	1686	0	1183	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		13			48				426			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	48		15	15		48	65		3	3		65
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	4%	1%	0%	6%	1%	4%	0%	1%	3%
Adj. Flow (vph)	43	254	72	378	246	165	57	177	426	140	130	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	378	411	0	57	177	426	0	313	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



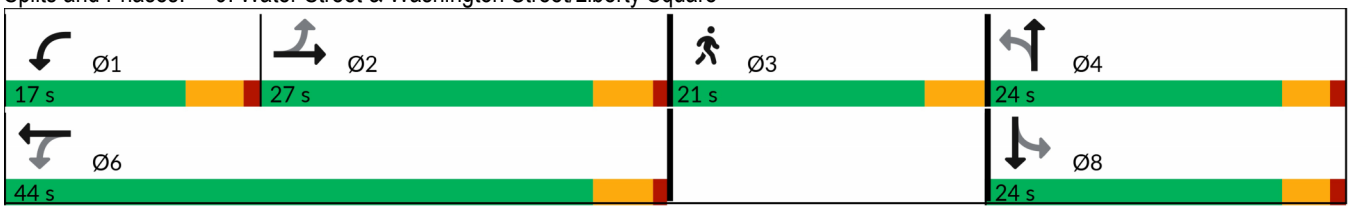
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	27.0	27.0		17.0	44.0		24.0	24.0		24.0	24.0	
Total Split (%)	30.3%	30.3%		19.1%	49.4%		27.0%	27.0%		27.0%	27.0%	
Maximum Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		20.2		37.8	37.9		20.5	20.5	81.5		20.5	
Actuated g/C Ratio		0.25		0.46	0.47		0.25	0.25	1.00		0.25	
v/c Ratio		0.89		0.93	0.51		0.27	0.38	0.25		1.05	
Control Delay (s/veh)		56.0		54.7	18.6		34.5	32.3	0.4		103.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		56.0		54.7	18.6		34.5	32.3	0.4		103.9	
LOS		E		D	B		C	C	A		F	
Approach Delay (s/veh)		56.0			35.9			11.9			103.9	
Approach LOS		E			D			B			F	
90th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	18.9	18.9		12.0	35.9		19.7	19.7		19.7	19.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	14.9	14.9		12.0	31.9		19.7	19.7		19.7	19.7	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
Queue Length 50th (ft)		210		~185	161		29	93	0		~236	
Queue Length 95th (ft)		#386		#344	254		67	157	0		#400	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		470		405	862		212	472	1686		297	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.79		0.93	0.48		0.27	0.38	0.25		1.05	

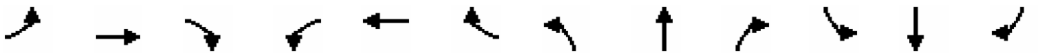
Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 81.5			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay (s/veh): 41.9		Intersection LOS: D	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 94			
50th %ile Actuated Cycle: 94			
30th %ile Actuated Cycle: 64.8			
10th %ile Actuated Cycle: 60.8			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



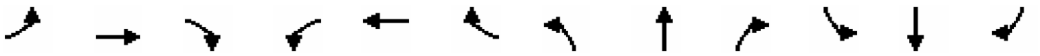
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	84	51	12	90	41	35	214	13	28	247	73
Future Volume (vph)	77	84	51	12	90	41	35	214	13	28	247	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.99			1.00	0.94
Frt		0.943			0.961			0.994				0.850
Flt Protected	0.950				0.996			0.993			0.995	
Satd. Flow (prot)	1652	1611	0	0	1774	0	0	1742	0	0	1818	1591
Flt Permitted	0.382				0.962			0.925			0.947	
Satd. Flow (perm)	658	1611	0	0	1710	0	0	1617	0	0	1723	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	11		17	17		11	25		46	46		25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	1%	1%	2%	0%	4%	8%	0%	0%	5%	2%
Adj. Flow (vph)	86	93	57	13	100	46	39	238	14	31	274	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	150	0	0	159	0	0	291	0	0	305	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



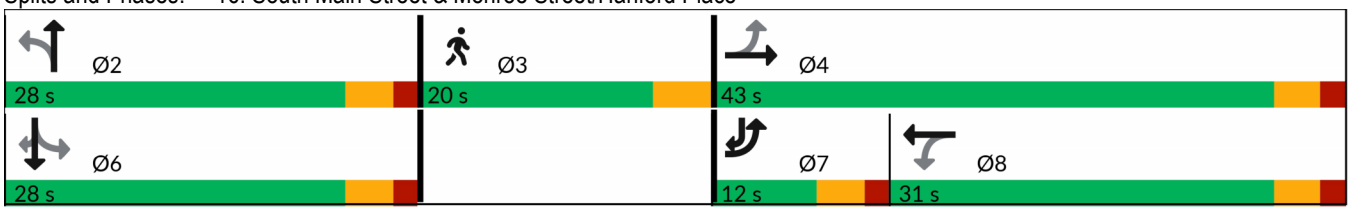
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	12.0	43.0		31.0	31.0		28.0	28.0		28.0	28.0	12.0
Total Split (%)	13.2%	47.3%		34.1%	34.1%		30.8%	30.8%		30.8%	30.8%	13.2%
Maximum Green (s)	7.1	38.1		26.1	26.1		23.1	23.1		23.1	23.1	7.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.6	24.3			15.5			27.8			27.8	30.1
Actuated g/C Ratio	0.35	0.38			0.24			0.43			0.43	0.47
v/c Ratio	0.23	0.25			0.39			0.42			0.41	0.11
Control Delay (s/veh)	20.7	20.9			32.4			26.4			26.0	9.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	20.7	20.9			32.4			26.4			26.0	9.4
LOS	C	C			C			C			C	A
Approach Delay (s/veh)		20.8			32.4			26.4			22.5	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.1	30.1		18.1	18.1		23.1	23.1		23.1	23.1	7.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	7.1	26.8		14.8	14.8		23.1	23.1		23.1	23.1	7.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Hold	Hold	Max
50th %ile Green (s)	7.1	24.7		12.7	12.7		23.1	23.1		23.1	23.1	7.1
50th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Hold	Hold	Max
30th %ile Green (s)	7.1	22.0		10.0	10.0		15.7	15.7		15.7	15.7	7.1
30th %ile Term Code	Max	Hold		Min	Min		Gap	Gap		Hold	Hold	Max
10th %ile Green (s)	0.0	0.0		0.0	0.0		17.1	17.1		17.1	17.1	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Queue Length 50th (ft)	32	59			77			129			135	14
Queue Length 95th (ft)	65	106			136			232			238	28
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	375	1019			848			747			796	714
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	22%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.23	0.15			0.19			0.39			0.38	0.11

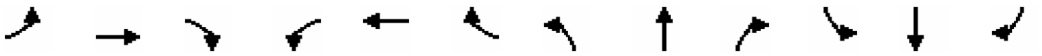
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 64.4			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 87			
70th %ile Actuated Cycle: 83.7			
50th %ile Actuated Cycle: 81.6			
30th %ile Actuated Cycle: 47.5			
10th %ile Actuated Cycle: 22			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place



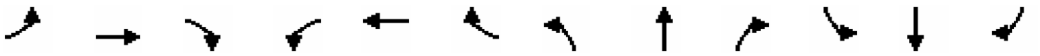
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	242	119	27	223	77	85	264	41	90	285	52
Future Volume (vph)	49	242	119	27	223	77	85	264	41	90	285	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99			0.98			0.99		0.98	0.99	
Frt		0.951			0.968			0.986			0.977	
Flt Protected	0.950				0.996			0.989		0.950		
Satd. Flow (prot)	1643	1631	0	0	1745	0	0	1797	0	1676	1744	0
Flt Permitted	0.419				0.920			0.754		0.447		
Satd. Flow (perm)	707	1631	0	0	1611	0	0	1360	0	770	1744	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	31		10	10		31	48		40	40		48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	1%	3%	9%	1%	3%	0%	3%	8%	0%	1%	2%
Adj. Flow (vph)	52	255	125	28	235	81	89	278	43	95	300	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	380	0	0	344	0	0	410	0	95	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



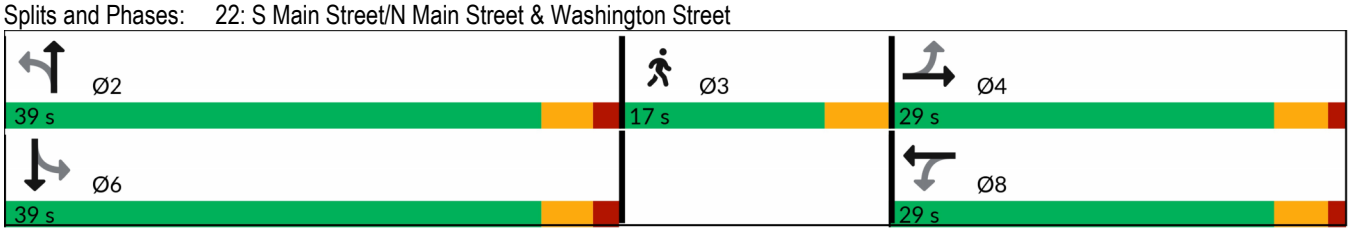
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	29.0	29.0		29.0	29.0		39.0	39.0		39.0	39.0	
Total Split (%)	34.1%	34.1%		34.1%	34.1%		45.9%	45.9%		45.9%	45.9%	
Maximum Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.1	22.1			22.1			26.8		26.8	26.8	
Actuated g/C Ratio	0.32	0.32			0.32			0.38		0.38	0.38	
v/c Ratio	0.23	0.74			0.67			0.79		0.32	0.53	
Control Delay (s/veh)	27.7	36.6			33.9			34.6		22.4	22.6	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	27.7	36.6			33.9			34.6		22.4	22.6	
LOS	C	D			C			C		C	C	
Approach Delay (s/veh)		35.5			33.9			34.6			22.6	
Approach LOS		D			C			C			C	
90th %ile Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Hold	Hold	
70th %ile Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Max		Hold	Hold	
50th %ile Green (s)	24.4	24.4		24.4	24.4		31.5	31.5		31.5	31.5	
50th %ile Term Code	Max	Max		Max	Max		Gap	Gap		Hold	Hold	
30th %ile Green (s)	16.8	16.8		16.8	16.8		18.3	18.3		18.3	18.3	
30th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
10th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
Queue Length 50th (ft)	22	193			170			200		37	152	
Queue Length 95th (ft)	55	#357			#311			#355		78	237	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	281	650			641			755		427	968	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	20%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.19	0.58			0.54			0.54		0.22	0.37	

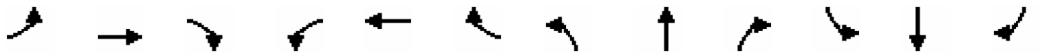
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 69.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 31.4		Intersection LOS: C	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 89			
70th %ile Actuated Cycle: 89			
50th %ile Actuated Cycle: 86.5			
30th %ile Actuated Cycle: 44.7			
10th %ile Actuated Cycle: 39.6			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



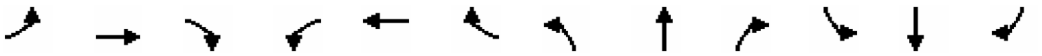
Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	233	0	18	0	471	275	12	483	13
Future Volume (vph)	0	0	0	233	0	18	0	471	275	12	483	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.98	0.98			0.98			1.00	
Frt					0.979			0.945			0.996	
Flt Protected				0.950	0.959						0.999	
Satd. Flow (prot)	0	0	0	1641	1619	0	0	3274	0	0	3398	0
Flt Permitted				0.950	0.959						0.932	
Satd. Flow (perm)	0	0	0	1610	1593	0	0	3274	0	0	3170	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	10		11	11		10	19		12	12		19
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	2%	0%	3%	8%
Adj. Flow (vph)	0	0	0	248	0	19	0	501	293	13	514	14
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	0	0	134	133	0	0	794	0	0	541	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2			2		1	2	
Detector Template				Left	Thru			Thru		Left	Thru	
Leading Detector (ft)				20	100			100		20	100	
Trailing Detector (ft)				0	0			0		0	0	
Detector 1 Position(ft)				0	0			0		0	0	
Detector 1 Size(ft)				20	6			6		20	6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



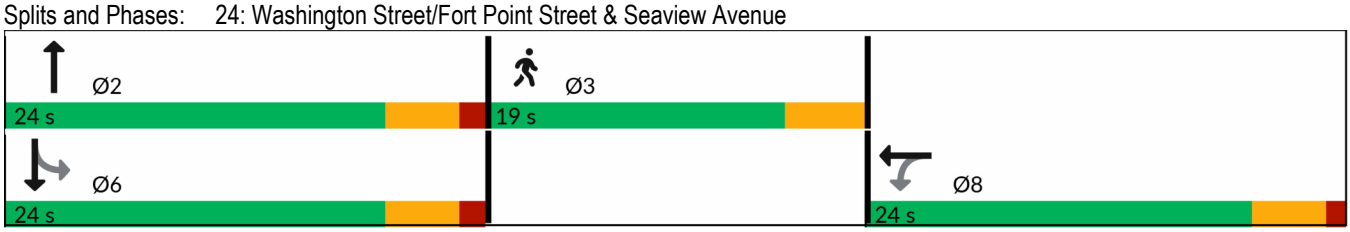
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				24.0	24.0			24.0		24.0	24.0	
Total Split (%)				35.8%	35.8%			35.8%		35.8%	35.8%	
Maximum Green (s)				19.3	19.3			19.0		19.0	19.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				10.7	10.7			24.6			24.6	
Actuated g/C Ratio				0.20	0.20			0.47			0.47	
v/c Ratio				0.41	0.33			0.52			0.36	
Control Delay (s/veh)				25.5	11.2			19.3			16.6	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				25.5	11.2			19.3			16.6	
LOS				C	B			B			B	
Approach Delay (s/veh)					18.3			19.3			16.6	
Approach LOS					B			B			B	
90th %ile Green (s)				16.1	16.1			19.0		19.0	19.0	
90th %ile Term Code				Gap	Gap			Max		Max	Max	
70th %ile Green (s)				12.2	12.2			19.0		19.0	19.0	
70th %ile Term Code				Gap	Gap			Max		Max	Max	
50th %ile Green (s)				10.4	10.4			19.0		19.0	19.0	
50th %ile Term Code				Gap	Gap			Max		Hold	Hold	
30th %ile Green (s)				7.3	7.3			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				0.0	0.0			30.0		30.0	30.0	
10th %ile Term Code				Skip	Skip			Dwell		Dwell	Dwell	
Queue Length 50th (ft)				48	11			142			87	
Queue Length 95th (ft)				96	53			#261			149	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				660	711			1622			1572	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.20	0.19			0.49			0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 52.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay (s/veh): 18.2		Intersection LOS: B	
Intersection Capacity Utilization 44.3%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 67.8			
70th %ile Actuated Cycle: 63.9			
50th %ile Actuated Cycle: 62.1			
30th %ile Actuated Cycle: 32			
10th %ile Actuated Cycle: 35			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	0	39	1	0	1	0	548	0	0	499	1
Future Vol, veh/h	88	0	39	1	0	1	0	548	0	0	499	1
Conflicting Peds, #/hr	1	0	0	0	0	1	32	0	13	13	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	0	5	100	0	100	0	3	0	0	3	0
Mvmt Flow	91	0	40	1	0	1	0	565	0	0	514	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1113	-	547	1092	1125	579	-	0	0	578	0	0
Stage 1	547	-	-	578	578	-	-	-	-	-	-	-
Stage 2	566	-	-	514	547	-	-	-	-	-	-	-
Critical Hdwy	7.31	-	6.35	8.1	6.5	7.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.31	-	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.31	-	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.345	4.4	4	4.2	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	175	0	523	127	207	370	0	-	-	1006	-	-
Stage 1	507	0	-	365	504	-	0	-	-	-	-	-
Stage 2	495	0	-	400	520	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	170	-	510	115	199	365	-	-	-	993	-	-
Mov Cap-2 Maneuver	170	-	-	115	199	-	-	-	-	-	-	-
Stage 1	495	-	-	360	498	-	-	-	-	-	-	-
Stage 2	493	-	-	368	507	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	37.11	25.76	0	0
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	170	510	175	993	-	-
HCM Lane V/C Ratio	-	-	0.533	0.079	0.012	-	-	-
HCM Ctrl Dly (s/v)	-	-	47.9	12.7	25.8	0	-	-
HCM Lane LOS	-	-	E	B	D	A	-	-
HCM 95th %tile Q(veh)	-	-	2.7	0.3	0	0	-	-

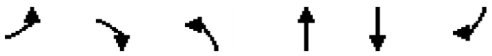
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	2	20	23	614	4	10	489	56
Future Vol, veh/h	0	0	0	6	2	20	23	614	4	10	489	56
Conflicting Peds, #/hr	10	0	16	16	0	10	29	0	25	25	0	29
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	3	0
Mvmt Flow	0	0	0	6	2	21	24	633	4	10	504	58

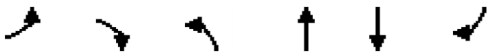
Major/Minor	Minor1		Major1				Major2		
Conflicting Flow All	1248	1319	670	591	0	0	662	0	0
Stage 1	707	707	-	-	-	-	-	-	-
Stage 2	541	611	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	222	184	478	995	-	-	936	-	-
Stage 1	533	477	-	-	-	-	-	-	-
Stage 2	624	521	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	204	0	466	995	-	-	921	-	-
Mov Cap-2 Maneuver	204	0	-	-	-	-	-	-	-
Stage 1	505	0	-	-	-	-	-	-	-
Stage 2	605	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.89	0.31	0.16
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	65	-	-	359	921	-	-
HCM Lane V/C Ratio	0.024	-	-	0.08	0.011	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	15.9	9	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	101	31	11	359	459	130	
Future Volume (vph)	101	31	11	359	459	130	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	10	
Grade (%)	0%			-1%	-1%		
Storage Length (ft)	150	150	150			150	
Storage Lanes	0	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.98			1.00	0.99		
Frt	0.968				0.970		
Flt Protected	0.963			0.999			
Satd. Flow (prot)	1472	0	0	1551	1548	0	
Flt Permitted	0.963			0.981			
Satd. Flow (perm)	1450	0	0	1523	1548	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	15				25		
Link Speed (mph)	25			25	25		
Link Distance (ft)	354			138	104		
Travel Time (s)	9.7			3.8	2.8		
Confl. Peds. (#/hr)	8	2	8			8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	
Heavy Vehicles (%)	18%	25%	9%	15%	11%	11%	
Adj. Flow (vph)	111	34	12	395	504	143	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	145	0	0	407	647	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.09	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1			2	2		
Detector Template	Left			Thru	Thru		
Leading Detector (ft)	20			100	100		
Trailing Detector (ft)	0			0	0		
Detector 1 Position(ft)	0			0	0		
Detector 1 Size(ft)	20			6	6		
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0			0.0	0.0		
Detector 1 Queue (s)	0.0			0.0	0.0		
Detector 1 Delay (s)	0.0			0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		

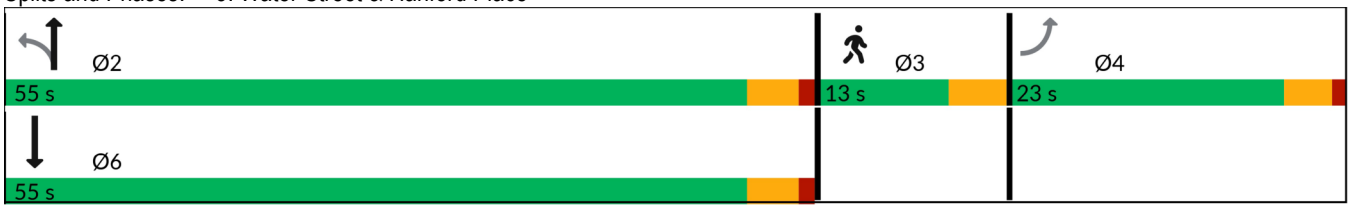


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		3
Permitted Phases	4		2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	7.0		15.0	15.0	15.0		9.0
Minimum Split (s)	11.2		19.6	19.6	19.6		17.0
Total Split (s)	23.0		55.0	55.0	55.0		13.0
Total Split (%)	25.3%		60.4%	60.4%	60.4%		14%
Maximum Green (s)	18.8		50.4	50.4	50.4		9.0
Yellow Time (s)	3.2		3.5	3.5	3.5		4.0
All-Red Time (s)	1.0		1.1	1.1	1.1		0.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	4.2			4.6	4.6		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Don't Walk (s)							6.0
Pedestrian Calls (#/hr)							23
Act Effct Green (s)	12.4			38.2	38.2		
Actuated g/C Ratio	0.21			0.64	0.64		
v/c Ratio	0.47			0.42	0.65		
Control Delay (s/veh)	30.3			11.7	15.9		
Queue Delay	0.0			0.0	0.0		
Total Delay (s/veh)	30.3			11.7	15.9		
LOS	C			B	B		
Approach Delay (s/veh)	30.3			11.7	15.9		
Approach LOS	C			B	B		
90th %ile Green (s)	18.8		50.4	50.4	50.4		13.0
90th %ile Term Code	Max		Hold	Hold	Max		Ped
70th %ile Green (s)	15.4		46.3	46.3	46.3		13.0
70th %ile Term Code	Gap		Hold	Hold	Gap		Ped
50th %ile Green (s)	10.3		24.2	24.2	24.2		0.0
50th %ile Term Code	Gap		Hold	Hold	Gap		Skip
30th %ile Green (s)	8.5		22.2	22.2	22.2		0.0
30th %ile Term Code	Gap		Dwell	Dwell	Dwell		Skip
10th %ile Green (s)	0.0		30.0	30.0	30.0		0.0
10th %ile Term Code	Skip		Dwell	Dwell	Dwell		Skip
Stops (vph)	94			189	369		
Fuel Used(gal)	2			2	4		
CO Emissions (g/hr)	155			143	269		
NOx Emissions (g/hr)	30			28	52		
VOC Emissions (g/hr)	36			33	62		
Dilemma Vehicles (#)	0			0	0		
Queue Length 50th (ft)	27			50	96		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Queue Length 95th (ft)	131			231	445		
Internal Link Dist (ft)	274			58	24		
Turn Bay Length (ft)	150						
Base Capacity (vph)	550			1251	1276		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.26			0.33	0.51		

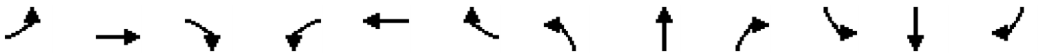
Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 60			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay (s/veh): 16.2		Intersection LOS: B	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 95			
70th %ile Actuated Cycle: 87.5			
50th %ile Actuated Cycle: 43.3			
30th %ile Actuated Cycle: 39.5			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	155	34	495	343	171	27	156	377	64	117	9
Future Volume (vph)	13	155	34	495	343	171	27	156	377	64	117	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	0.99		0.98		0.99		0.99	
Frt		0.977			0.950				0.850		0.993	
Flt Protected		0.997		0.950			0.950				0.983	
Satd. Flow (prot)	0	1673	0	1560	1632	0	1671	1810	1506	0	1749	0
Flt Permitted		0.949		0.379			0.529				0.781	
Satd. Flow (perm)	0	1592	0	621	1632	0	915	1810	1483	0	1385	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		10			35				386			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	7		3	3		7	12		9	9		12
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	9%	11%	10%	13%	8%	5%	8%	5%	18%	2%	0%	33%
Adj. Flow (vph)	14	167	37	532	369	184	29	168	405	69	126	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	218	0	532	553	0	29	168	405	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2	1		2	
Detector Template		Thru		Left	Thru		Left	Thru	Right		Thru	
Leading Detector (ft)		100		20	100		20	100	20		100	
Trailing Detector (ft)		0		0	0		0	0	0		0	
Detector 1 Position(ft)		0		0	0		0	0	0		0	
Detector 1 Size(ft)		6		20	6		20	6	20		6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



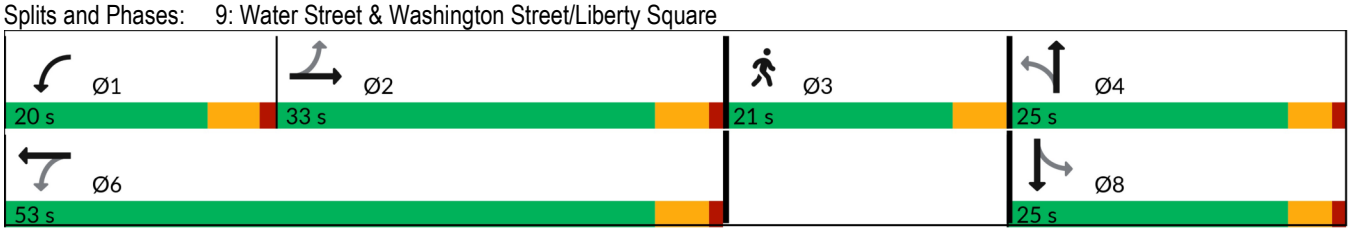
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	33.0	33.0		20.0	53.0		25.0	25.0		25.0	25.0	
Total Split (%)	33.3%	33.3%		20.2%	53.5%		25.3%	25.3%		25.3%	25.3%	
Maximum Green (s)	28.1	28.1		15.0	48.1		20.7	20.7		20.7	20.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		17.3		39.4	39.5		16.8	16.8	79.2		16.8	
Actuated g/C Ratio		0.22		0.50	0.50		0.21	0.21	1.00		0.21	
v/c Ratio		0.61		1.05	0.66		0.15	0.44	0.27		0.70	
Control Delay (s/veh)		37.7		79.7	22.9		34.3	35.7	0.5		47.4	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		37.7		79.7	22.9		34.3	35.7	0.5		47.4	
LOS		D		E	C		C	D	A		D	
Approach Delay (s/veh)		37.7			50.8			11.9			47.4	
Approach LOS		D			D			B			D	
90th %ile Green (s)	28.1	28.1		15.0	48.1		20.7	20.7		20.7	20.7	
90th %ile Term Code	Hold	Hold		Max	Max		Hold	Hold		Max	Max	
70th %ile Green (s)	21.9	21.9		15.0	41.9		20.7	20.7		20.7	20.7	
70th %ile Term Code	Hold	Hold		Max	Gap		Hold	Hold		Max	Max	
50th %ile Green (s)	17.2	17.2		15.0	37.2		20.1	20.1		20.1	20.1	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	11.0	11.0		15.0	31.0		12.6	12.6		12.6	12.6	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	10.0	10.0		15.0	30.0		9.5	9.5		9.5	9.5	
10th %ile Term Code	Min	Min		Max	Hold		Hold	Hold		Gap	Gap	
Stops (vph)		159		246	355		22	124	0		156	
Fuel Used(gal)		4		14	9		0	2	1		3	
CO Emissions (g/hr)		249		985	639		23	134	55		206	
NOx Emissions (g/hr)		48		192	124		4	26	11		40	
VOC Emissions (g/hr)		58		228	148		5	31	13		48	
Dilemma Vehicles (#)		0		0	0		0	0	0		0	
Queue Length 50th (ft)		116		~312	266		14	85	0		111	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	31
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		192		#652	404		43	166	0		#239	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		633		506	1112		265	525	1483		401	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.34		1.05	0.50		0.11	0.32	0.27		0.51	

Intersection Summary	
Area Type: Other	
Cycle Length: 99	
Actuated Cycle Length: 79.2	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay (s/veh): 38.0	Intersection LOS: D
Intersection Capacity Utilization 73.6%	ICU Level of Service D
Analysis Period (min) 15	
90th %ile Actuated Cycle: 104	
70th %ile Actuated Cycle: 97.8	
50th %ile Actuated Cycle: 92.5	
30th %ile Actuated Cycle: 52.8	
10th %ile Actuated Cycle: 48.7	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Water Street & Washington Street/Liberty Square

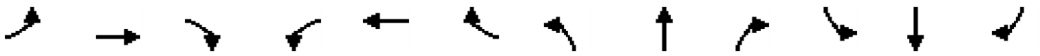


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	83	51	19	100	40	50	279	7	36	229	106
Future Volume (vph)	82	83	51	19	100	40	50	279	7	36	229	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.98			0.99			1.00			1.00	0.97
Frt		0.943			0.966			0.997				0.850
Flt Protected	0.950				0.994			0.993			0.993	
Satd. Flow (prot)	1546	1355	0	0	1661	0	0	1497	0	0	1742	1449
Flt Permitted	0.431				0.951			0.890			0.911	
Satd. Flow (perm)	699	1355	0	0	1584	0	0	1341	0	0	1595	1410
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	5		22	22		5	5		19	19		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	24%	17%	7%	13%	0%	57%	20%	17%	8%	9%	12%
Adj. Flow (vph)	91	92	57	21	111	44	56	310	8	40	254	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	149	0	0	176	0	0	374	0	0	294	118
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2			2	1
Detector Template	Left	Thru			Thru			Thru			Thru	Right
Leading Detector (ft)	20	100			100			100			100	20
Trailing Detector (ft)	0	0			0			0			0	0
Detector 1 Position(ft)	0	0			0			0			0	0
Detector 1 Size(ft)	20	6			6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	16.0	50.0		34.0	34.0		28.0	28.0		28.0	28.0	16.0
Total Split (%)	16.3%	51.0%		34.7%	34.7%		28.6%	28.6%		28.6%	28.6%	16.3%
Maximum Green (s)	11.1	45.1		29.1	29.1		23.1	23.1		23.1	23.1	11.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.8	26.8			15.3			25.3			25.3	36.6
Actuated g/C Ratio	0.36	0.36			0.20			0.34			0.34	0.49
v/c Ratio	0.24	0.31			0.54			0.83			0.55	0.17
Control Delay (s/veh)	19.8	20.9			37.9			48.2			32.1	9.9
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	19.8	20.9			37.9			48.2			32.1	9.9
LOS	B	C			D			D			C	A
Approach Delay (s/veh)		20.5			37.9			48.2			25.7	
Approach LOS		C			D			D			C	
90th %ile Green (s)	11.1	37.2		21.2	21.2		23.1	23.1		23.1	23.1	11.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	11.1	33.2		17.2	17.2		23.1	23.1		23.1	23.1	11.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	10.0	29.6		14.7	14.7		23.1	23.1		23.1	23.1	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Max	Max	Min
30th %ile Green (s)	10.0	27.2		12.3	12.3		23.1	23.1		23.1	23.1	10.0
30th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
10th %ile Green (s)	0.0	10.0		10.0	10.0		23.1	23.1		23.1	23.1	0.0
10th %ile Term Code	Skip	Hold		Min	Min		Max	Max		Hold	Hold	Skip
Stops (vph)	49	84			132			232			206	59
Fuel Used(gal)	1	1			3			5			5	1
CO Emissions (g/hr)	53	91			209			366			320	87
NOx Emissions (g/hr)	10	18			41			71			62	17
VOC Emissions (g/hr)	12	21			49			85			74	20
Dilemma Vehicles (#)	0	0			0			0			0	0
Queue Length 50th (ft)	34	59			90			~224			144	20

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

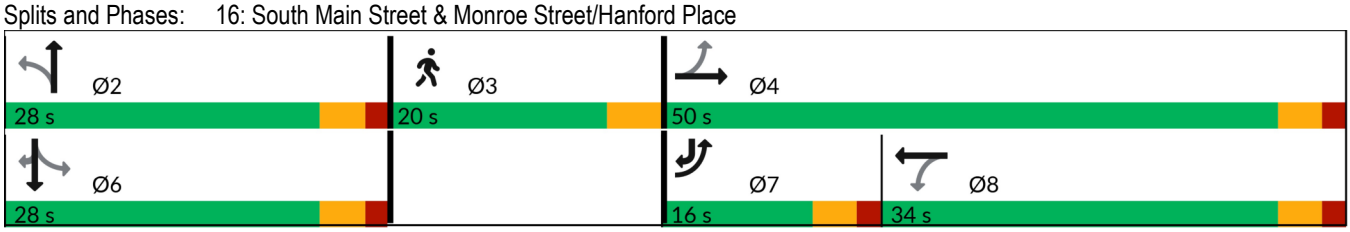
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	67	106			158			#437			#282	42
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	391	881			674			453			539	712
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.23	0.17			0.26			0.83			0.55	0.17

Intersection Summary	
Area Type: Other	
Cycle Length: 98	
Actuated Cycle Length: 74.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 33.5	Intersection LOS: C
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 94.1	
70th %ile Actuated Cycle: 90.1	
50th %ile Actuated Cycle: 86.5	
30th %ile Actuated Cycle: 60.1	
10th %ile Actuated Cycle: 42.9	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place

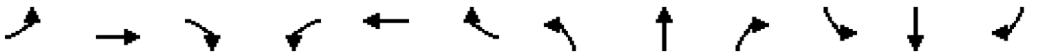


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	118	96	28	310	49	84	385	28	43	263	25
Future Volume (vph)	25	118	96	28	310	49	84	385	28	43	263	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99			1.00			0.99		0.99	1.00	
Frt		0.933			0.983			0.992			0.987	
Flt Protected	0.950				0.996			0.992		0.950		
Satd. Flow (prot)	1552	1535	0	0	1707	0	0	1671	0	1596	1651	0
Flt Permitted	0.331				0.966			0.850		0.370		
Satd. Flow (perm)	540	1535	0	0	1655	0	0	1428	0	617	1651	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	2		1	1		2	23		14	14		23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	4%	17%	7%	6%	12%	11%	29%	5%	8%	17%
Adj. Flow (vph)	27	128	104	30	337	53	91	418	30	47	286	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	232	0	0	420	0	0	539	0	47	313	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2		1	2	
Detector Template	Left	Thru			Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100			100			100		20	100	
Trailing Detector (ft)	0	0			0			0		0	0	
Detector 1 Position(ft)	0	0			0			0		0	0	
Detector 1 Size(ft)	20	6			6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



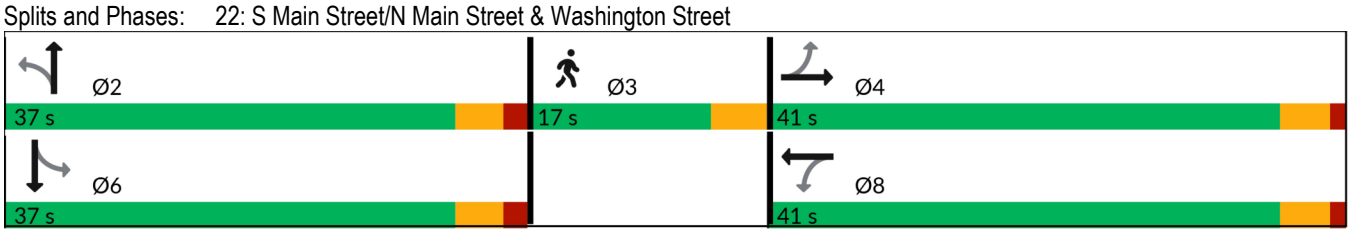
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	41.0	41.0		41.0	41.0		37.0	37.0		37.0	37.0	
Total Split (%)	43.2%	43.2%		43.2%	43.2%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	36.4	36.4		36.4	36.4		32.0	32.0		32.0	32.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	25.4	25.4			25.4			34.0		34.0	34.0	
Actuated g/C Ratio	0.32	0.32			0.32			0.42		0.42	0.42	
v/c Ratio	0.16	0.48			0.80			0.89		0.18	0.45	
Control Delay (s/veh)	24.2	26.7			38.7			47.4		24.7	24.6	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	24.2	26.7			38.7			47.4		24.7	24.6	
LOS	C	C			D			D		C	C	
Approach Delay (s/veh)		26.5			38.7			47.4			24.6	
Approach LOS		C			D			D			C	
90th %ile Green (s)	36.4	36.4		36.4	36.4		32.0	32.0		32.0	32.0	
90th %ile Term Code	Hold	Hold		Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	33.5	33.5		33.5	33.5		32.0	32.0		32.0	32.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
50th %ile Green (s)	27.6	27.6		27.6	27.6		32.0	32.0		32.0	32.0	
50th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
30th %ile Green (s)	17.4	17.4		17.4	17.4		32.0	32.0		32.0	32.0	
30th %ile Term Code	Hold	Hold		Gap	Gap		Max	Max		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		32.0	32.0		32.0	32.0	
10th %ile Term Code	Min	Min		Min	Min		Max	Max		Hold	Hold	
Stops (vph)	19	156			328			334		30	204	
Fuel Used(gal)	0	2			7			10		0	3	
CO Emissions (g/hr)	20	172			492			682		32	215	
NOx Emissions (g/hr)	4	34			96			133		6	42	
VOC Emissions (g/hr)	5	40			114			158		7	50	
Dilemma Vehicles (#)	0	0			0			0		0	0	
Queue Length 50th (ft)	11	107			221			~342		18	140	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	18%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	40
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	32	175			334			#609		53	254	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	260	740			797			605		261	699	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.10	0.31			0.53			0.89		0.18	0.45	

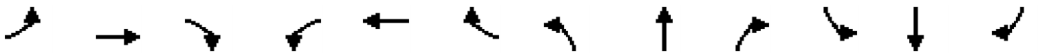
Intersection Summary	
Area Type: Other	
Cycle Length: 95	
Actuated Cycle Length: 80.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay (s/veh): 36.4	Intersection LOS: D
Intersection Capacity Utilization 91.6%	ICU Level of Service F
Analysis Period (min) 15	
90th %ile Actuated Cycle: 99	
70th %ile Actuated Cycle: 96.1	
50th %ile Actuated Cycle: 90.2	
30th %ile Actuated Cycle: 59	
10th %ile Actuated Cycle: 56.6	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



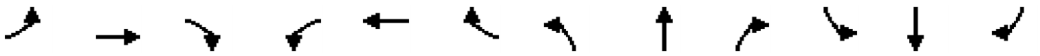
Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	309	0	27	0	438	170	16	642	11
Future Volume (vph)	0	0	0	309	0	27	0	438	170	16	642	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	1.00			0.99			1.00	
Frt					0.976			0.958			0.997	
Flt Protected				0.950	0.960						0.999	
Satd. Flow (prot)	0	0	0	1579	1515	0	0	2977	0	0	3105	0
Flt Permitted				0.950	0.960						0.933	
Satd. Flow (perm)	0	0	0	1570	1507	0	0	2977	0	0	2899	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					99						3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)			5	5			9		9	9		9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	5%	0%	23%	0%	17%	10%	44%	12%	27%
Adj. Flow (vph)	0	0	0	332	0	29	0	471	183	17	690	12
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	0	0	183	178	0	0	654	0	0	719	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2			2			2	
Detector Template		Thru		Left	Thru			Thru			Thru	
Leading Detector (ft)		100		20	100			100			100	
Trailing Detector (ft)		0		0	0			0			0	
Detector 1 Position(ft)				0	0			0			0	
Detector 1 Size(ft)				20	6			6			6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0			0.0	
Detector 1 Queue (s)				0.0	0.0			0.0			0.0	
Detector 1 Delay (s)				0.0	0.0			0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



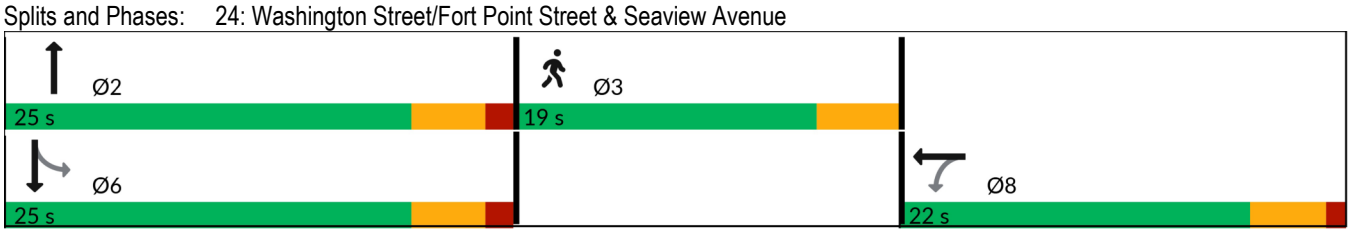
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				22.0	22.0			25.0		25.0	25.0	
Total Split (%)				33.3%	33.3%			37.9%		37.9%	37.9%	
Maximum Green (s)				17.3	17.3			20.0		20.0	20.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				12.3	12.3			19.9			19.9	
Actuated g/C Ratio				0.23	0.23			0.37			0.37	
v/c Ratio				0.51	0.42			0.60			0.67	
Control Delay (s/veh)				27.1	14.4			21.0			23.2	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				27.1	14.4			21.0			23.2	
LOS				C	B			C			C	
Approach Delay (s/veh)					20.9			21.0			23.2	
Approach LOS					C			C			C	
90th %ile Green (s)				17.3	17.3			20.0		20.0	20.0	
90th %ile Term Code				Max	Max			Max		Max	Max	
70th %ile Green (s)				16.2	16.2			20.0		20.0	20.0	
70th %ile Term Code				Gap	Gap			Max		Max	Max	
50th %ile Green (s)				12.7	12.7			20.0		20.0	20.0	
50th %ile Term Code				Gap	Gap			Max		Max	Max	
30th %ile Green (s)				8.4	8.4			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				7.0	7.0			16.9		16.9	16.9	
10th %ile Term Code				Min	Min			Dwell		Dwell	Dwell	
Stops (vph)				136	66			460			501	
Fuel Used(gal)				3	2			11			8	
CO Emissions (g/hr)				178	126			752			535	
NOx Emissions (g/hr)				35	24			146			104	
VOC Emissions (g/hr)				41	29			174			124	
Dilemma Vehicles (#)				0	0			0			0	
Queue Length 50th (ft)				70	28			120			137	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	29%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)				131	81			#197			#250	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				565	605			1239			1208	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.32	0.29			0.53			0.60	

Intersection Summary	
Area Type: Other	
Cycle Length: 66	
Actuated Cycle Length: 54.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay (s/veh): 21.9	Intersection LOS: C
Intersection Capacity Utilization 53.7%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 70	
70th %ile Actuated Cycle: 68.9	
50th %ile Actuated Cycle: 65.4	
30th %ile Actuated Cycle: 33.1	
10th %ile Actuated Cycle: 33.6	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	34	359	0	0	561
Future Vol, veh/h	14	34	359	0	0	561
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	37	390	0	0	610

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1000	390	0	0	390	0
Stage 1	390	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	270	658	-	-	1168	-
Stage 1	684	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	270	658	-	-	1168	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.75	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	463	1168	-
HCM Lane V/C Ratio	-	-	0.113	-	-
HCM Ctrl Dly (s/v)	-	-	13.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	1	16	0	0	3	0	505	2	0	558	0
Future Vol, veh/h	52	1	16	0	0	3	0	505	2	0	558	0
Conflicting Peds, #/hr	0	0	0	0	0	0	18	0	6	6	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	0	6	0	0	33	0	16	50	0	11	0
Mvmt Flow	57	1	18	0	0	3	0	555	2	0	613	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1168	1176	613	1176	1175	562	-	0	0	563	0	0
Stage 1	613	613	-	562	562	-	-	-	-	-	-	-
Stage 2	555	563	-	614	613	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.7	6.36	7.1	6.5	6.53	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.35	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4	3.354	3.5	4	3.597	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	157	181	477	170	193	472	0	-	-	1018	-	0
Stage 1	459	470	-	515	513	-	0	-	-	-	-	0
Stage 2	495	496	-	483	486	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	156	180	477	162	192	469	-	-	-	1013	-	-
Mov Cap-2 Maneuver	156	180	-	162	192	-	-	-	-	-	-	-
Stage 1	459	470	-	512	510	-	-	-	-	-	-	-
Stage 2	492	494	-	464	486	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	34.18	12.73	0	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	156	477	469	1013	-
HCM Lane V/C Ratio	-	-	0.366	0.037	0.007	-	-
HCM Ctrl Dly (s/v)	-	-	40.7	12.8	12.7	0	-
HCM Lane LOS	-	-	E	B	B	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.1	0	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	7	3	12	8	544	8	19	556	76
Future Vol, veh/h	0	0	0	7	3	12	8	544	8	19	556	76
Conflicting Peds, #/hr	1	0	5	5	0	1	18	0	13	13	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	14	33	0	0	14	0	11	11	12
Mvmt Flow	0	0	0	8	3	13	9	604	9	21	618	84

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1305	1402	623	720	0	0	626	0	0
Stage 1	640	640	-	-	-	-	-	-	-
Stage 2	665	762	-	-	-	-	-	-	-
Critical Hdwy	6.14	6.43	6	4.1	-	-	4.21	-	-
Critical Hdwy Stg 1	5.14	5.43	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.14	5.43	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.297	3.3	2.2	-	-	2.299	-	-
Pot Cap-1 Maneuver	193	141	507	891	-	-	913	-	-
Stage 1	540	456	-	-	-	-	-	-	-
Stage 2	527	404	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	180	0	502	891	-	-	906	-	-
Mov Cap-2 Maneuver	180	0	-	-	-	-	-	-	-
Stage 1	528	0	-	-	-	-	-	-	-
Stage 2	504	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.93	0.13	0.26
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	26	-	-	303	906	-	-
HCM Lane V/C Ratio	0.01	-	-	0.081	0.023	-	-
HCM Ctrl Dly (s/v)	9.1	0	-	17.9	9.1	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	-	-

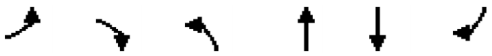
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	371	9	65	414
Future Vol, veh/h	0	0	371	9	65	414
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	403	10	71	450

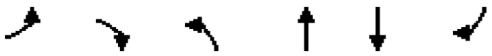
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	999	408	0	0	413	0
Stage 1	408	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	270	643	-	-	1146	-
Stage 1	671	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	643	-	-	1146	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	1.13
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	244	-
HCM Lane V/C Ratio	-	-	-	0.062	-
HCM Ctrl Dly (s/v)	-	-	0	8.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0.2	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	77	43	25	293	346	131	
Future Volume (vph)	77	43	25	293	346	131	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	10	
Grade (%)	0%			-1%	-1%		
Storage Length (ft)	150	150	150			150	
Storage Lanes	0	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.97			1.00	0.99		
Frt	0.952				0.963		
Flt Protected	0.969			0.996			
Satd. Flow (prot)	1529	0	0	1633	1566	0	
Flt Permitted	0.969			0.951			
Satd. Flow (perm)	1499	0	0	1559	1566	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	35				30		
Link Speed (mph)	25			25	25		
Link Distance (ft)	354			138	104		
Travel Time (s)	9.7			3.8	2.8		
Confl. Peds. (#/hr)	18	4	7			7	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	6%	27%	17%	8%	9%	8%	
Adj. Flow (vph)	79	44	26	299	353	134	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	123	0	0	325	487	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.09	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1			2	2		
Detector Template	Left			Thru	Thru		
Leading Detector (ft)	20			100	100		
Trailing Detector (ft)	0			0	0		
Detector 1 Position(ft)	0			0	0		
Detector 1 Size(ft)	20			6	6		
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0			0.0	0.0		
Detector 1 Queue (s)	0.0			0.0	0.0		
Detector 1 Delay (s)	0.0			0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		

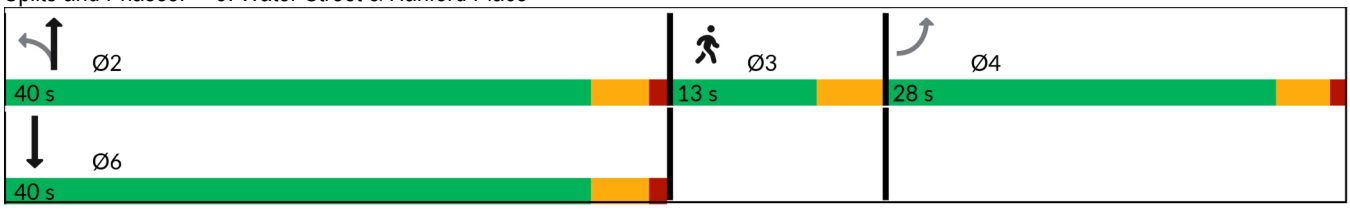


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		3
Permitted Phases	4		2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	7.0		15.0	15.0	15.0		9.0
Minimum Split (s)	11.2		19.6	19.6	19.6		17.0
Total Split (s)	28.0		40.0	40.0	40.0		13.0
Total Split (%)	34.6%		49.4%	49.4%	49.4%		16%
Maximum Green (s)	23.8		35.4	35.4	35.4		9.0
Yellow Time (s)	3.2		3.5	3.5	3.5		4.0
All-Red Time (s)	1.0		1.1	1.1	1.1		0.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	4.2			4.6	4.6		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Don't Walk (s)							6.0
Pedestrian Calls (#/hr)							33
Act Effct Green (s)	9.8			29.6	29.6		
Actuated g/C Ratio	0.20			0.60	0.60		
v/c Ratio	0.38			0.35	0.51		
Control Delay (s/veh)	20.3			11.2	12.8		
Queue Delay	0.0			0.0	0.0		
Total Delay (s/veh)	20.3			11.2	12.8		
LOS	C			B	B		
Approach Delay (s/veh)	20.3			11.2	12.8		
Approach LOS	C			B	B		
90th %ile Green (s)	14.6		35.4	35.4	35.4		13.0
90th %ile Term Code	Gap		Hold	Hold	Max		Ped
70th %ile Green (s)	11.2		27.4	27.4	27.4		13.0
70th %ile Term Code	Gap		Hold	Hold	Gap		Ped
50th %ile Green (s)	7.9		15.6	15.6	15.6		0.0
50th %ile Term Code	Gap		Dwell	Dwell	Dwell		Skip
30th %ile Green (s)	7.0		24.8	24.8	24.8		0.0
30th %ile Term Code	Min		Dwell	Dwell	Dwell		Skip
10th %ile Green (s)	0.0		30.0	30.0	30.0		0.0
10th %ile Term Code	Skip		Dwell	Dwell	Dwell		Skip
Stops (vph)	72			174	284		
Fuel Used(gal)	2			2	3		
CO Emissions (g/hr)	120			124	193		
NOx Emissions (g/hr)	23			24	37		
VOC Emissions (g/hr)	28			29	45		
Dilemma Vehicles (#)	0			0	0		
Queue Length 50th (ft)	12			31	48		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Queue Length 95th (ft)	84			164	261		
Internal Link Dist (ft)	274			58	24		
Turn Bay Length (ft)	150						
Base Capacity (vph)	824			1212	1224		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.15			0.27	0.40		

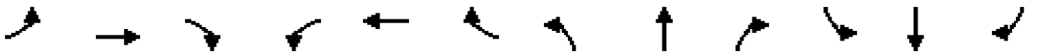
Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 49.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay (s/veh): 13.2		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 75.8			
70th %ile Actuated Cycle: 64.4			
50th %ile Actuated Cycle: 32.3			
30th %ile Actuated Cycle: 40.6			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	195	70	317	241	113	41	115	307	80	126	12
Future Volume (vph)	26	195	70	317	241	113	41	115	307	80	126	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.99		0.96		0.99		0.99	
Frt		0.968			0.952				0.850		0.993	
Flt Protected		0.996		0.950			0.950				0.982	
Satd. Flow (prot)	0	1723	0	1588	1612	0	1752	1881	1615	0	1711	0
Flt Permitted		0.939		0.292			0.524				0.836	
Satd. Flow (perm)	0	1623	0	485	1612	0	924	1881	1594	0	1455	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		16			32				316			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			230			313	
Travel Time (s)		13.1			16.8			6.3			8.5	
Confl. Peds. (#/hr)	7		11	11		7	38		4	4		38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	4%	9%	11%	6%	14%	3%	1%	10%	5%	4%	0%
Adj. Flow (vph)	27	201	72	327	248	116	42	119	316	82	130	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	327	364	0	42	119	316	0	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2	1		2	
Detector Template		Thru		Left	Thru		Left	Thru	Right		Thru	
Leading Detector (ft)		100		20	100		20	100	20		100	
Trailing Detector (ft)		0		0	0		0	0	0		0	
Detector 1 Position(ft)		0		0	0		0	0	0		0	
Detector 1 Size(ft)		6		20	6		20	6	20		6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



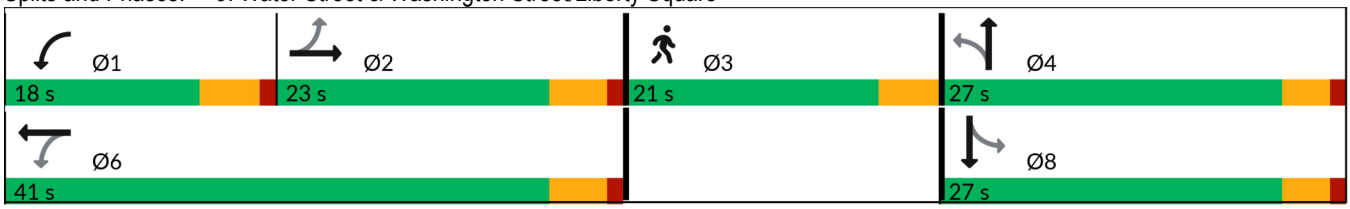
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	23.0	23.0		18.0	41.0		27.0	27.0		27.0	27.0	
Total Split (%)	25.8%	25.8%		20.2%	46.1%		30.3%	30.3%		30.3%	30.3%	
Maximum Green (s)	18.1	18.1		13.0	36.1		22.7	22.7		22.7	22.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		16.9		36.4	36.5		16.6	16.6	76.0		16.6	
Actuated g/C Ratio		0.22		0.48	0.48		0.22	0.22	1.00		0.22	
v/c Ratio		0.80		0.75	0.46		0.21	0.29	0.20		0.71	
Control Delay (s/veh)		49.4		33.7	19.2		31.1	30.1	0.3		43.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		49.4		33.7	19.2		31.1	30.1	0.3		43.3	
LOS		D		C	B		C	C	A		D	
Approach Delay (s/veh)		49.4			26.1			10.4			43.3	
Approach LOS		D			C			B			D	
90th %ile Green (s)	18.1	18.1		13.0	36.1		22.7	22.7		22.7	22.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	18.1	18.1		13.0	36.1		22.4	22.4		22.4	22.4	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Gap	Gap	
50th %ile Green (s)	18.1	18.1		13.0	36.1		18.8	18.8		18.8	18.8	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Gap	Gap	
30th %ile Green (s)	15.2	15.2		13.0	33.2		11.9	11.9		11.9	11.9	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
10th %ile Green (s)	11.7	11.7		13.0	29.7		8.8	8.8		8.8	8.8	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
Stops (vph)		214		174	214		33	85	0		185	
Fuel Used(gal)		6		6	6		0	1	1		3	
CO Emissions (g/hr)		401		428	411		33	88	43		224	
NOx Emissions (g/hr)		78		83	80		6	17	8		44	
VOC Emissions (g/hr)		93		99	95		8	20	10		52	
Dilemma Vehicles (#)		0		0	0		0	0	0		0	
Queue Length 50th (ft)		159		138	141		20	58	0		120	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#326		#285	244		49	106	0		200	
Internal Link Dist (ft)		399			537			150			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		433		438	850		301	613	1594		474	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.69		0.75	0.43		0.14	0.19	0.20		0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 76			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 28.1		Intersection LOS: C	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 93.7			
50th %ile Actuated Cycle: 90.1			
30th %ile Actuated Cycle: 54.3			
10th %ile Actuated Cycle: 47.7			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square

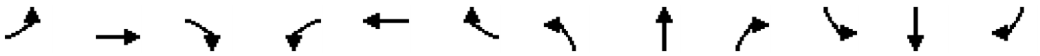


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	74	46	10	78	37	48	226	18	39	243	62
Future Volume (vph)	64	74	46	10	78	37	48	226	18	39	243	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.99			1.00	0.97
Frt		0.943			0.960			0.992				0.850
Flt Protected	0.950				0.996			0.992			0.993	
Satd. Flow (prot)	1465	1477	0	0	1626	0	0	1659	0	0	1756	1436
Flt Permitted	0.384				0.966			0.898			0.917	
Satd. Flow (perm)	588	1477	0	0	1573	0	0	1499	0	0	1616	1388
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	7		19	19		7	11		27	27		11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	15%	14%	7%	20%	11%	7%	25%	9%	19%	8%	8%	13%
Adj. Flow (vph)	73	84	52	11	89	42	55	257	20	44	276	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	136	0	0	142	0	0	332	0	0	320	70
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2			2	1
Detector Template	Left	Thru			Thru			Thru			Thru	Right
Leading Detector (ft)	20	100			100			100			100	20
Trailing Detector (ft)	0	0			0			0			0	0
Detector 1 Position(ft)	0	0			0			0			0	0
Detector 1 Size(ft)	20	6			6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



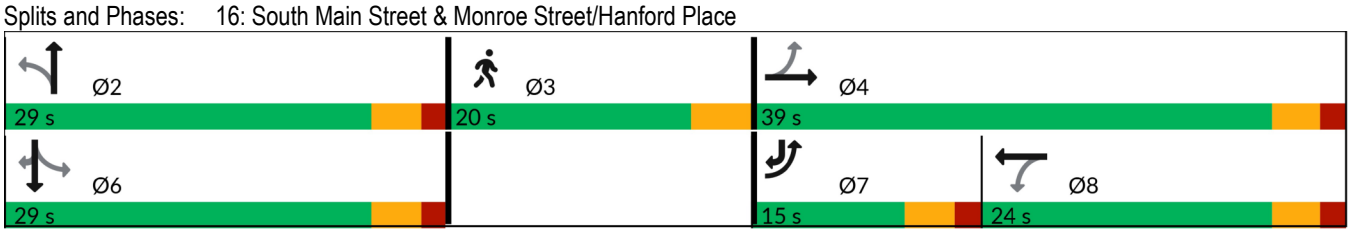
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	15.0	39.0		24.0	24.0		29.0	29.0		29.0	29.0	15.0
Total Split (%)	17.0%	44.3%		27.3%	27.3%		33.0%	33.0%		33.0%	33.0%	17.0%
Maximum Green (s)	10.1	34.1		19.1	19.1		24.1	24.1		24.1	24.1	10.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	24.9	24.9			13.8			32.4			32.4	38.1
Actuated g/C Ratio	0.34	0.34			0.19			0.45			0.45	0.52
v/c Ratio	0.22	0.27			0.47			0.50			0.44	0.10
Control Delay (s/veh)	20.8	21.3			37.6			30.2			28.5	8.9
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	20.8	21.3			37.6			30.2			28.5	8.9
LOS	C	C			D			C			C	A
Approach Delay (s/veh)		21.1			37.6			30.2			25.0	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.1	33.9		18.9	18.9		24.1	24.1		24.1	24.1	10.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	10.1	30.2		15.2	15.2		24.1	24.1		24.1	24.1	10.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	10.0	27.7		12.8	12.8		24.1	24.1		24.1	24.1	10.0
50th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
30th %ile Green (s)	10.0	24.9		10.0	10.0		24.1	24.1		24.1	24.1	10.0
30th %ile Term Code	Min	Hold		Min	Min		Max	Max		Hold	Hold	Min
10th %ile Green (s)	0.0	0.0		0.0	0.0		34.7	34.7		34.7	34.7	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell	Skip
Stops (vph)	41	77			102			212			208	34
Fuel Used(gal)	1	1			2			4			5	1
CO Emissions (g/hr)	43	82			164			246			322	50
NOx Emissions (g/hr)	8	16			32			48			63	10
VOC Emissions (g/hr)	10	19			38			57			75	11
Dilemma Vehicles (#)	0	0			0			0			0	0
Queue Length 50th (ft)	28	54			72			164			154	12

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	23%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	57	96			127			#319			#283	24
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	336	767			457			668			720	734
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.22	0.18			0.31			0.50			0.44	0.10

Intersection Summary	
Area Type: Other	
Cycle Length: 88	
Actuated Cycle Length: 72.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay (s/veh): 27.5	Intersection LOS: C
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	
90th %ile Actuated Cycle: 91.8	
70th %ile Actuated Cycle: 88.1	
50th %ile Actuated Cycle: 85.6	
30th %ile Actuated Cycle: 58.8	
10th %ile Actuated Cycle: 39.6	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place

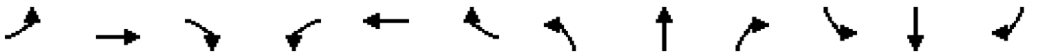


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	190	116	30	203	73	72	273	31	72	259	40
Future Volume (vph)	38	190	116	30	203	73	72	273	31	72	259	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.98			0.99		0.98	0.99	
Frt		0.943			0.968			0.989			0.980	
Flt Protected	0.950				0.995			0.991		0.950		
Satd. Flow (prot)	1596	1566	0	0	1686	0	0	1719	0	1538	1650	0
Flt Permitted	0.456				0.944			0.866		0.455		
Satd. Flow (perm)	746	1566	0	0	1596	0	0	1494	0	721	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	36		32	32		36	30		30	30		30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	3%	5%	17%	5%	3%	4%	9%	12%	9%	8%	5%
Adj. Flow (vph)	39	196	120	31	209	75	74	281	32	74	267	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	316	0	0	315	0	0	387	0	74	308	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2		1	2	
Detector Template	Left	Thru			Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100			100			100		20	100	
Trailing Detector (ft)	0	0			0			0		0	0	
Detector 1 Position(ft)	0	0			0			0		0	0	
Detector 1 Size(ft)	20	6			6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



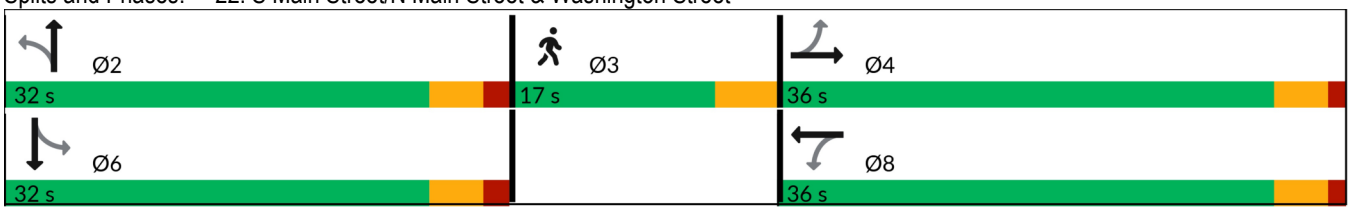
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		32.0	32.0		32.0	32.0	
Total Split (%)	42.4%	42.4%		42.4%	42.4%		37.6%	37.6%		37.6%	37.6%	
Maximum Green (s)	31.4	31.4		31.4	31.4		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	21.7	21.7			21.7			25.5		25.5	25.5	
Actuated g/C Ratio	0.32	0.32			0.32			0.38		0.38	0.38	
v/c Ratio	0.16	0.63			0.62			0.69		0.27	0.50	
Control Delay (s/veh)	22.6	29.1			28.5			31.0		24.3	24.3	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	22.6	29.1			28.5			31.0		24.3	24.3	
LOS	C	C			C			C		C	C	
Approach Delay (s/veh)		28.4			28.5			31.0			24.3	
Approach LOS		C			C			C			C	
90th %ile Green (s)	31.4	31.4		31.4	31.4		27.0	27.0		27.0	27.0	
90th %ile Term Code	Max	Max		Hold	Hold		Max	Max		Max	Max	
70th %ile Green (s)	25.5	25.5		25.5	25.5		27.0	27.0		27.0	27.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
50th %ile Green (s)	20.6	20.6		20.6	20.6		27.0	27.0		27.0	27.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
30th %ile Green (s)	15.0	15.0		15.0	15.0		22.5	22.5		22.5	22.5	
30th %ile Term Code	Min	Min		Min	Min		Gap	Gap		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		18.0	18.0		18.0	18.0	
10th %ile Term Code	Min	Min		Min	Min		Gap	Gap		Hold	Hold	
Stops (vph)	28	241			240			279		52	219	
Fuel Used(gal)	0	4			5			6		1	3	
CO Emissions (g/hr)	29	263			339			436		54	224	
NOx Emissions (g/hr)	6	51			66			85		10	44	
VOC Emissions (g/hr)	7	61			78			101		12	52	
Dilemma Vehicles (#)	0	0			0			0		0	0	
Queue Length 50th (ft)	15	142			141			164		26	119	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	20%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	39	228			225			#363		73	236	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	378	794			809			651		314	719	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.10	0.40			0.39			0.59		0.24	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 68			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 28.0		Intersection LOS: C	
Intersection Capacity Utilization 88.6%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 89			
70th %ile Actuated Cycle: 83.1			
50th %ile Actuated Cycle: 78.2			
30th %ile Actuated Cycle: 47.1			
10th %ile Actuated Cycle: 42.6			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street

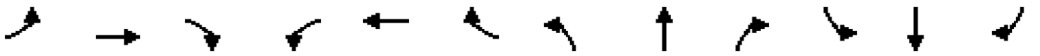


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	220	0	25	0	358	213	14	436	23
Future Volume (vph)	0	0	0	220	0	25	0	358	213	14	436	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				1.00	0.99			0.99			1.00	
Frt					0.969			0.944			0.993	
Flt Protected				0.950	0.962						0.999	
Satd. Flow (prot)	0	0	0	1549	1512	0	0	3106	0	0	3159	0
Flt Permitted				0.950	0.962						0.934	
Satd. Flow (perm)	0	0	0	1544	1508	0	0	3106	0	0	2953	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	4		3	3		4	8		4	4		8
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	7%	0%	8%	0%	12%	3%	21%	10%	14%
Adj. Flow (vph)	0	0	0	227	0	26	0	369	220	14	449	24
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	0	0	127	126	0	0	589	0	0	487	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2			2			2	
Detector Template		Thru		Left	Thru			Thru			Thru	
Leading Detector (ft)		100		20	100			100			100	
Trailing Detector (ft)		0		0	0			0			0	
Detector 1 Position(ft)				0	0			0			0	
Detector 1 Size(ft)				20	6			6			6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0			0.0	
Detector 1 Queue (s)				0.0	0.0			0.0			0.0	
Detector 1 Delay (s)				0.0	0.0			0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



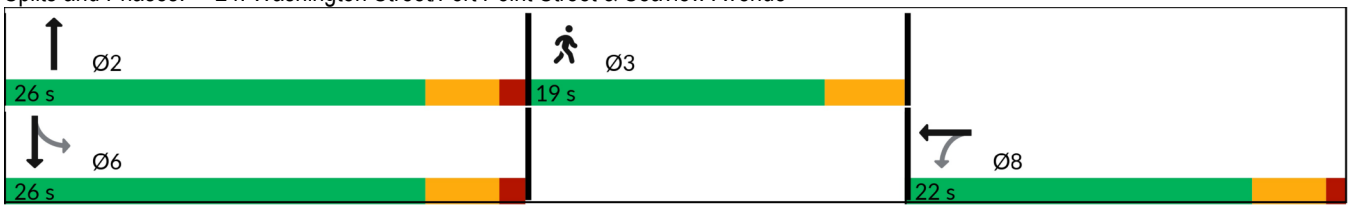
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				22.0	22.0			26.0		26.0	26.0	
Total Split (%)				32.8%	32.8%			38.8%		38.8%	38.8%	
Maximum Green (s)				17.3	17.3			21.0		21.0	21.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				10.7	10.7			25.2			25.2	
Actuated g/C Ratio				0.20	0.20			0.48			0.48	
v/c Ratio				0.41	0.33			0.40			0.35	
Control Delay (s/veh)				26.2	11.0			16.9			16.3	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				26.2	11.0			16.9			16.3	
LOS				C	B			B			B	
Approach Delay (s/veh)					18.6			16.9			16.3	
Approach LOS					B			B			B	
90th %ile Green (s)				16.4	16.4			21.0		21.0	21.0	
90th %ile Term Code				Gap	Gap			Max		Max	Max	
70th %ile Green (s)				12.4	12.4			20.7		20.7	20.7	
70th %ile Term Code				Gap	Gap			Gap		Hold	Hold	
50th %ile Green (s)				10.3	10.3			18.1		18.1	18.1	
50th %ile Term Code				Gap	Gap			Gap		Hold	Hold	
30th %ile Green (s)				7.1	7.1			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				0.0	0.0			30.0		30.0	30.0	
10th %ile Term Code				Skip	Skip			Dwell		Dwell	Dwell	
Stops (vph)				97	38			388			309	
Fuel Used(gal)				2	1			9			5	
CO Emissions (g/hr)				127	84			659			319	
NOx Emissions (g/hr)				25	16			128			62	
VOC Emissions (g/hr)				29	19			153			74	
Dilemma Vehicles (#)				0	0			0			0	
Queue Length 50th (ft)				45	9			98			77	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)				95	51			166			135	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				565	614			1629			1552	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.22	0.21			0.36			0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 52.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay (s/veh): 17.0		Intersection LOS: B	
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 70.1			
70th %ile Actuated Cycle: 65.8			
50th %ile Actuated Cycle: 61.1			
30th %ile Actuated Cycle: 31.8			
10th %ile Actuated Cycle: 35			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	37	293	0	0	439
Future Vol, veh/h	16	37	293	0	0	439
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	40	318	0	0	477

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	796	318	0	0	318	0
Stage 1	318	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	356	722	-	-	1242	-
Stage 1	737	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	356	722	-	-	1242	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.29	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	551	1242	-
HCM Lane V/C Ratio	-	-	0.105	-	-
HCM Ctrl Dly (s/v)	-	-	12.3	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	0	18	0	0	1	0	419	0	1	452	0
Future Vol, veh/h	67	0	18	0	0	1	0	419	0	1	452	0
Conflicting Peds, #/hr	1	0	0	0	0	1	19	0	20	20	0	19
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	8	0	18	0	0	100	0	7	0	100	9	0
Mvmt Flow	69	0	19	0	0	1	0	432	0	1	466	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	901	-	466	920	920	453	-	0	0	452	0	0
Stage 1	468	-	-	452	452	-	-	-	-	-	-	-
Stage 2	433	-	-	468	468	-	-	-	-	-	-	-
Critical Hdwy	7.38	-	6.48	7.1	6.5	7.2	-	-	-	5.1	-	-
Critical Hdwy Stg 1	6.38	-	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.38	-	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	-	3.462	3.5	4	4.2	-	-	-	3.1	-	-
Pot Cap-1 Maneuver	240	0	558	254	273	446	0	-	-	739	-	0
Stage 1	550	0	-	591	574	-	0	-	-	-	-	0
Stage 2	576	0	-	579	565	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	239	-	558	240	267	437	-	-	-	725	-	-
Mov Cap-2 Maneuver	239	-	-	240	267	-	-	-	-	-	-	-
Stage 1	549	-	-	580	563	-	-	-	-	-	-	-
Stage 2	574	-	-	559	564	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.01	13.26	0	0.02
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	239	558	437	4	-
HCM Lane V/C Ratio	-	-	0.289	0.033	0.002	0.001	-
HCM Ctrl Dly (s/v)	-	-	26	11.7	13.3	10	0
HCM Lane LOS	-	-	D	B	B	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0.1	0	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	1	9	16	460	7	8	453	55
Future Vol, veh/h	0	0	0	6	1	9	16	460	7	8	453	55
Conflicting Peds, #/hr	8	0	11	11	0	8	23	0	24	24	0	23
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	6	8	0	0	9	9
Mvmt Flow	0	0	0	6	1	9	16	474	7	8	467	57

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1029	1098	510	547	0	0	505	0	0
Stage 1	535	535	-	-	-	-	-	-	-
Stage 2	495	563	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.254	-	-	2.2	-	-
Pot Cap-1 Maneuver	293	242	584	1003	-	-	1070	-	-
Stage 1	628	560	-	-	-	-	-	-	-
Stage 2	652	545	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	276	0	571	1003	-	-	1053	-	-
Mov Cap-2 Maneuver	276	0	-	-	-	-	-	-	-
Stage 1	604	0	-	-	-	-	-	-	-
Stage 2	638	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	14.39	0.29	0.13
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	59	-	-	400	1053	-	-
HCM Lane V/C Ratio	0.016	-	-	0.041	0.008	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	14.4	8.4	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	-	-

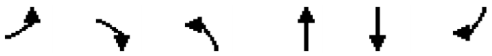
Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	318	9	69	297
Future Vol, veh/h	0	0	318	9	69	297
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	346	10	75	323

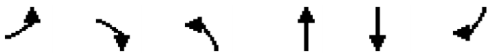
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	823	351	0	0	355	0
Stage 1	351	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	343	693	-	-	1203	-
Stage 1	713	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	317	693	-	-	1203	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	1.54
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	339	-
HCM Lane V/C Ratio	-	-	-	0.062	-
HCM Ctrl Dly (s/v)	-	-	0	8.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0.2	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	119	28	24	555	391	168	
Future Volume (vph)	119	28	24	555	391	168	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	10	
Grade (%)	0%			-1%	-1%		
Storage Length (ft)	150	150	150			150	
Storage Lanes	0	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.99			1.00	0.99		
Frt	0.974				0.959		
Flt Protected	0.961			0.998			
Satd. Flow (prot)	1667	0	0	1729	1596	0	
Flt Permitted	0.961			0.969			
Satd. Flow (perm)	1659	0	0	1678	1596	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	13				33		
Link Speed (mph)	25			25	25		
Link Distance (ft)	354			138	104		
Travel Time (s)	9.7			3.8	2.8		
Confl. Peds. (#/hr)	3	1	24			24	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	33%	0%	3%	6%	5%	
Adj. Flow (vph)	124	29	25	578	407	175	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	153	0	0	603	582	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.09	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1			2	2		
Detector Template	Left			Thru	Thru		
Leading Detector (ft)	20			100	100		
Trailing Detector (ft)	0			0	0		
Detector 1 Position(ft)	0			0	0		
Detector 1 Size(ft)	20			6	6		
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0			0.0	0.0		
Detector 1 Queue (s)	0.0			0.0	0.0		
Detector 1 Delay (s)	0.0			0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		3
Permitted Phases	4		2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	7.0		15.0	15.0	15.0		9.0
Minimum Split (s)	11.2		19.6	19.6	19.6		17.0
Total Split (s)	29.0		49.0	49.0	49.0		13.0
Total Split (%)	31.9%		53.8%	53.8%	53.8%		14%
Maximum Green (s)	24.8		44.4	44.4	44.4		9.0
Yellow Time (s)	3.2		3.5	3.5	3.5		4.0
All-Red Time (s)	1.0		1.1	1.1	1.1		0.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	4.2			4.6	4.6		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Don't Walk (s)							6.0
Pedestrian Calls (#/hr)							39
Act Effct Green (s)	11.9			35.3	35.3		
Actuated g/C Ratio	0.21			0.62	0.62		
v/c Ratio	0.43			0.58	0.58		
Control Delay (s/veh)	27.1			14.7	14.1		
Queue Delay	0.0			0.0	0.0		
Total Delay (s/veh)	27.1			14.7	14.1		
LOS	C			B	B		
Approach Delay (s/veh)	27.1			14.7	14.1		
Approach LOS	C			B	B		
90th %ile Green (s)	17.9		44.4	44.4	44.4		13.0
90th %ile Term Code	Gap		Max	Max	Max		Ped
70th %ile Green (s)	14.1		36.6	36.6	36.6		13.0
70th %ile Term Code	Gap		Gap	Gap	Hold		Ped
50th %ile Green (s)	11.3		30.0	30.0	30.0		0.0
50th %ile Term Code	Gap		Gap	Gap	Hold		Skip
30th %ile Green (s)	8.2		18.4	18.4	18.4		0.0
30th %ile Term Code	Gap		Dwell	Dwell	Dwell		Skip
10th %ile Green (s)	0.0		30.0	30.0	30.0		0.0
10th %ile Term Code	Skip		Dwell	Dwell	Dwell		Skip
Stops (vph)	105			362	334		
Fuel Used(gal)	2			4	3		
CO Emissions (g/hr)	166			266	237		
NOx Emissions (g/hr)	32			52	46		
VOC Emissions (g/hr)	39			62	55		
Dilemma Vehicles (#)	0			0	0		
Queue Length 50th (ft)	35			92	82		

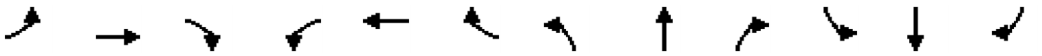
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Queue Length 95th (ft)	127			378	354		
Internal Link Dist (ft)	274			58	24		
Turn Bay Length (ft)	150						
Base Capacity (vph)	841			1332	1274		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.18			0.45	0.46		

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 56.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 15.9		Intersection LOS: B	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 88.1			
70th %ile Actuated Cycle: 76.5			
50th %ile Actuated Cycle: 50.1			
30th %ile Actuated Cycle: 35.4			
10th %ile Actuated Cycle: 34.6			

Splits and Phases: 3: Water Street & Hanford Place

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	248	47	402	284	133	40	203	558	171	153	21
Future Volume (vph)	36	248	47	402	284	133	40	203	558	171	153	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.98		0.97		0.98		0.99	
Frt		0.981			0.952				0.850		0.992	
Flt Protected		0.995		0.950			0.950				0.976	
Satd. Flow (prot)	0	1810	0	1647	1684	0	1805	1863	1725	0	1745	0
Flt Permitted		0.918		0.312			0.532				0.662	
Satd. Flow (perm)	0	1664	0	535	1684	0	979	1863	1698	0	1178	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		9			29				440			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			225			313	
Travel Time (s)		13.1			16.8			6.1			8.5	
Confl. Peds. (#/hr)	39		18	18		39	39		12	12		39
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	0%	7%	3%	2%	0%	2%	3%	1%	2%	0%
Adj. Flow (vph)	36	251	47	406	287	134	40	205	564	173	155	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	406	421	0	40	205	564	0	349	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2	1		2	
Detector Template		Thru		Left	Thru		Left	Thru	Right		Thru	
Leading Detector (ft)		100		20	100		20	100	20		100	
Trailing Detector (ft)		0		0	0		0	0	0		0	
Detector 1 Position(ft)		0		0	0		0	0	0		0	
Detector 1 Size(ft)		6		20	6		20	6	20		6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	36.0	36.0		10.0	46.0		32.0	32.0		32.0	32.0	
Total Split (%)	36.4%	36.4%		10.1%	46.5%		32.3%	32.3%		32.3%	32.3%	
Maximum Green (s)	31.1	31.1		5.0	41.1		27.7	27.7		27.7	27.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		22.5		33.0	33.1		29.3	29.3	85.4		29.3	
Actuated g/C Ratio		0.26		0.39	0.39		0.34	0.34	1.00		0.34	
v/c Ratio		0.75		1.48	0.63		0.12	0.32	0.33		0.86	
Control Delay (s/veh)		41.1		257.0	26.4		28.2	28.1	0.5		55.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		41.1		257.0	26.4		28.2	28.1	0.5		55.2	
LOS		D		F	C		C	C	A		E	
Approach Delay (s/veh)		41.1			139.6			8.9			55.2	
Approach LOS		D			F			A			E	
90th %ile Green (s)	31.1	31.1		5.0	41.1		27.7	27.7		27.7	27.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	28.0	28.0		5.0	38.0		27.7	27.7		27.7	27.7	
70th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	23.8	23.8		5.0	33.8		27.7	27.7		27.7	27.7	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	19.9	19.9		5.0	29.9		27.7	27.7		27.7	27.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	11.6	11.6		5.0	21.6		27.7	27.7		27.7	27.7	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
Stops (vph)		277		225	299		31	147	0		247	
Fuel Used(gal)		6		26	8		0	2	1		6	
CO Emissions (g/hr)		427		1822	542		30	148	79		403	
NOx Emissions (g/hr)		83		355	106		6	29	15		78	
VOC Emissions (g/hr)		99		422	126		7	34	18		93	
Dilemma Vehicles (#)		0		0	0		0	0	0		0	
Queue Length 50th (ft)		189		~344	205		18	101	0		~232	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

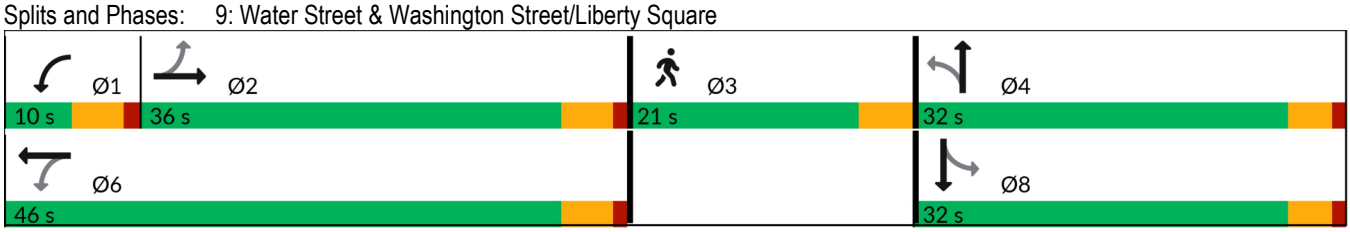
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		289		#568	311		49	182	0		#445	
Internal Link Dist (ft)		399			537			145			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		646		275	871		335	639	1698		404	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.52		1.48	0.48		0.12	0.32	0.33		0.86	

Intersection Summary	
Area Type: Other	
Cycle Length: 99	
Actuated Cycle Length: 85.4	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay (s/veh): 67.1	Intersection LOS: E
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	
90th %ile Actuated Cycle: 104	
70th %ile Actuated Cycle: 100.9	
50th %ile Actuated Cycle: 96.7	
30th %ile Actuated Cycle: 66.8	
10th %ile Actuated Cycle: 58.5	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Water Street & Washington Street/Liberty Square

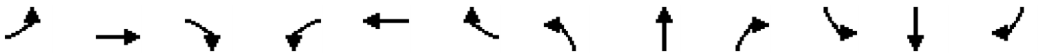


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	99	61	20	117	49	37	260	15	47	309	86
Future Volume (vph)	93	99	61	20	117	49	37	260	15	47	309	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.98			0.99			1.00	0.94
Frt		0.943			0.965			0.993				0.850
Flt Protected	0.950				0.995			0.994			0.993	
Satd. Flow (prot)	1620	1515	0	0	1729	0	0	1759	0	0	1795	1546
Flt Permitted	0.393				0.953			0.853			0.913	
Satd. Flow (perm)	661	1515	0	0	1646	0	0	1505	0	0	1643	1452
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	18		32	32		18	34		44	44		34
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	14%	0%	5%	3%	24%	4%	0%	3%	6%	5%
Adj. Flow (vph)	103	110	68	22	130	54	41	289	17	52	343	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	178	0	0	206	0	0	347	0	0	395	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2			2	1
Detector Template	Left	Thru			Thru			Thru			Thru	Right
Leading Detector (ft)	20	100			100			100			100	20
Trailing Detector (ft)	0	0			0			0			0	0
Detector 1 Position(ft)	0	0			0			0			0	0
Detector 1 Size(ft)	20	6			6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



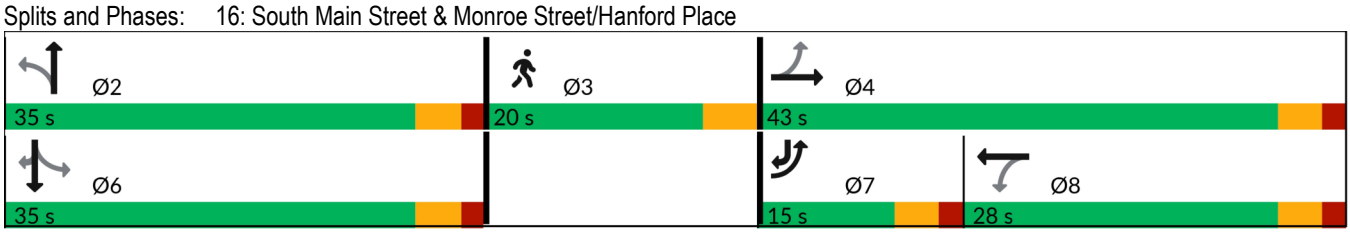
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	15.0	43.0		28.0	28.0		35.0	35.0		35.0	35.0	15.0
Total Split (%)	15.3%	43.9%		28.6%	28.6%		35.7%	35.7%		35.7%	35.7%	15.3%
Maximum Green (s)	10.1	38.1		23.1	23.1		30.1	30.1		30.1	30.1	10.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	28.2	28.2			17.4			29.3			29.3	40.9
Actuated g/C Ratio	0.35	0.35			0.22			0.36			0.36	0.51
v/c Ratio	0.28	0.34			0.58			0.63			0.66	0.13
Control Delay (s/veh)	23.0	23.9			41.1			33.9			34.2	9.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	23.0	23.9			41.1			33.9			34.2	9.4
LOS	C	C			D			C			C	A
Approach Delay (s/veh)		23.6			41.1			33.9			29.3	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.1	38.1		23.1	23.1		30.1	30.1		30.1	30.1	10.1
90th %ile Term Code	Max	Hold		Max	Max		Max	Max		Max	Max	Max
70th %ile Green (s)	10.1	35.1		20.1	20.1		30.1	30.1		30.1	30.1	10.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	10.1	32.0		17.0	17.0		30.1	30.1		30.1	30.1	10.1
50th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Hold	Hold	Max
30th %ile Green (s)	10.0	29.1		14.2	14.2		30.1	30.1		30.1	30.1	10.0
30th %ile Term Code	Min	Hold		Gap	Gap		Max	Max		Hold	Hold	Min
10th %ile Green (s)	0.0	10.0		10.0	10.0		17.5	17.5		17.5	17.5	0.0
10th %ile Term Code	Skip	Min		Min	Min		Gap	Gap		Hold	Hold	Skip
Stops (vph)	57	104			153			239			273	46
Fuel Used(gal)	1	2			4			4			6	1
CO Emissions (g/hr)	65	116			253			282			439	69
NOx Emissions (g/hr)	13	23			49			55			85	13
VOC Emissions (g/hr)	15	27			59			65			102	16
Dilemma Vehicles (#)	0	0			0			0			0	0
Queue Length 50th (ft)	44	81			119			187			216	16

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	82	136			194			#346			#392	36
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	370	820			544			649			708	751
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.28	0.22			0.38			0.53			0.56	0.13

Intersection Summary	
Area Type: Other	
Cycle Length: 98	
Actuated Cycle Length: 80.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay (s/veh): 31.1	Intersection LOS: C
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 102	
70th %ile Actuated Cycle: 99	
50th %ile Actuated Cycle: 95.9	
30th %ile Actuated Cycle: 69	
10th %ile Actuated Cycle: 37.3	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place

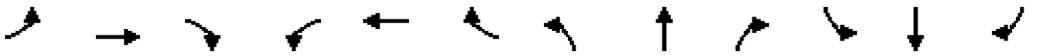


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	232	119	26	255	59	83	341	51	85	365	32
Future Volume (vph)	60	232	119	26	255	59	83	341	51	85	365	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98			0.99			0.98		0.96	0.99	
Frt		0.949			0.977			0.986			0.988	
Flt Protected	0.950				0.996			0.991		0.950		
Satd. Flow (prot)	1676	1605	0	0	1779	0	0	1794	0	1660	1726	0
Flt Permitted	0.352				0.827			0.783		0.415		
Satd. Flow (perm)	617	1605	0	0	1475	0	0	1411	0	697	1726	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	10		25	25		10	47		75	75		47
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	3%	10%	2%	0%	2%	3%	2%	1%	4%	3%
Adj. Flow (vph)	63	242	124	27	266	61	86	355	53	89	380	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	366	0	0	354	0	0	494	0	89	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2		1	2	
Detector Template	Left	Thru			Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100			100			100		20	100	
Trailing Detector (ft)	0	0			0			0		0	0	
Detector 1 Position(ft)	0	0			0			0		0	0	
Detector 1 Size(ft)	20	6			6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



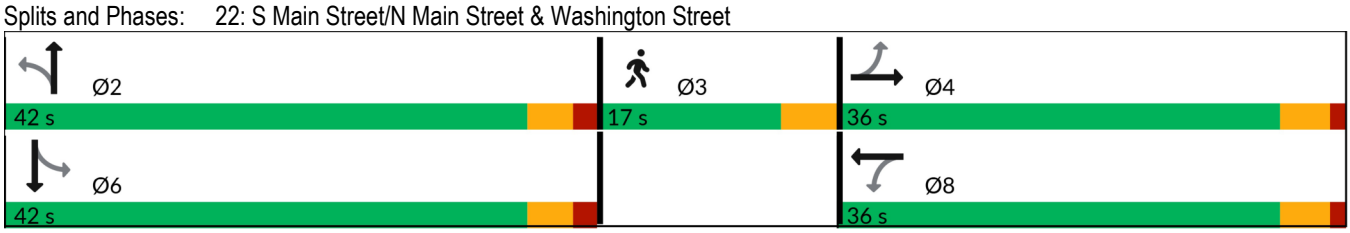
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		42.0	42.0		42.0	42.0	
Total Split (%)	37.9%	37.9%		37.9%	37.9%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	23.7	23.7			23.7			38.8		38.8	38.8	
Actuated g/C Ratio	0.28	0.28			0.28			0.47		0.47	0.47	
v/c Ratio	0.36	0.80			0.84			0.75		0.27	0.51	
Control Delay (s/veh)	32.5	43.1			48.5			33.2		23.3	23.3	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	32.5	43.1			48.5			33.2		23.3	23.3	
LOS	C	D			D			C		C	C	
Approach Delay (s/veh)		41.5			48.5			33.2			23.3	
Approach LOS		D			D			C			C	
90th %ile Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	31.4	31.4		31.4	31.4		37.0	37.0		37.0	37.0	
70th %ile Term Code	Max	Max		Hold	Hold		Max	Max		Hold	Hold	
50th %ile Green (s)	26.2	26.2		26.2	26.2		37.0	37.0		37.0	37.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
30th %ile Green (s)	16.9	16.9		16.9	16.9		37.0	37.0		37.0	37.0	
30th %ile Term Code	Gap	Gap		Hold	Hold		Max	Max		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		37.0	37.0		37.0	37.0	
10th %ile Term Code	Min	Min		Min	Min		Max	Max		Hold	Hold	
Stops (vph)	46	306			295			342		55	280	
Fuel Used(gal)	1	5			7			8		1	4	
CO Emissions (g/hr)	54	379			482			563		60	288	
NOx Emissions (g/hr)	11	74			94			110		12	56	
VOC Emissions (g/hr)	13	88			112			130		14	67	
Dilemma Vehicles (#)	0	0			0			0		0	0	
Queue Length 50th (ft)	30	203			199			268		36	191	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	18%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	69	311			#334			#501		84	318	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	243	633			581			656		324	802	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.26	0.58			0.61			0.75		0.27	0.51	

Intersection Summary	
Area Type: Other	
Cycle Length: 95	
Actuated Cycle Length: 83.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay (s/veh): 35.5	Intersection LOS: D
Intersection Capacity Utilization 99.0%	ICU Level of Service F
Analysis Period (min) 15	
90th %ile Actuated Cycle: 99	
70th %ile Actuated Cycle: 99	
50th %ile Actuated Cycle: 93.8	
30th %ile Actuated Cycle: 63.5	
10th %ile Actuated Cycle: 61.6	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 22: S Main Street/N Main Street & Washington Street

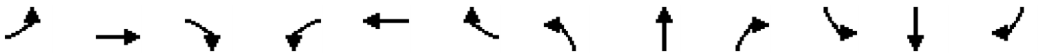


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	292	0	24	2	610	334	12	502	15
Future Volume (vph)	0	0	0	292	0	24	2	610	334	12	502	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	0.99			0.99			1.00	
Frt					0.977			0.947			0.996	
Flt Protected				0.950	0.959						0.999	
Satd. Flow (prot)	0	0	0	1609	1570	0	0	3315	0	0	3339	0
Flt Permitted				0.950	0.959			0.954			0.927	
Satd. Flow (perm)	0	0	0	1595	1558	0	0	3162	0	0	3098	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	3		9	9		3	8		7	7		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	3%	0%	9%	0%	3%	0%	8%	5%	0%
Adj. Flow (vph)	0	0	0	298	0	24	2	622	341	12	512	15
Shared Lane Traffic (%)				45%								
Lane Group Flow (vph)	0	0	0	164	158	0	0	965	0	0	539	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2			2			2	
Detector Template		Thru		Left	Thru			Thru			Thru	
Leading Detector (ft)		100		20	100			100			100	
Trailing Detector (ft)		0		0	0			0			0	
Detector 1 Position(ft)				0	0			0			0	
Detector 1 Size(ft)				20	6			6			6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0			0.0	
Detector 1 Queue (s)				0.0	0.0			0.0			0.0	
Detector 1 Delay (s)				0.0	0.0			0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8			2			6		
Detector Phase				8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7		20.0	20.0		20.0	20.0	
Total Split (s)				25.0	25.0		23.0	23.0		23.0	23.0	
Total Split (%)				37.3%	37.3%		34.3%	34.3%		34.3%	34.3%	
Maximum Green (s)				20.3	20.3		18.0	18.0		18.0	18.0	
Yellow Time (s)				3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode				None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				11.4	11.4			21.3			21.3	
Actuated g/C Ratio				0.21	0.21			0.39			0.39	
v/c Ratio				0.50	0.39			0.78			0.45	
Control Delay (s/veh)				26.5	12.8			28.2			18.3	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				26.5	12.8			28.2			18.3	
LOS				C	B			C			B	
Approach Delay (s/veh)					19.8			28.2			18.3	
Approach LOS					B			C			B	
90th %ile Green (s)				18.0	18.0		18.0	18.0		18.0	18.0	
90th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
70th %ile Green (s)				13.6	13.6		18.0	18.0		18.0	18.0	
70th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
50th %ile Green (s)				11.5	11.5		18.0	18.0		18.0	18.0	
50th %ile Term Code				Gap	Gap		Max	Max		Max	Max	
30th %ile Green (s)				7.8	7.8		18.0	18.0		18.0	18.0	
30th %ile Term Code				Gap	Gap		Max	Max		Hold	Hold	
10th %ile Green (s)				7.0	7.0		26.3	26.3		26.3	26.3	
10th %ile Term Code				Min	Min		Dwell	Dwell		Dwell	Dwell	
Stops (vph)				129	56			623			381	
Fuel Used(gal)				2	2			18			5	
CO Emissions (g/hr)				167	112			1237			382	
NOx Emissions (g/hr)				32	22			241			74	
VOC Emissions (g/hr)				39	26			287			88	
Dilemma Vehicles (#)				0	0			0			0	
Queue Length 50th (ft)				60	20			~216			90	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

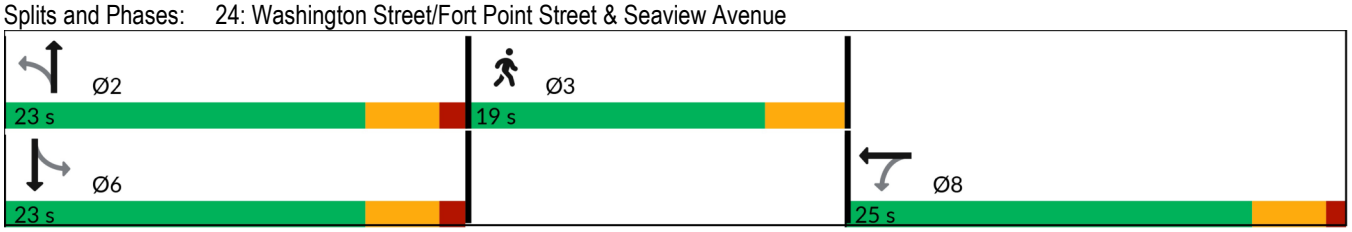
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)				112	66			#372			156	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				632	676			1233			1210	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.26	0.23			0.78			0.45	

Intersection Summary	
Area Type: Other	
Cycle Length: 67	
Actuated Cycle Length: 54.7	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay (s/veh): 23.8	Intersection LOS: C
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	
90th %ile Actuated Cycle: 68.7	
70th %ile Actuated Cycle: 64.3	
50th %ile Actuated Cycle: 62.2	
30th %ile Actuated Cycle: 35.5	
10th %ile Actuated Cycle: 43	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	51	555	0	0	517
Future Vol, veh/h	21	51	555	0	0	517
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	55	603	0	0	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1165	603	0	0	603	0
Stage 1	603	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	215	499	-	-	974	-
Stage 1	546	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	499	-	-	974	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.77	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	360	974	-
HCM Lane V/C Ratio	-	-	0.218	-	-
HCM Ctrl Dly (s/v)	-	-	17.8	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	84	0	29	0	0	0	0	735	0	0	522	0
Future Vol, veh/h	84	0	29	0	0	0	0	735	0	0	522	0
Conflicting Peds, #/hr	0	0	0	0	0	0	45	0	20	20	0	45
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	0	0	0	0	0	0	3	0	0	6	0
Mvmt Flow	87	0	30	0	0	0	0	758	0	0	538	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1296	-	538	1316	1316	778	-	0	0	778	0	0
Stage 1	538	-	-	778	778	-	-	-	-	-	-	-
Stage 2	758	-	-	538	538	-	-	-	-	-	-	-
Critical Hdwy	7.31	-	6.3	7.1	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.31	-	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.31	-	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.3	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	130	0	539	136	159	400	0	-	-	848	-	0
Stage 1	513	0	-	392	410	-	0	-	-	-	-	0
Stage 2	384	0	-	531	525	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	130	-	539	126	156	392	-	-	-	832	-	-
Mov Cap-2 Maneuver	130	-	-	126	156	-	-	-	-	-	-	-
Stage 1	513	-	-	385	402	-	-	-	-	-	-	-
Stage 2	384	-	-	501	525	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	59.29	0	0	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	130	539	-	832	-
HCM Lane V/C Ratio	-	-	0.666	0.055	-	-	-
HCM Ctrl Dly (s/v)	-	-	75.6	12.1	0	0	-
HCM Lane LOS	-	-	F	B	A	A	-
HCM 95th %tile Q(veh)	-	-	3.6	0.2	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	11	33	787	1	2	530	66
Future Vol, veh/h	0	0	0	1	0	11	33	787	1	2	530	66
Conflicting Peds, #/hr	0	0	5	5	0	0	49	0	22	22	0	49
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	5	5
Mvmt Flow	0	0	0	1	0	11	33	795	1	2	535	67

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1429	1539	817	651	0	0	818	0	0
Stage 1	884	884	-	-	-	-	-	-	-
Stage 2	544	655	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	176	138	397	945	-	-	819	-	-
Stage 1	449	404	-	-	-	-	-	-	-
Stage 2	622	501	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	161	0	391	945	-	-	808	-	-
Mov Cap-2 Maneuver	161	0	-	-	-	-	-	-	-
Stage 1	415	0	-	-	-	-	-	-	-
Stage 2	617	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.66	0.36	0.03
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	72	-	-	350	808	-	-
HCM Lane V/C Ratio	0.035	-	-	0.035	0.003	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	15.7	9.5	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	-	-

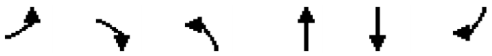
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	580	9	63	346
Future Vol, veh/h	0	0	580	9	63	346
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	630	10	68	376

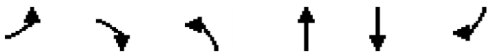
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1148	635	0	0	640	0
Stage 1	635	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	220	478	-	-	944	-
Stage 1	528	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	200	478	-	-	944	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	277	-
HCM Lane V/C Ratio	-	-	-	0.073	-
HCM Ctrl Dly (s/v)	-	-	0	9.1	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0.2	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	120	30	16	379	399	153	
Future Volume (vph)	120	30	16	379	399	153	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	10	
Grade (%)	0%			-1%	-1%		
Storage Length (ft)	150	150	150			150	
Storage Lanes	0	0	0			0	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.98			1.00	0.99		
Frt	0.973				0.963		
Flt Protected	0.962			0.998			
Satd. Flow (prot)	1685	0	0	1704	1630	0	
Flt Permitted	0.962			0.973			
Satd. Flow (perm)	1659	0	0	1661	1630	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	16				30		
Link Speed (mph)	25			25	25		
Link Distance (ft)	354			138	104		
Travel Time (s)	9.7			3.8	2.8		
Confl. Peds. (#/hr)	12	2	16			16	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	1%	21%	13%	4%	5%	2%	
Adj. Flow (vph)	126	32	17	399	420	161	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	158	0	0	416	581	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			0	0		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.09	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1			2	2		
Detector Template	Left			Thru	Thru		
Leading Detector (ft)	20			100	100		
Trailing Detector (ft)	0			0	0		
Detector 1 Position(ft)	0			0	0		
Detector 1 Size(ft)	20			6	6		
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0			0.0	0.0		
Detector 1 Queue (s)	0.0			0.0	0.0		
Detector 1 Delay (s)	0.0			0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		

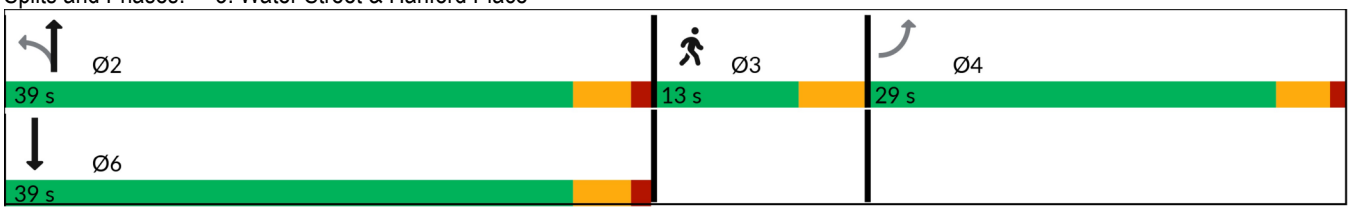


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Perm		Perm	NA	NA		
Protected Phases				2	6		3
Permitted Phases	4		2				
Detector Phase	4		2	2	6		
Switch Phase							
Minimum Initial (s)	7.0		15.0	15.0	15.0		9.0
Minimum Split (s)	11.2		19.6	19.6	19.6		17.0
Total Split (s)	29.0		39.0	39.0	39.0		13.0
Total Split (%)	35.8%		48.1%	48.1%	48.1%		16%
Maximum Green (s)	24.8		34.4	34.4	34.4		9.0
Yellow Time (s)	3.2		3.5	3.5	3.5		4.0
All-Red Time (s)	1.0		1.1	1.1	1.1		0.0
Lost Time Adjust (s)	0.0			0.0	0.0		
Total Lost Time (s)	4.2			4.6	4.6		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		Min	Min	Min		None
Walk Time (s)							7.0
Flash Don't Walk (s)							6.0
Pedestrian Calls (#/hr)							42
Act Effct Green (s)	11.5			32.8	32.8		
Actuated g/C Ratio	0.20			0.57	0.57		
v/c Ratio	0.46			0.44	0.61		
Control Delay (s/veh)	27.1			14.3	17.4		
Queue Delay	0.0			0.0	0.0		
Total Delay (s/veh)	27.1			14.3	17.4		
LOS	C			B	B		
Approach Delay (s/veh)	27.1			14.3	17.4		
Approach LOS	C			B	B		
90th %ile Green (s)	16.6		34.4	34.4	34.4		13.0
90th %ile Term Code	Gap		Hold	Hold	Max		Ped
70th %ile Green (s)	13.5		34.4	34.4	34.4		13.0
70th %ile Term Code	Gap		Hold	Hold	Max		Ped
50th %ile Green (s)	11.3		28.6	28.6	28.6		13.0
50th %ile Term Code	Gap		Hold	Hold	Gap		Ped
30th %ile Green (s)	8.1		18.3	18.3	18.3		0.0
30th %ile Term Code	Gap		Dwell	Dwell	Dwell		Skip
10th %ile Green (s)	0.0		30.0	30.0	30.0		0.0
10th %ile Term Code	Skip		Dwell	Dwell	Dwell		Skip
Stops (vph)	108			240	360		
Fuel Used(gal)	2			3	4		
CO Emissions (g/hr)	170			177	267		
NOx Emissions (g/hr)	33			34	52		
VOC Emissions (g/hr)	39			41	62		
Dilemma Vehicles (#)	0			0	0		
Queue Length 50th (ft)	52			120	183		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Queue Length 95th (ft)	113			226	#371		
Internal Link Dist (ft)	274			58	24		
Turn Bay Length (ft)	150						
Base Capacity (vph)	823			1132	1120		
Starvation Cap Reductn	0			0	0		
Spillback Cap Reductn	0			0	0		
Storage Cap Reductn	0			0	0		
Reduced v/c Ratio	0.19			0.37	0.52		

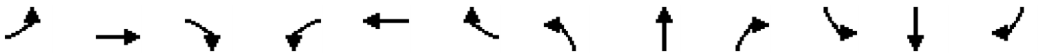
Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 57.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay (s/veh): 17.6		Intersection LOS: B	
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 76.8			
70th %ile Actuated Cycle: 73.7			
50th %ile Actuated Cycle: 65.7			
30th %ile Actuated Cycle: 35.2			
10th %ile Actuated Cycle: 34.6			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: Water Street & Hanford Place



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	244	71	383	238	158	57	183	426	134	138	41
Future Volume (vph)	41	244	71	383	238	158	57	183	426	134	138	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.94		0.99		0.98	
Frt		0.973			0.940				0.850		0.982	
Flt Protected		0.994		0.950			0.950				0.979	
Satd. Flow (prot)	0	1804	0	1695	1682	0	1703	1881	1708	0	1713	0
Flt Permitted		0.907		0.264			0.486				0.655	
Satd. Flow (perm)	0	1636	0	467	1682	0	819	1881	1686	0	1145	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		13			48				414			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	48		15	15		48	65		3	3		65
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	4%	1%	0%	6%	1%	4%	0%	1%	3%
Adj. Flow (vph)	43	254	74	399	248	165	59	191	444	140	144	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	0	399	413	0	59	191	444	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2	1		2	
Detector Template		Thru		Left	Thru		Left	Thru	Right		Thru	
Leading Detector (ft)		100		20	100		20	100	20		100	
Trailing Detector (ft)		0		0	0		0	0	0		0	
Detector 1 Position(ft)		0		0	0		0	0	0		0	
Detector 1 Size(ft)		6		20	6		20	6	20		6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



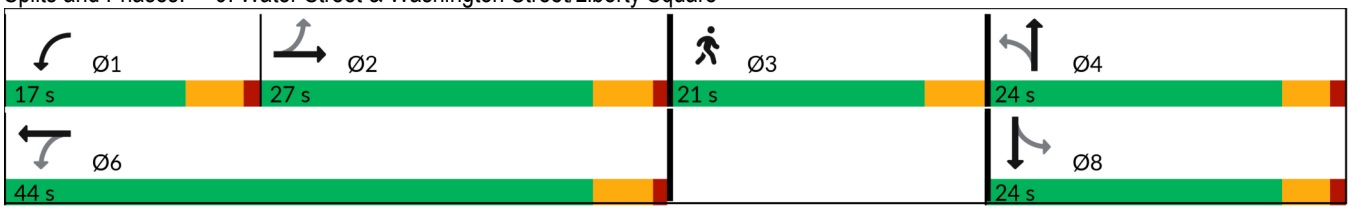
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	27.0	27.0		17.0	44.0		24.0	24.0		24.0	24.0	
Total Split (%)	30.3%	30.3%		19.1%	49.4%		27.0%	27.0%		27.0%	27.0%	
Maximum Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		20.3		37.9	38.0		20.5	20.5	81.6		20.5	
Actuated g/C Ratio		0.25		0.46	0.47		0.25	0.25	1.00		0.25	
v/c Ratio		0.89		0.99	0.51		0.29	0.40	0.26		1.14	
Control Delay (s/veh)		56.4		66.8	18.6		35.1	32.8	0.4		130.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		56.4		66.8	18.6		35.1	32.8	0.4		130.8	
LOS		E		E	B		D	C	A		F	
Approach Delay (s/veh)		56.4			42.3			12.2			130.8	
Approach LOS		E			D			B			F	
90th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
90th %ile Term Code	Max	Max		Max	Hold		Max	Max		Max	Max	
70th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	22.1	22.1		12.0	39.1		19.7	19.7		19.7	19.7	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	19.1	19.1		12.0	36.1		19.7	19.7		19.7	19.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	15.0	15.0		12.0	32.0		19.7	19.7		19.7	19.7	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
Stops (vph)		281		200	242		47	147	0		211	
Fuel Used(gal)		8		10	7		1	2	1		10	
CO Emissions (g/hr)		532		695	458		49	150	62		700	
NOx Emissions (g/hr)		103		135	89		10	29	12		136	
VOC Emissions (g/hr)		123		161	106		11	35	14		162	
Dilemma Vehicles (#)		0		0	0		0	0	0		0	
Queue Length 50th (ft)		211		~193	162		30	101	0		~259	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#388		#376	257		69	169	0		#425	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		469		404	862		205	472	1686		287	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.79		0.99	0.48		0.29	0.40	0.26		1.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 81.6			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay (s/veh): 48.3		Intersection LOS: D	
Intersection Capacity Utilization 86.2%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 94			
50th %ile Actuated Cycle: 94			
30th %ile Actuated Cycle: 65			
10th %ile Actuated Cycle: 60.9			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square

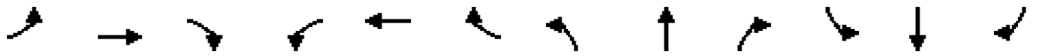


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	89	51	13	95	49	35	214	14	37	247	73
Future Volume (vph)	77	89	51	13	95	49	35	214	14	37	247	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			-1%	
Storage Length (ft)	85		150	150		150	150		150	150		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99			0.99			0.99			0.99	0.94
Frt		0.945			0.958			0.993				0.850
Flt Protected	0.950				0.996			0.993			0.994	
Satd. Flow (prot)	1652	1615	0	0	1768	0	0	1740	0	0	1819	1591
Flt Permitted	0.357				0.962			0.924			0.927	
Satd. Flow (perm)	615	1615	0	0	1704	0	0	1614	0	0	1686	1501
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		354			318			363			273	
Travel Time (s)		9.7			8.7			9.9			7.4	
Confl. Peds. (#/hr)	11		17	17		11	25		46	46		25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	1%	1%	2%	0%	4%	8%	0%	0%	5%	2%
Adj. Flow (vph)	86	99	57	14	106	54	39	238	16	41	274	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	156	0	0	174	0	0	293	0	0	315	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2			2	1
Detector Template	Left	Thru			Thru			Thru			Thru	Right
Leading Detector (ft)	20	100			100			100			100	20
Trailing Detector (ft)	0	0			0			0			0	0
Detector 1 Position(ft)	0	0			0			0			0	0
Detector 1 Size(ft)	20	6			6			6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0			0.0			0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



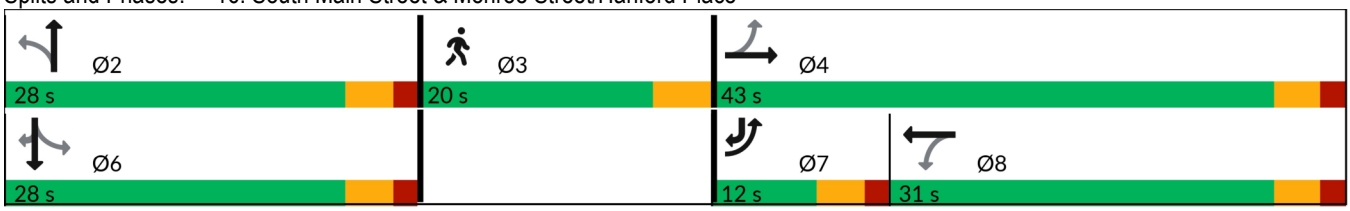
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	10.0
Minimum Split (s)	14.9	14.9		14.9	14.9		19.9	19.9		19.9	19.9	14.9
Total Split (s)	12.0	43.0		31.0	31.0		28.0	28.0		28.0	28.0	12.0
Total Split (%)	13.2%	47.3%		34.1%	34.1%		30.8%	30.8%		30.8%	30.8%	13.2%
Maximum Green (s)	7.1	38.1		26.1	26.1		23.1	23.1		23.1	23.1	7.1
Yellow Time (s)	3.2	3.2		3.2	3.2		3.3	3.3		3.3	3.3	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		1.6	1.6		1.6	1.6	1.7
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.9	4.9			4.9			4.9			4.9	4.9
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	23.3	25.2			16.6			28.1			28.1	30.1
Actuated g/C Ratio	0.36	0.39			0.26			0.43			0.43	0.46
v/c Ratio	0.23	0.25			0.40			0.42			0.43	0.11
Control Delay (s/veh)	20.5	20.7			32.2			27.0			27.0	9.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay (s/veh)	20.5	20.7			32.2			27.0			27.0	9.6
LOS	C	C			C			C			C	A
Approach Delay (s/veh)		20.6			32.2			27.0			23.5	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.1	31.3		19.3	19.3		23.1	23.1		23.1	23.1	7.1
90th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
70th %ile Green (s)	7.1	27.8		15.8	15.8		23.1	23.1		23.1	23.1	7.1
70th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Max	Max	Max
50th %ile Green (s)	7.1	25.5		13.5	13.5		23.1	23.1		23.1	23.1	7.1
50th %ile Term Code	Max	Hold		Gap	Gap		Max	Max		Hold	Hold	Max
30th %ile Green (s)	7.1	22.0		10.0	10.0		17.3	17.3		17.3	17.3	7.1
30th %ile Term Code	Max	Hold		Min	Min		Gap	Gap		Hold	Hold	Max
10th %ile Green (s)	0.0	0.0		0.0	0.0		15.0	15.0		15.0	15.0	0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Min	Min		Min	Min	Skip
Stops (vph)	48	90			126			199			213	42
Fuel Used(gal)	1	1			3			3			5	1
CO Emissions (g/hr)	52	95			193			212			319	60
NOx Emissions (g/hr)	10	18			38			41			62	12
VOC Emissions (g/hr)	12	22			45			49			74	14
Dilemma Vehicles (#)	0	0			0			0			0	0
Queue Length 50th (ft)	32	61			85			133			143	14

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	16.0
Minimum Split (s)	24.0
Total Split (s)	20.0
Total Split (%)	22%
Maximum Green (s)	16.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	13.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	20.0
90th %ile Term Code	Ped
70th %ile Green (s)	20.0
70th %ile Term Code	Ped
50th %ile Green (s)	20.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	65	109			148			#240			#262	28
Internal Link Dist (ft)		274			238			283			193	
Turn Bay Length (ft)	85											100
Base Capacity (vph)	376	1007			835			737			770	708
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.23	0.15			0.21			0.40			0.41	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 64.9			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay (s/veh): 25.1		Intersection LOS: C	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 88.2			
70th %ile Actuated Cycle: 84.7			
50th %ile Actuated Cycle: 82.4			
30th %ile Actuated Cycle: 49.1			
10th %ile Actuated Cycle: 19.9			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 16: South Main Street & Monroe Street/Hanford Place

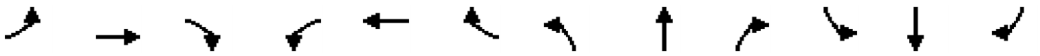


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	243	121	27	224	78	88	269	41	91	292	52
Future Volume (vph)	49	243	121	27	224	78	88	269	41	91	292	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	12	12	12	10	11	11
Grade (%)		1%			2%			-1%			1%	
Storage Length (ft)	0		150	150		150	150		150	70		150
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.99			0.98			0.99		0.98	0.99	
Frt		0.950			0.968			0.986			0.977	
Flt Protected	0.950				0.996			0.989		0.950		
Satd. Flow (prot)	1643	1629	0	0	1745	0	0	1798	0	1676	1744	0
Flt Permitted	0.414				0.908			0.738		0.444		
Satd. Flow (perm)	698	1629	0	0	1590	0	0	1332	0	765	1744	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		391			295			592			347	
Travel Time (s)		10.7			8.0			16.1			9.5	
Confl. Peds. (#/hr)	31		10	10		31	48		40	40		48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	1%	3%	9%	1%	3%	0%	3%	8%	0%	1%	2%
Adj. Flow (vph)	52	256	127	28	236	82	93	283	43	96	307	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	383	0	0	346	0	0	419	0	96	362	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.10	1.10	1.10	1.01	1.01	1.01	0.99	0.99	0.99	1.10	1.05	1.05
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2			2		1	2	
Detector Template	Left	Thru			Thru			Thru		Left	Thru	
Leading Detector (ft)	20	100			100			100		20	100	
Trailing Detector (ft)	0	0			0			0		0	0	
Detector 1 Position(ft)	0	0			0			0		0	0	
Detector 1 Size(ft)	20	6			6			6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



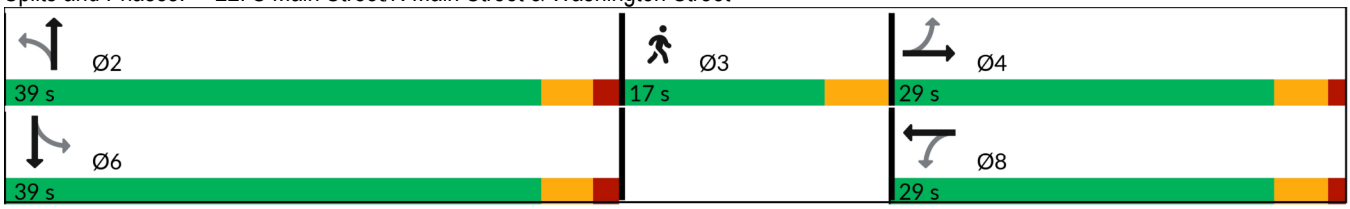
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	19.6	19.6		19.6	19.6		20.0	20.0		20.0	20.0	
Total Split (s)	29.0	29.0		29.0	29.0		39.0	39.0		39.0	39.0	
Total Split (%)	34.1%	34.1%		34.1%	34.1%		45.9%	45.9%		45.9%	45.9%	
Maximum Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.7	1.7		1.7	1.7	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.6	4.6			4.6			5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.3	22.3			22.3			27.6		27.6	27.6	
Actuated g/C Ratio	0.31	0.31			0.31			0.39		0.39	0.39	
v/c Ratio	0.24	0.75			0.69			0.81		0.32	0.53	
Control Delay (s/veh)	28.1	37.7			35.1			36.4		22.4	22.5	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay (s/veh)	28.1	37.7			35.1			36.4		22.4	22.5	
LOS	C	D			D			D		C	C	
Approach Delay (s/veh)		36.5			35.1			36.4			22.5	
Approach LOS		D			D			D			C	
90th %ile Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Max		Hold	Hold	
70th %ile Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Max		Hold	Hold	
50th %ile Green (s)	24.4	24.4		24.4	24.4		34.0	34.0		34.0	34.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Max		Hold	Hold	
30th %ile Green (s)	17.7	17.7		17.7	17.7		19.9	19.9		19.9	19.9	
30th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap		Hold	Hold	
10th %ile Green (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
10th %ile Term Code	Min	Min		Min	Min		Min	Min		Min	Min	
Stops (vph)	38	283			258			310		61	242	
Fuel Used(gal)	1	5			6			7		1	4	
CO Emissions (g/hr)	41	356			395			498		64	246	
NOx Emissions (g/hr)	8	69			77			97		12	48	
VOC Emissions (g/hr)	10	82			92			115		15	57	
Dilemma Vehicles (#)	0	0			0			0		0	0	
Queue Length 50th (ft)	23	204			180			208		37	156	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	21.0
Total Split (s)	17.0
Total Split (%)	20%
Maximum Green (s)	13.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	10.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	17.0
90th %ile Term Code	Ped
70th %ile Green (s)	17.0
70th %ile Term Code	Ped
50th %ile Green (s)	17.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	55	#361			#318			#373		80	242	
Internal Link Dist (ft)		311			215			512			267	
Turn Bay Length (ft)										70		
Base Capacity (vph)	273	637			621			725		417	950	
Starvation Cap Reductn	0	0			0			0		0	0	
Spillback Cap Reductn	0	0			0			0		0	0	
Storage Cap Reductn	0	0			0			0		0	0	
Reduced v/c Ratio	0.19	0.60			0.56			0.58		0.23	0.38	

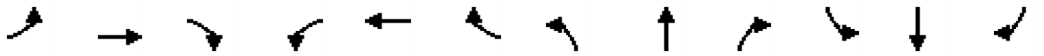
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 70.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 32.3		Intersection LOS: C	
Intersection Capacity Utilization 93.5%		ICU Level of Service F	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 89			
70th %ile Actuated Cycle: 89			
50th %ile Actuated Cycle: 89			
30th %ile Actuated Cycle: 47.2			
10th %ile Actuated Cycle: 39.6			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 22: S Main Street/N Main Street & Washington Street



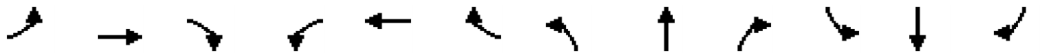
Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	240	0	18	0	483	280	12	497	13
Future Volume (vph)	0	0	0	240	0	18	0	483	280	12	497	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	12	11	11	11
Grade (%)		0%			0%			0%			-2%	
Storage Length (ft)	0		0	150		150	150		150	150		150
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor				0.99	0.99			0.99			1.00	
Frt					0.979			0.945			0.996	
Flt Protected				0.950	0.959						0.999	
Satd. Flow (prot)	0	0	0	1641	1619	0	0	3274	0	0	3398	0
Flt Permitted				0.950	0.959						0.932	
Satd. Flow (perm)	0	0	0	1622	1603	0	0	3274	0	0	3170	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					98						4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		127			747			604			451	
Travel Time (s)		3.5			20.4			16.5			12.3	
Confl. Peds. (#/hr)	10		11	11		10	19		12	12		19
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	2%	0%	3%	8%
Adj. Flow (vph)	0	0	0	255	0	19	0	514	298	13	529	14
Shared Lane Traffic (%)				46%								
Lane Group Flow (vph)	0	0	0	138	136	0	0	812	0	0	556	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.04	1.04	1.04	1.00	1.00	1.00	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2			2			2	
Detector Template		Thru		Left	Thru			Thru			Thru	
Leading Detector (ft)		100		20	100			100			100	
Trailing Detector (ft)		0		0	0			0			0	
Detector 1 Position(ft)				0	0			0			0	
Detector 1 Size(ft)				20	6			6			6	
Detector 1 Type				Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0			0.0	
Detector 1 Queue (s)				0.0	0.0			0.0			0.0	
Detector 1 Delay (s)				0.0	0.0			0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



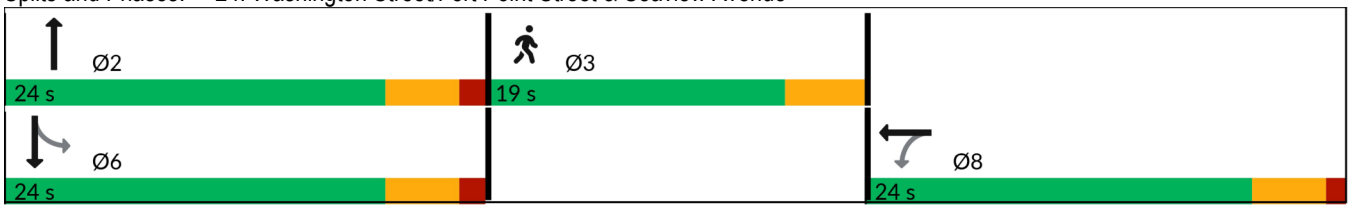
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA			NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8						6		
Detector Phase				8	8			2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)				11.7	11.7			20.0		20.0	20.0	
Total Split (s)				24.0	24.0			24.0		24.0	24.0	
Total Split (%)				35.8%	35.8%			35.8%		35.8%	35.8%	
Maximum Green (s)				19.3	19.3			19.0		19.0	19.0	
Yellow Time (s)				3.7	3.7			3.7		3.7	3.7	
All-Red Time (s)				1.0	1.0			1.3		1.3	1.3	
Lost Time Adjust (s)				0.0	0.0			0.0			0.0	
Total Lost Time (s)				4.7	4.7			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Recall Mode				None	None			Min		Min	Min	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)				10.7	10.7			24.5			24.5	
Actuated g/C Ratio				0.20	0.20			0.47			0.47	
v/c Ratio				0.41	0.33			0.53			0.37	
Control Delay (s/veh)				25.5	11.4			19.6			16.7	
Queue Delay				0.0	0.0			0.0			0.0	
Total Delay (s/veh)				25.5	11.4			19.6			16.7	
LOS				C	B			B			B	
Approach Delay (s/veh)					18.5			19.6			16.7	
Approach LOS					B			B			B	
90th %ile Green (s)				16.2	16.2			19.0		19.0	19.0	
90th %ile Term Code				Gap	Gap			Max		Max	Max	
70th %ile Green (s)				12.3	12.3			19.0		19.0	19.0	
70th %ile Term Code				Gap	Gap			Max		Max	Max	
50th %ile Green (s)				10.5	10.5			19.0		19.0	19.0	
50th %ile Term Code				Gap	Gap			Max		Hold	Hold	
30th %ile Green (s)				7.3	7.3			15.0		15.0	15.0	
30th %ile Term Code				Gap	Gap			Min		Min	Min	
10th %ile Green (s)				0.0	0.0			30.0		30.0	30.0	
10th %ile Term Code				Skip	Skip			Dwell		Dwell	Dwell	
Stops (vph)				103	41			523			354	
Fuel Used(gal)				2	1			13			5	
CO Emissions (g/hr)				133	89			912			360	
NOx Emissions (g/hr)				26	17			177			70	
VOC Emissions (g/hr)				31	21			211			83	
Dilemma Vehicles (#)				0	0			0			0	
Queue Length 50th (ft)				50	12			146			91	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	15.0
Minimum Split (s)	23.0
Total Split (s)	19.0
Total Split (%)	28%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	12.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	19.0
90th %ile Term Code	Ped
70th %ile Green (s)	19.0
70th %ile Term Code	Ped
50th %ile Green (s)	19.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)				98	55			#271			154	
Internal Link Dist (ft)		47			667			524			371	
Turn Bay Length (ft)				150								
Base Capacity (vph)				665	714			1621			1571	
Starvation Cap Reductn				0	0			0			0	
Spillback Cap Reductn				0	0			0			0	
Storage Cap Reductn				0	0			0			0	
Reduced v/c Ratio				0.21	0.19			0.50			0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 67			
Actuated Cycle Length: 52.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay (s/veh): 18.5		Intersection LOS: B	
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 67.9			
70th %ile Actuated Cycle: 64			
50th %ile Actuated Cycle: 62.2			
30th %ile Actuated Cycle: 32			
10th %ile Actuated Cycle: 35			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 24: Washington Street/Fort Point Street & Seaview Avenue



Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	32	379	0	0	522
Future Vol, veh/h	14	32	379	0	0	522
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	35	412	0	0	567

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	979	412	0	0	412	0
Stage 1	412	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	277	640	-	-	1147	-
Stage 1	669	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	277	640	-	-	1147	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.83	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	458	1147	-
HCM Lane V/C Ratio	-	-	0.109	-	-
HCM Ctrl Dly (s/v)	-	-	13.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	0	39	1	0	1	0	580	0	0	536	1
Future Vol, veh/h	88	0	39	1	0	1	0	580	0	0	536	1
Conflicting Peds, #/hr	1	0	0	0	0	1	32	0	13	13	0	32
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	0	-	-	-1	-	-	-1	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	0	5	100	0	100	0	3	0	0	3	0
Mvmt Flow	91	0	40	1	0	1	0	598	0	0	553	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1184	-	585	1164	1197	612	-	0	0	611	0	0
Stage 1	585	-	-	611	611	-	-	-	-	-	-	-
Stage 2	599	-	-	553	586	-	-	-	-	-	-	-
Critical Hdwy	7.31	-	6.35	8.1	6.5	7.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.31	-	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.31	-	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.345	4.4	4	4.2	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	156	0	497	112	188	353	0	-	-	978	-	-
Stage 1	483	0	-	348	488	-	0	-	-	-	-	-
Stage 2	474	0	-	378	500	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	152	-	484	101	181	348	-	-	-	966	-	-
Mov Cap-2 Maneuver	152	-	-	101	181	-	-	-	-	-	-	-
Stage 1	470	-	-	344	481	-	-	-	-	-	-	-
Stage 2	472	-	-	347	488	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	44.91	28.24	0	0
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	152	484	157	966	-	-
HCM Lane V/C Ratio	-	-	0.598	0.083	0.013	-	-	-
HCM Ctrl Dly (s/v)	-	-	59	13.1	28.2	0	-	-
HCM Lane LOS	-	-	F	B	D	A	-	-
HCM 95th %tile Q(veh)	-	-	3.2	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	2	20	23	646	4	10	526	56
Future Vol, veh/h	0	0	0	6	2	20	23	646	4	10	526	56
Conflicting Peds, #/hr	10	0	16	16	0	10	29	0	25	25	0	29
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	-2	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	3	0
Mvmt Flow	0	0	0	6	2	21	24	666	4	10	542	58

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1319	1390	703	629	0	0	695	0	0
Stage 1	740	740	-	-	-	-	-	-	-
Stage 2	579	650	-	-	-	-	-	-	-
Critical Hdwy	6	6.1	6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5	5.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5	5.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	202	168	459	963	-	-	910	-	-
Stage 1	516	463	-	-	-	-	-	-	-
Stage 2	602	503	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	185	0	447	963	-	-	896	-	-
Mov Cap-2 Maneuver	185	0	-	-	-	-	-	-	-
Stage 1	488	0	-	-	-	-	-	-	-
Stage 2	583	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.67	0.3	0.15
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	61	-	-	337	896	-	-
HCM Lane V/C Ratio	0.025	-	-	0.086	0.012	-	-
HCM Ctrl Dly (s/v)	8.8	0	-	16.7	9.1	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	398	7	53	362
Future Vol, veh/h	0	0	398	7	53	362
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	433	8	58	393

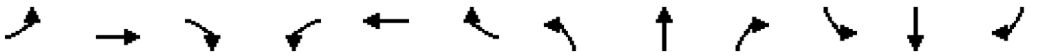
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	945	436	0	0	440	0
Stage 1	436	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	291	620	-	-	1120	-
Stage 1	652	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	620	-	-	1120	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	652	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	1.07
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	230	-
HCM Lane V/C Ratio	-	-	-	0.051	-
HCM Ctrl Dly (s/v)	-	-	0	8.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	248	47	402	284	133	40	203	558	171	153	21
Future Volume (vph)	36	248	47	402	284	133	40	203	558	171	153	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	0.98		0.97		0.98		0.99	
Frt		0.981			0.952				0.850		0.992	
Flt Protected		0.995		0.950			0.950				0.976	
Satd. Flow (prot)	0	1809	0	1647	1682	0	1805	1863	1725	0	1745	0
Flt Permitted		0.916		0.291			0.533				0.663	
Satd. Flow (perm)	0	1658	0	499	1682	0	983	1863	1698	0	1181	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		8			28				440			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			225			313	
Travel Time (s)		13.1			16.8			6.1			8.5	
Confl. Peds. (#/hr)	39		18	18		39	39		12	12		39
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	0%	7%	3%	2%	0%	2%	3%	1%	2%	0%
Adj. Flow (vph)	36	251	47	406	287	134	40	205	564	173	155	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	406	421	0	40	205	564	0	349	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2	1		2	
Detector Template		Thru		Left	Thru		Left	Thru	Right		Thru	
Leading Detector (ft)		100		20	100		20	100	20		100	
Trailing Detector (ft)		0		0	0		0	0	0		0	
Detector 1 Position(ft)		0		0	0		0	0	0		0	
Detector 1 Size(ft)		6		20	6		20	6	20		6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	31.0	31.0		12.0	43.0		35.0	35.0		35.0	35.0	
Total Split (%)	31.3%	31.3%		12.1%	43.4%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	26.1	26.1		7.0	38.1		30.7	30.7		30.7	30.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		22.4		34.8	34.9		31.8	31.8	89.8		31.8	
Actuated g/C Ratio		0.25		0.39	0.39		0.35	0.35	1.00		0.35	
v/c Ratio		0.80		1.42	0.63		0.11	0.31	0.33		0.83	
Control Delay (s/veh)		48.3		232.4	27.8		27.2	27.3	0.5		51.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		48.3		232.4	27.8		27.2	27.3	0.5		51.1	
LOS		D		F	C		C	C	A		D	
Approach Delay (s/veh)		48.3			128.3			8.6			51.1	
Approach LOS		D			F			A			D	
90th %ile Green (s)	26.1	26.1		7.0	38.1		30.7	30.7		30.7	30.7	
90th %ile Term Code	Max	Max		Max	Max		Hold	Hold		Max	Max	
70th %ile Green (s)	26.1	26.1		7.0	38.1		30.7	30.7		30.7	30.7	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	25.8	25.8		7.0	37.8		30.7	30.7		30.7	30.7	
50th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	21.5	21.5		7.0	33.5		30.7	30.7		30.7	30.7	
30th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	12.8	12.8		7.0	24.8		29.7	29.7		29.7	29.7	
10th %ile Term Code	Gap	Gap		Max	Hold		Hold	Hold		Gap	Gap	
Stops (vph)		276		223	304		30	145	0		261	
Fuel Used(gal)		7		24	8		0	2	1		6	
CO Emissions (g/hr)		461		1681	552		29	145	79		386	
NOx Emissions (g/hr)		90		327	107		6	28	15		75	
VOC Emissions (g/hr)		107		390	128		7	34	18		89	
Dilemma Vehicles (#)		0		0	0		0	0	0		0	
Queue Length 50th (ft)		203		~352	217		19	107	0		231	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	21%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

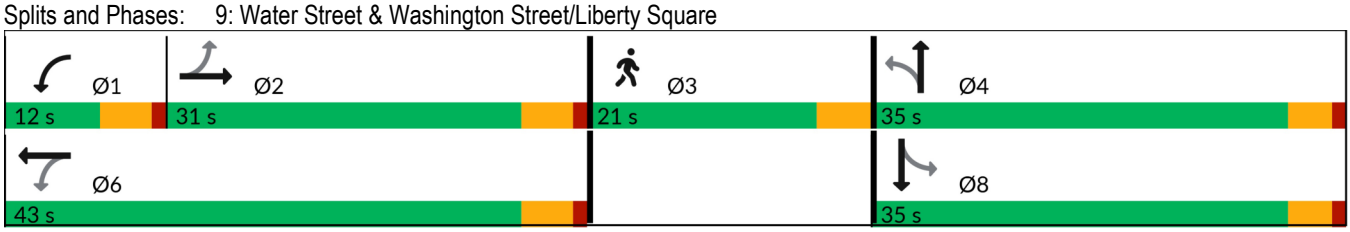
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#343		#571	328		47	174	0		#421	
Internal Link Dist (ft)		399			537			145			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		509		286	761		351	665	1698		421	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.66		1.42	0.55		0.11	0.31	0.33		0.83	

Intersection Summary	
Area Type: Other	
Cycle Length: 99	
Actuated Cycle Length: 89.8	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay (s/veh): 63.4	Intersection LOS: E
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	
90th %ile Actuated Cycle: 104	
70th %ile Actuated Cycle: 104	
50th %ile Actuated Cycle: 103.7	
30th %ile Actuated Cycle: 73.4	
10th %ile Actuated Cycle: 63.7	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Water Street & Washington Street/Liberty Square

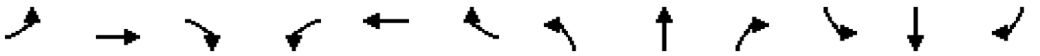


Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	244	71	383	238	158	57	183	426	134	138	41
Future Volume (vph)	41	244	71	383	238	158	57	183	426	134	138	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	12	12	15	11	11	11
Grade (%)		-1%			-2%			0%			0%	
Storage Length (ft)	150		150	500		150	85		85	150		150
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.94		0.99		0.98	
Frt		0.973			0.940				0.850		0.982	
Flt Protected		0.994		0.950			0.950				0.979	
Satd. Flow (prot)	0	1803	0	1695	1680	0	1703	1881	1708	0	1716	0
Flt Permitted		0.907		0.259			0.493				0.664	
Satd. Flow (perm)	0	1634	0	458	1680	0	833	1881	1686	0	1163	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		13			46				414			
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		479			617			234			313	
Travel Time (s)		13.1			16.8			6.4			8.5	
Confl. Peds. (#/hr)	48		15	15		48	65		3	3		65
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	4%	1%	0%	6%	1%	4%	0%	1%	3%
Adj. Flow (vph)	43	254	74	399	248	165	59	191	444	140	144	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	0	399	413	0	59	191	444	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			22			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	1.03	1.03	1.03	1.00	1.00	0.88	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2		1	2	1		2	
Detector Template		Thru		Left	Thru		Left	Thru	Right		Thru	
Leading Detector (ft)		100		20	100		20	100	20		100	
Trailing Detector (ft)		0		0	0		0	0	0		0	
Detector 1 Position(ft)		0		0	0		0	0	0		0	
Detector 1 Size(ft)		6		20	6		20	6	20		6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	



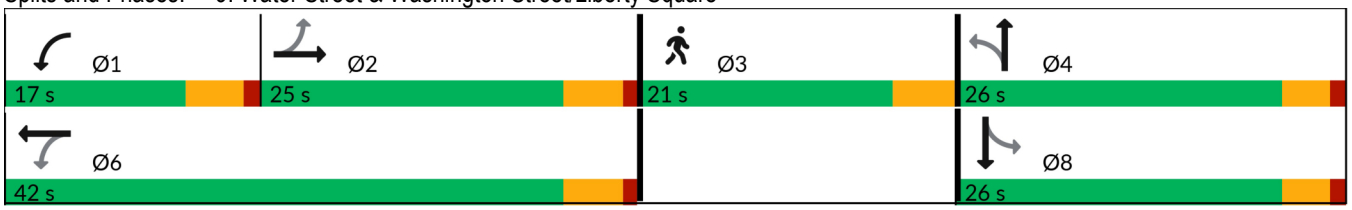
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4		Free	8		
Detector Phase	2	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		15.0	20.9		20.3	20.3		20.3	20.3	
Total Split (s)	25.0	25.0		17.0	42.0		26.0	26.0		26.0	26.0	
Total Split (%)	28.1%	28.1%		19.1%	47.2%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	20.1	20.1		12.0	37.1		21.7	21.7		21.7	21.7	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	1.0		1.1	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		4.9		5.0	4.9		4.3	4.3			4.3	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		20.6		37.9	38.0		22.3	22.3	83.6		22.3	
Actuated g/C Ratio		0.25		0.45	0.45		0.27	0.27	1.00		0.27	
v/c Ratio		0.90		1.02	0.52		0.27	0.38	0.26		1.06	
Control Delay (s/veh)		59.7		77.8	20.1		32.8	31.0	0.4		102.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)		59.7		77.8	20.1		32.8	31.0	0.4		102.6	
LOS		E		E	C		C	C	A		F	
Approach Delay (s/veh)		59.7			48.4			11.6			102.6	
Approach LOS		E			D			B			F	
90th %ile Green (s)	20.1	20.1		12.0	37.1		21.7	21.7		21.7	21.7	
90th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
70th %ile Green (s)	20.1	20.1		12.0	37.1		21.7	21.7		21.7	21.7	
70th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
50th %ile Green (s)	20.1	20.1		12.0	37.1		21.7	21.7		21.7	21.7	
50th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
30th %ile Green (s)	20.1	20.1		12.0	37.1		21.7	21.7		21.7	21.7	
30th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
10th %ile Green (s)	20.1	20.1		12.0	37.1		21.7	21.7		21.7	21.7	
10th %ile Term Code	Max	Max		Max	Hold		Hold	Hold		Max	Max	
Stops (vph)		268		203	251		46	145	0		224	
Fuel Used(gal)		8		11	7		1	2	1		8	
CO Emissions (g/hr)		544		756	469		47	145	62		577	
NOx Emissions (g/hr)		106		147	91		9	28	12		112	
VOC Emissions (g/hr)		126		175	109		11	34	14		134	
Dilemma Vehicles (#)		0		0	0		0	0	0		0	
Queue Length 50th (ft)		~233		~208	170		29	98	0		~241	

Lane Group	Ø3
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	17.0
Minimum Split (s)	26.0
Total Split (s)	21.0
Total Split (%)	24%
Maximum Green (s)	17.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Don't Walk (s)	15.0
Pedestrian Calls (#/hr)	50
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
90th %ile Green (s)	22.0
90th %ile Term Code	Ped
70th %ile Green (s)	22.0
70th %ile Term Code	Ped
50th %ile Green (s)	22.0
50th %ile Term Code	Ped
30th %ile Green (s)	0.0
30th %ile Term Code	Skip
10th %ile Green (s)	0.0
10th %ile Term Code	Skip
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#410		#392	268		67	164	0		#407	
Internal Link Dist (ft)		399			537			154			233	
Turn Bay Length (ft)				500			85		85			
Base Capacity (vph)		412		390	789		221	500	1686		309	
Starvation Cap Reductn		0		0	0		0	0	0		0	
Spillback Cap Reductn		0		0	0		0	0	0		0	
Storage Cap Reductn		0		0	0		0	0	0		0	
Reduced v/c Ratio		0.90		1.02	0.52		0.27	0.38	0.26		1.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 83.6			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay (s/veh): 46.7		Intersection LOS: D	
Intersection Capacity Utilization 86.2%		ICU Level of Service E	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 94			
70th %ile Actuated Cycle: 94			
50th %ile Actuated Cycle: 94			
30th %ile Actuated Cycle: 68			
10th %ile Actuated Cycle: 68			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 9: Water Street & Washington Street/Liberty Square



Lane Group	Ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

APPENDIX E

SHARED PARKING ANALYSIS

Parking Hourly Distribution - Weekday								
Land Use Code	221	310	710	822	931	-	-	Total Time of Day Parking Distribution
Land Use	Residential	Hotel	Office	Personal Service	Restaurant	Marine Supply	Boat Slips	
Time of Day	Weekday/Saturday Composite	Weekday	Weekday	Monday-Thursday	Monday-Thursday	All	All	
Size	59 Units	130 Units	38,240 SF	3,661 SF	3,475 SF	1,954 SF	14 Total	
Maximum Daily Parking Demand	47	94	60	10	34	4	14	
12:00 - 1:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
1:00 - 2:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
2:00 - 3:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
3:00 - 4:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
4:00 - 5:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
5:00 - 6:00 AM	96.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	143
6:00 - 7:00 AM	86.0%	90.0%	0.0%	0.0%	0.0%	100.0%	100.0%	143
7:00 - 8:00 AM	77.0%	90.0%	13.0%	0.0%	0.0%	100.0%	100.0%	147
8:00 - 9:00 AM	66.0%	90.0%	47.0%	19.0%	0.0%	100.0%	100.0%	164
9:00 - 10:00 AM	60.0%	80.0%	87.0%	33.0%	0.0%	100.0%	100.0%	177
10:00 - 11:00 AM	57.0%	74.0%	99.0%	47.0%	0.0%	100.0%	100.0%	178
11:00 - 12:00 PM	55.0%	67.0%	100.0%	55.0%	17.0%	100.0%	100.0%	178
12:00 - 1:00 PM	52.0%	65.0%	86.0%	89.0%	39.0%	100.0%	100.0%	177
1:00 - 2:00 PM	50.0%	61.0%	84.0%	100.0%	53.0%	100.0%	100.0%	177
2:00 - 3:00 PM	52.0%	59.0%	93.0%	73.0%	47.0%	100.0%	100.0%	177
3:00 - 4:00 PM	51.0%	58.0%	93.0%	73.0%	35.0%	100.0%	100.0%	171
4:00 - 5:00 PM	57.0%	61.0%	85.0%	66.0%	41.0%	100.0%	100.0%	174
5:00 - 6:00 PM	62.0%	60.0%	57.0%	70.0%	50.0%	100.0%	100.0%	162
6:00 - 7:00 PM	65.0%	62.0%	21.0%	75.0%	70.0%	100.0%	100.0%	151
7:00 - 8:00 PM	68.0%	65.0%	0.0%	70.0%	94.0%	100.0%	100.0%	150
8:00 - 9:00 PM	75.0%	70.0%	0.0%	54.0%	100.0%	0.0%	100.0%	154
9:00 - 10:00 PM	82.0%	75.0%	0.0%	48.0%	87.0%	0.0%	100.0%	157
10:00 - 11:00 PM	87.0%	88.0%	0.0%	0.0%	57.0%	0.0%	100.0%	157
11:00 - 12:00 AM	91.0%	97.0%	0.0%	0.0%	0.0%	0.0%	100.0%	148

*Parking Distributions obtained from Institute of Transportation Engineers Parking Generation Manual, 6th Edition

Parking Hourly Distribution - Friday								
Land Use Code	221	310	710	822	822	-	-	
Land Use	Residential	Hotel	Office	Personal Service	Restaurant	Marine Supply	Boat Slips	
Time of Day	Weekday/Saturday Composite	Saturday	Weekday	Friday	Friday	All	All	**Total Time of Day Parking Distribution**
Size	59 Units	130 Units	38,240 SF	3,661 SF	3,475 SF	1,954 SF	14 Total	
Maximum Daily Parking Demand	47	94	60	10	34	4	14	
12:00 - 1:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
1:00 - 2:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
2:00 - 3:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
3:00 - 4:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
4:00 - 5:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
5:00 - 6:00 AM	96.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	143
6:00 - 7:00 AM	86.0%	90.0%	0.0%	0.0%	0.0%	100.0%	100.0%	143
7:00 - 8:00 AM	77.0%	90.0%	13.0%	0.0%	0.0%	100.0%	100.0%	147
8:00 - 9:00 AM	66.0%	90.0%	47.0%	19.0%	0.0%	100.0%	100.0%	164
9:00 - 10:00 AM	60.0%	80.0%	87.0%	40.0%	0.0%	100.0%	100.0%	178
10:00 - 11:00 AM	57.0%	74.0%	99.0%	44.0%	0.0%	100.0%	100.0%	178
11:00 - 12:00 PM	55.0%	67.0%	100.0%	52.0%	13.0%	100.0%	100.0%	176
12:00 - 1:00 PM	52.0%	65.0%	86.0%	96.0%	38.0%	100.0%	100.0%	178
1:00 - 2:00 PM	50.0%	61.0%	84.0%	96.0%	43.0%	100.0%	100.0%	173
2:00 - 3:00 PM	52.0%	59.0%	93.0%	84.0%	39.0%	100.0%	100.0%	175
3:00 - 4:00 PM	51.0%	58.0%	93.0%	52.0%	32.0%	100.0%	100.0%	168
4:00 - 5:00 PM	57.0%	61.0%	85.0%	50.0%	33.0%	100.0%	100.0%	169
5:00 - 6:00 PM	62.0%	60.0%	57.0%	63.0%	41.0%	100.0%	100.0%	158
6:00 - 7:00 PM	65.0%	62.0%	21.0%	49.0%	78.0%	100.0%	100.0%	151
7:00 - 8:00 PM	68.0%	65.0%	0.0%	100.0%	95.0%	100.0%	100.0%	153
8:00 - 9:00 PM	75.0%	70.0%	0.0%	94.0%	100.0%	0.0%	100.0%	158
9:00 - 10:00 PM	82.0%	75.0%	0.0%	73.0%	88.0%	0.0%	100.0%	160
10:00 - 11:00 PM	87.0%	88.0%	0.0%	0.0%	64.0%	0.0%	100.0%	159
11:00 - 12:00 AM	91.0%	97.0%	0.0%	0.0%	0.0%	0.0%	100.0%	148

*Parking Distributions obtained from Institute of Transportation Engineers Parking Generation Manual, 6th Edition

Parking Hourly Distribution - Saturday								
Land Use Code	221	310	710	822	822	-	-	
Land Use	Residential	Hotel	Office	Personal Service	Restaurant	Marine Supply	Boat Slips	
Time of Day	Weekday/Saturday Composite	Saturday	Weekday	Saturday	Saturday	All	All	**Total Time of Day Parking Distribution**
Size	59 Units	130 Units	38,240 SF	3,661 SF	3,475 SF	1,954 SF	14 Total	
Maximum Daily Parking Demand	45	108	-	10	49	4	14	
12:00 - 1:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
1:00 - 2:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
2:00 - 3:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
3:00 - 4:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
4:00 - 5:00 AM	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	145
5:00 - 6:00 AM	96.0%	100.0%	0.0%	0.0%	0.0%	0.0%	29.0%	143
6:00 - 7:00 AM	86.0%	80.0%	0.0%	0.0%	0.0%	100.0%	100.0%	134
7:00 - 8:00 AM	77.0%	81.0%	0.0%	0.0%	0.0%	100.0%	100.0%	130
8:00 - 9:00 AM	66.0%	80.0%	0.0%	0.0%	0.0%	100.0%	100.0%	124
9:00 - 10:00 AM	60.0%	79.0%	0.0%	38.0%	0.0%	100.0%	100.0%	124
10:00 - 11:00 AM	57.0%	70.0%	0.0%	55.0%	0.0%	100.0%	100.0%	116
11:00 - 12:00 PM	55.0%	65.0%	0.0%	66.0%	20.0%	100.0%	100.0%	118
12:00 - 1:00 PM	52.0%	61.0%	0.0%	85.0%	40.0%	100.0%	100.0%	122
1:00 - 2:00 PM	50.0%	57.0%	0.0%	100.0%	62.0%	100.0%	100.0%	126
2:00 - 3:00 PM	52.0%	48.0%	0.0%	96.0%	69.0%	100.0%	100.0%	121
3:00 - 4:00 PM	51.0%	50.0%	0.0%	79.0%	49.0%	100.0%	100.0%	114
4:00 - 5:00 PM	57.0%	55.0%	0.0%	66.0%	66.0%	100.0%	100.0%	126
5:00 - 6:00 PM	62.0%	59.0%	0.0%	64.0%	79.0%	100.0%	100.0%	136
6:00 - 7:00 PM	65.0%	66.0%	0.0%	67.0%	85.0%	100.0%	100.0%	146
7:00 - 8:00 PM	68.0%	76.0%	0.0%	70.0%	99.0%	100.0%	100.0%	162
8:00 - 9:00 PM	75.0%	76.0%	0.0%	70.0%	99.0%	0.0%	100.0%	161
9:00 - 10:00 PM	82.0%	78.0%	0.0%	51.0%	100.0%	0.0%	100.0%	165
10:00 - 11:00 PM	87.0%	87.0%	0.0%	0.0%	88.0%	0.0%	100.0%	167
11:00 - 12:00 AM	91.0%	95.0%	0.0%	0.0%	0.0%	0.0%	100.0%	146

*Parking Distributions obtained from Institute of Transportation Engineers Parking Generation Manual, 6th Edition

Flood Preparedness Plan

for

108 Water Street, Norwalk, CT

prepared for

108 Water Street, LLC

issued on

June 13, 2025

Prepared by Redniss & Mead, Inc.

Table of Contents

Orientation Map 1

I. INTRODUCTION
Property Description 2
Nature of Flooding 2

II. FLOOD PREPAREDNESS
Awareness and Preparedness 3
Flood Warning Procedure 3

III. LIMITATIONS 4

FIGURES

Figure 1 FEMA Firmette

Figure 2 Flood Inundation Exhibit

Orientation Map

I. INTRODUCTION

Property Description

108 Water Street is located on the east side of Water Street, adjacent to the intersection of Water Street and Hanford Place. The property abuts the Norwalk Harbor along its eastern property line. The proposed improvements include removing the existing buildings and replacing them with a new 4 ½ - story mixed-use building, a boardwalk, a new bulkhead, and boat slips.

This Flood Preparedness Plan is provided to alert the owners, management personnel, residents, and tenants of 108 Water Street as to the nature of potential flooding on and around the property, to provide information to facilitate awareness and preparedness, and to outline a plan so that people can safely relocate their vehicles before a severe flood.

Nature of Flooding

The site falls within coastal regulatory flood zones AE (AE-12) and VE (VE-14) as depicted on the Federal Emergency Management Agency – Flood Insurance Map Community No. 090012 Panel 531 Suffix G, effective date July 8, 2013. The Mean High Water surface of the Norwalk Harbor fronting the site is elevation 3.3 based on the NAVD-88 Datum. The Base Flood Elevation (BFE) is 12.0 pursuant to the FEMA FIRM map. The Base Flood Elevation refers to the water surface elevation of the Norwalk Harbor during the 100-year storm as related to the referenced datum. This event, which is severe and infrequent, is defined as having a 1% chance of occurring in any given year. The nature and severity of flooding can vary depending on several factors, so the above information is provided as a general guide. Coastal flooding of this magnitude is caused by one or more of the following events: storm surge (associated with hurricanes, tropical storms, or nor'easters), high tides, heavy rainfall, or strong winds. The primary driver of storm surges in this area is wind, during strong weather systems, pushing water into Long Island Sound and up Norwalk Harbor.

The proposed building is elevated above surface parking, with occupied areas and critical mechanical and electrical systems set at least 2' above the BFE as required by the Zoning Regulations; the first-floor elevation for commercial floor areas is set to elevation 14.0, with office floor areas set to elevation 19.0. The lowest residential unit floor level is set at elevation 34.0 which is elevated well above the 12.0 Base Flood Elevation. The lower parking level, however, is below the BFE, at elevation 9.0, and is likely to experience flooding during a 100-year storm. With this in mind, the building is designed in accordance with local and federal requirements. Refer to the Flood Inundation Exhibit for a depiction of the portions of the site that will be subject to flooding during the 100-year Base Flood Event.

II. FLOOD PREPAREDNESS

Awareness and Preparedness

The key to effectively reducing threats to public health and safety in flood prone areas is public awareness. Accordingly, the following is a list of suggestions to be best prepared in the event a flood

emergency occurs:

- Residents and tenants shall be made aware of the potential for flooding and impacted parking spaces and be provided with a copy of this Flood Preparedness Plan.

- Residents, tenants, and management personnel shall periodically review the guidelines outlined in this Flood Preparedness Plan.

- Permanent signage shall be maintained in the affected parking and building access (stairs and elevators) areas noting the flood risk.

Responsibilities

It is the responsibility of both the residents, tenants, and building management to monitor weather conditions and prepare for flooding. It is the responsibility of residents and building management personnel to register with the City of Norwalk Everbridge Emergency Notification System (see next section). When information related to flood warnings or observations is received, building management shall disseminate such information to residents promptly. It is the responsibility of residents to take action to relocate their vehicle(s).

Flood Warning Procedure

Residents, tenants, and building management shall maintain a careful watch on conditions when storm surges or coastal flooding are predicted. Emergency information is distributed through the City of Norwalk Everbridge Emergency Notification System. Residents can sign up for Everbridge at the following website: https://member.everbridge.net/77895137493012/new. Per the City's website, messages are generally distributed when emergency conditions exist or to update residents regarding important information after significant storms. To receive additional information residents can visit the City website or follow the City of Norwalk Office of Emergency Management on X or Facebook. Any of the above-mentioned resources shall be used while also checking other local news sources and monitoring other emergency communications (see list below).

Conditions shall be monitored by building management and information disseminated by management via email, text or posted notices.

Coastal Flood Watch, Coastal Flod Advisory, and Coastal Flood Warnings are issued by the National Weather Service. These warnings shall be heeded by residents. Residents can monitor weather conditions via weather websites like weather.com, accuweather.com, and the National Weather Service, especially when hurricanes, tropical storms, and nor'easters are predicted.

The following broadcast and internet-based sources shall be monitored during severe rainfall events for information regarding current flooding conditions:

Radio:	WSTC	(1400 AM)
	WGCH	(1490 AM)

	Fox Radio	(95.9 FM)
	WNLK	(1350 AM)
Television:	News 12 Connecticut	(Channel 12)
	WTNH Channel 8	(Channel 8)
Website:	City of Norwalk	https://www.norwalkct.gov/
	The Weather Channel	https://weather.com
	AccuWeather	https://www.accuweather.com
	National Weather Service	https://www.weather.gov/

If coastal floods are predicted or imminent, residents of the building may be advised to take certain action which may include the following:

- Make sure there are no vehicles in front of the building or within the access drive that may impede emergency access or residents relocating their vehicles.

- Move cars parked in the floodplain to higher ground. This may include tandem or stacked parking in the upper garage level or movement to a public parking garage or lot in Norwalk (i.e. South Norwalk Train Station, Haviland Parking Lot, Maritime Garage, Webster Street Lot, Yankee Doodle Garage, the SoNo Collection, etc.).

In the event of a flood, residents and management are reminded to:

- Follow instructions given by public safety officials.

- Do not walk through flowing water. Most drownings occur during flash floods. Six inches of swiftly moving water can knock you off your feet.

- Remember the phrase "Turn Around, Don't Drown!" Don't drive through flooded roads. Cars can be swept away in only one foot of moving water. If your vehicle is trapped in rapidly moving water, stay in the vehicle. If the water is rising inside the vehicle, seek refuge on the roof.

- Do not drive around road barriers. Roads and bridges may be washed out or structurally unsound.

- If flood conditions obstruct the routes to available public parking, drive towards higher ground and find a safe location to stop.

- Stay away from downed utility wires. Always assume a downed power line is live. Electrocution is also a danger in floods as electrical currents can travel through water.

In the event of a flooding emergency, residents and management are encouraged to call 911 to receive

assistance from City of Norwalk Emergency Services. For building related issues during a flood emergency, residents are encouraged to call building management or maintenance.

Definitions

- **Coastal Flood Advisory:** This is issued when minor or nuisance coastal flooding is occurring or imminent. It's a "be aware" message, suggesting that residents should be cautious and monitor the situation.

- **Coastal Flood Watch:** This indicates the potential for moderate to major coastal flooding in the watch area. It's a "get ready" message, meaning residents should be prepared to take action if a warning is issued.

- **Coastal Flood Warning:** This is the most serious level, indicating that moderate to major coastal flooding is occurring or is expected to occur soon. It's a "take action" message, prompting residents to move to higher ground and protect their property.

III. LIMITATIONS:

There are limitations to any flood warning system. These shall be understood by those operating the system and people relying on them. Some of those limitations are described below:

- Rain and thunderstorms can produce intermittent and localized rainfalls with varying intensities. Therefore, it is often difficult to predict the time and depth of street flooding.

- Flood depths and flood flow paths are unpredictable. Bridges or other natural stream constrictions may become blocked with debris and divert flows. New channels and directions of flow may develop.

- An important limitation to consider is flood preparedness planning and enactment depends on adequate forewarning and notice and the actions of individuals. Forewarning may not be available or provided in every case.

- Proper education of owners, management personnel, and residents along with proper planning, can reduce the potential for flood damage and unsafe actions.

- Vehicle evacuation procedures carried out for a storm for which there is no significant flooding to warrant the evacuation may result in lax attentiveness during subsequent flood warnings. Continued education can mitigate this response.

108 WATER STREET DEVELOPMENT

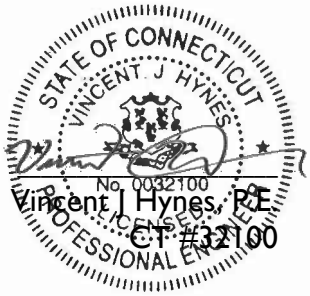
SITE ENGINEERING REPORT

Prepared For
108 Water Street LLC c/o Spinnaker Real Estate Partners
108 Water Street
Norwalk, CT

Prepared by
Redniss & Mead, Inc.
22 First Street
Stamford, CT
(203) 327-0500

Issued on:

June 13, 2025



Vincent J Hynes, P.E.
CT #32100

TABLE OF CONTENTS

Orientation.....1

Drainage Narrative.....2

Sanitary Sewer Narrative.....6

APPENDICES

Drainage:

Appendix 1: Existing and Proposed Drainage Basin Exhibits

Appendix 2: Existing & Proposed On-Site Hydraulic Data
Proposed Conveyance Exhibit and Calculations

Appendix 3: HydroCAD Report

Appendix 4: Rainfall Intensity Data, Exfiltration Rate Data, Vegetated Roofs Adjusted CN Values, & NRCS Web Soil Survey

Appendix 5: FEMA Flood Insurance Map
USGS Topographic Quad Map

Appendix 6: Draft Stormwater Operations and Maintenance Plan

Tide and Sea Level Data:

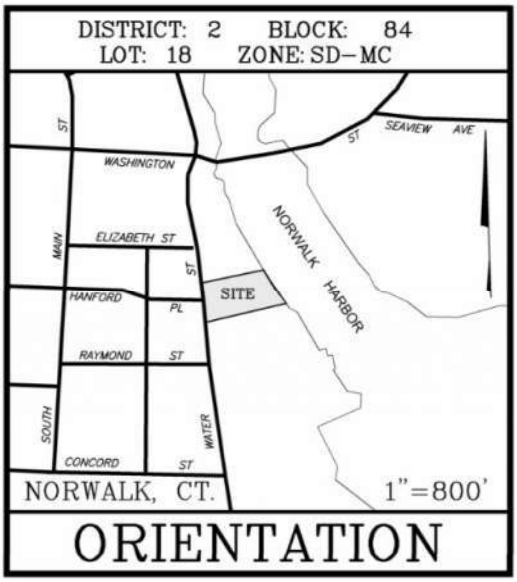
Appendix 7: Drainage Infrastructure Exhibit
Exhibit depicting Surface Elevations, South Norwalk

Sanitary Sewer:

Appendix 8: Sanitary Sewer Exhibit and Analysis

Appendix 9: Flow Assessment Site Information Field Log (03/10/2021)

ORIENTATION



DRAINAGE SUMMARY NARRATIVE

Introduction

The applicant is proposing to redevelop the property located at 108 Water Street in Norwalk, CT. The redevelopment includes demolition of existing site features including buildings, walkways, and parking areas (paved and gravel) and the construction of a new four and one-half-story mixed-use structure with covered parking, a rooftop courtyard (on the 3rd floor), and boat slips, public amenities, and associated site improvements. The proposed mixed-use building will consist of 59 residential units, 110,900± sf of office floor area, 3,440± sf of personal service business area, 3,820± sf of restaurant floor area, and 2,250± sf of marine supply store floor area. There will be a total of 249 parking spaces and 14 boat slips.

The site is approximately 2.72 acres (to Mean High Water) and is bounded by Water Street to the west, commercial and mixed-use developments to the north and south, and the Norwalk Harbor to the east. The site lies within the SD-MC zoning district and the Coastal Area Management Boundary. The site is located within the regulatory flood hazard boundary (Zone AE-12 and Zone VE-14) as established by FEMA and depicted on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 09001C0531G dated July 8, 2013. This report compares existing site characteristics and proposed site development and the effect on the storm water drainage system. Reference is made to the accompanying site development plans prepared by Redniss & Mead, Inc.

Existing Conditions

The site is approximately 2.72 acres and is currently developed with five single-story buildings servicing marine uses, and an at-grade parking lot consisting of both paved and compacted dirt/gravel surfaces. No notable green area exists on the site and there are no formal drainage systems in place. Although a portion of the site stormwater runoff is tributary to City stormwater infrastructure within Water Street, the whole site is ultimately tributary to the Norwalk Harbor; the city storm drain discharges to the harbor via drainage easement at 130 Water Street. As such, this report focuses on the comparison of runoff characteristics to the Harbor.

The portion of the site tributary to Water Street (West Basin) consists of 89,640± sf of area of which 21,200± sf if building or paved parking and the remainder is compacted gravel/dirt surfaces. The remainder of the site, which flows toward the Harbor (East Basin) consists of 28,960± sf of area of which 3,005± sf is building or hardscape and 25,950± is compacted gravel/dirt surface. The compacted gravel/dirt surfaces have been included as impervious area. Refer to appendix I for the Existing Conditions Drainage Basin Map.

Proposed Conditions

The developer is seeking approval to construct a new four and one-half story mixed-use structure with covered parking and a rooftop courtyard (on the 3rd floor) and associated site improvements. Work includes reconstruction of an existing bulkhead, construction of a boardwalk with public access from Water Street, and construction of boat slips. It is proposed to decrease impervious coverage by approximately 12,090 sf as part of the property redevelopment. For the purposes of water

quality and groundwater recharge volume calculations, areas of green roof, permeable walk surfaces, and the open jointed boardwalk have been counted as impervious coverage; these surfaces are pervious for zoning purposes. A piped discharge to the harbor is proposed for conveyance of the on-site stormwater infrastructure; this pipe will discharge at the bulkhead and will include a backflow preventer. Water Quality improvements are provided, and peak rates of runoff will be reduced to the city infrastructure and to the harbor. Reference is made to the site and utility plans prepared by Redniss & Mead, Inc. and to the Proposed Conditions Drainage Basin Map within appendix I.

The tributary area to the west basin is reduced by approximately 53,160 sf in proposed conditions. As such, the peak rates of runoff and volume tributary to the storm drains in Water Street are reduced and emphasis is placed on water quality within the basin via permeable and infiltration systems.

The tributary area of the west basin is split into four sub-basins: Infiltration #1, Permeable Paver 1, Permeable Paver 6, and West Bypass. The permeable system basins consist of public amenity sidewalk area that will be comprised of a bonded aggregate pavement surface with crushed stone below (total tributary area to the combined permeable systems = 990 sf); each system will consist of a 12" minimum profile of bonded aggregate and crushed stone (reference is made to site plan sheet SE-8 for the corresponding details). The permeable systems have been sized to treat the tributary water quality volume (102 cf combined requirement; 156 cf combined provided) and will overflow toward the Water Street drainage infrastructure. The bypass basin will consist of the public sidewalk along the property frontage where stormwater runoff will flow into Water Street (total bypass area = 5,160 sf).

The infiltration #1 basin will consist of building roof area for the residential portion of the building and portions of the driveway ramps (total tributary area = 30,322 sf). The areas will be collected and will discharge to an underground infiltration system consisting of 39 ADS Stormtech SC-800 chambers and corresponding crushed stone. The system is metered via a meter manhole device with a weir wall set at elevation 7.0, which allows 3,137 cf of runoff to be treated prior to discharge into the Water Street stormwater infrastructure (3,121 cf required for 100% WQV).

The east basin is split into ten sub-basins: Infiltration #2, eight Permeable Paver basins, and the East Bypass. The bypass basin consists of bonded aggregate walking surfaces, the public boardwalk, and landscaped areas (total tributary area = 20,270± sf). The bypass area will either sheet flow directly to the harbor or be collected by area drains and piped to the proposed discharge to the harbor.

The Permeable Paver basins consist of public amenity sidewalk area that will be comprised of a bonded aggregate pavement surface with crushed stone below (total tributary area to the combined permeable systems = 6,330 sf); each system will consist of a 12" minimum profile of bonded aggregate and crushed stone and an overflow area drain (reference is made to site plan sheet SE-8 for the corresponding details). The permeable systems have been sized to treat the tributary water quality volume (652 cf combined requirement; 1,411 cf combined provided) and the overflow drains are piped to the proposed discharge to the harbor.

The infiltration #2 basin will consist of the remainder of building roof area (office buildings, courtyard space, and green roof areas - total tributary area = 55,520 sf). The roof area will discharge to an underground infiltration system consisting of 63 ADS Stormtech SC-800 chambers and corresponding crushed stone. The system is metered via a meter manhole devise with a weir wall set at elevation 7.2,

which allows 4,710 cf of runoff to be treated prior to discharge into the Water Street stormwater infrastructure (4,515 cf required for 100% WQV).

Calculations were prepared using the methodologies provided in Technical Release 55: Urban Hydrology for Small Watersheds, published by the United States Department of Agriculture National Resources Conservation Service and HydroCAD software. Note that the rainfall rates used are based upon the National Oceanic and Atmospheric Administration (NOAA) National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server (PFDS) for the area. The following tables depict the existing and proposed peak flows leaving the west basin and the corresponding totals tributary to Norwalk Harbor and their associated runoff volumes:

Table 1: Peak Rates of Runoff

		West Basin (Tributary to City Infrastructure) Peak Flow (cfs)				Site Total (Tributary to Norwalk Harbor) Peak Flows (cfs)			
Return Period (yrs)	Rainfall Rates (in)	Ex	Pr	Change	% Change	Ex	Pr	Change	% Change
2	3.49	6.23	2.79	-3.44	-55.2%	8.17	8.17	0.00	0.0%
5	4.50	8.47	3.64	-4.83	-57.0%	11.13	10.88	-0.25	-2.2%
10	5.33	10.29	4.33	-5.96	-57.9%	13.55	13.09	-0.46	-3.4%
25	6.48	12.81	5.38	-7.43	-58.0%	16.88	16.23	-0.65	-3.9%
50	7.34	14.67	6.11	-8.56	-58.4%	19.35	18.57	-0.78	-4.0%
100	8.26	16.66	6.89	-9.77	-58.6%	21.99	21.36	-0.63	-2.9%

Table 2: Runoff Volumes

		West Basin (Tributary to City Infrastructure) Runoff Volume (cf)				Site Total (Tributary to Norwalk Harbor) Runoff Volume (cf)			
Return Period (yrs)	Rainfall Rates (in)	Ex	Pr	Change	% Change	Ex	Pr	Change	% Change
2	3.49	18,986	6,307	-12,679	-66.8%	24,850	18,991	-5,859	-23.6%
5	4.50	26,208	9,292	-16,916	-64.5%	34,379	28,139	-6,240	-18.2%
10	5.33	32,222	11,761	-20,461	-63.5%	42,319	35,731	-6,588	-15.6%
25	6.48	40,623	15,188	-25,435	-62.6%	53,417	46,395	-7,022	-13.1%
50	7.34	46,939	17,765	-29,174	-62.2%	61,765	54,459	-7,306	-11.8%
100	8.26	53,718	20,525	-33,193	-61.8%	70,725	63,113	-7,612	-10.8%

Water Quality:

The water quality from the proposed development will be improved as compared to existing conditions. This is accomplished as follows:

1. A majority of the proposed parking will be covered with those surfaces not exposed to rainfall and associated runoff. Should any drains be installed within the areas of covered parking, they will be tributary to an oil/grit separator prior to discharging into the sanitary sewer system.
2. Infiltration systems are proposed to collect about 70% of the disturbed impervious coverage. The overflow elevation is set to provide 100% of the tributary water quality volume. In addition, various rooftop areas will consist of green roof trays or other planting trays consisting of at least 6" of soil depth which provides water quality treatment for the tributary area.
3. Permeable walkways with crushed stone reservoirs below are proposed for the public access walkways from Water Street to the waterside boardwalk. In total, between infiltration systems and permeable walkways, approximately 79% of the site area runoff is treated.
4. A detailed Sediment and Erosion Control Plan, including a system of controls both temporary and permanent, is designed to minimize erosion, and contain and properly dispose of any accumulation of sediment during construction.

Water Street Drainage

There are several low points (as low as elevation 4.55) in Water Street along and nearby the site frontage between Elizabeth Street and Raymond Street. These low points are known to pool water during spring (monthly) and king (annual) tides, and minor and major coastal storm surges. By establishing a new outfall to the Norwalk Harbor, the proposal significantly reduces the rate (-55%) and volume (-60%) of stormwater runoff tributary to the receiving storm drains in Water Street thereby easing the burden on that system during intense rainfall events. Whereas this is a positive impact during rain events, it will not materially change the ponding that occurs directly related to tides and surges.

The City of Norwalk commissioned a study exploring solutions to such occurrences in a report titled "Resilient South Norwalk", prepared by AECOM and dated November 30, 2023. This report lists a series of potential tools for limiting the tidal surcharge impact on the area. One area of focus recommends elevating sections of Water Street and thereby significantly reducing both the frequency and depth of such floods. No one property owner can achieve such a result as it will take a coordinated effort between the city and dozens of property owners. However, the proposed application has taken these recommendations into account. The proposed garage level is at the same elevation (9) as is recommended for the roadway elevation in the AECOM report. Additionally, the two lobbies along Water Street are being designed such that they could be elevated in the future should the city move forward with the roadwork (e.g. double height spaces, superstructure design, etc.).

One option that could be employed in the near term by the city to provide relief to the nuisance conditions related to the spring and king tides is to place a backflow preventer on the Water Street outlet pipe discharging to the harbor at 130 Water Street. This would alleviate surcharges in the city storm drain system and limit surcharges into low-lying areas. This could provide up to an eighteen-inch (18") benefit, keeping Water Street dry during spring and king tides, and minor surges up to elevation 6.05 or so.

Conclusion:

Based on the above information and with proper implementation of the design drawings and proper sediment and erosion controls, the proposed development will not adversely impact adjacent or downstream properties or City owned drainage facilities. Furthermore, water quality will be significantly improved with the installation of the infiltration systems, reduction in uncovered parking, and landscaping improvements.

SANITARY SEWER SUMMARY

The applicant is proposing to redevelop the property located at 108 Water Street in Norwalk, CT. The redevelopment includes demolition of existing site features including buildings, walkways, and parking areas (paved and gravel) and the construction of a new four and one-half-story mixed-use structure with covered parking, a rooftop courtyard (on the 3rd floor), and boat slips, public amenities, and associated site improvements. The proposed mixed-use building will consist of 59 residential units, 110,900± sf of office floor area, 3,440± sf of personal service business floor area, 3,820± sf of restaurant floor area, and 2,250± sf of marine supply floor area. Reference is made to the accompanying site & utility plans prepared by Redniss & Mead, Inc.

Existing City-owned sanitary sewer infrastructure exists within Water Street and consists of sanitary manholes and a 48" sewer. The sewer main flows to the north and transitions to a 54" sewer at North Water Street. Based upon the usage assumptions provided in Appendix 7, the existing conditions total daily flow tributary to the sewer is approximately 410 GPD (peak flow = 0.003 cfs).

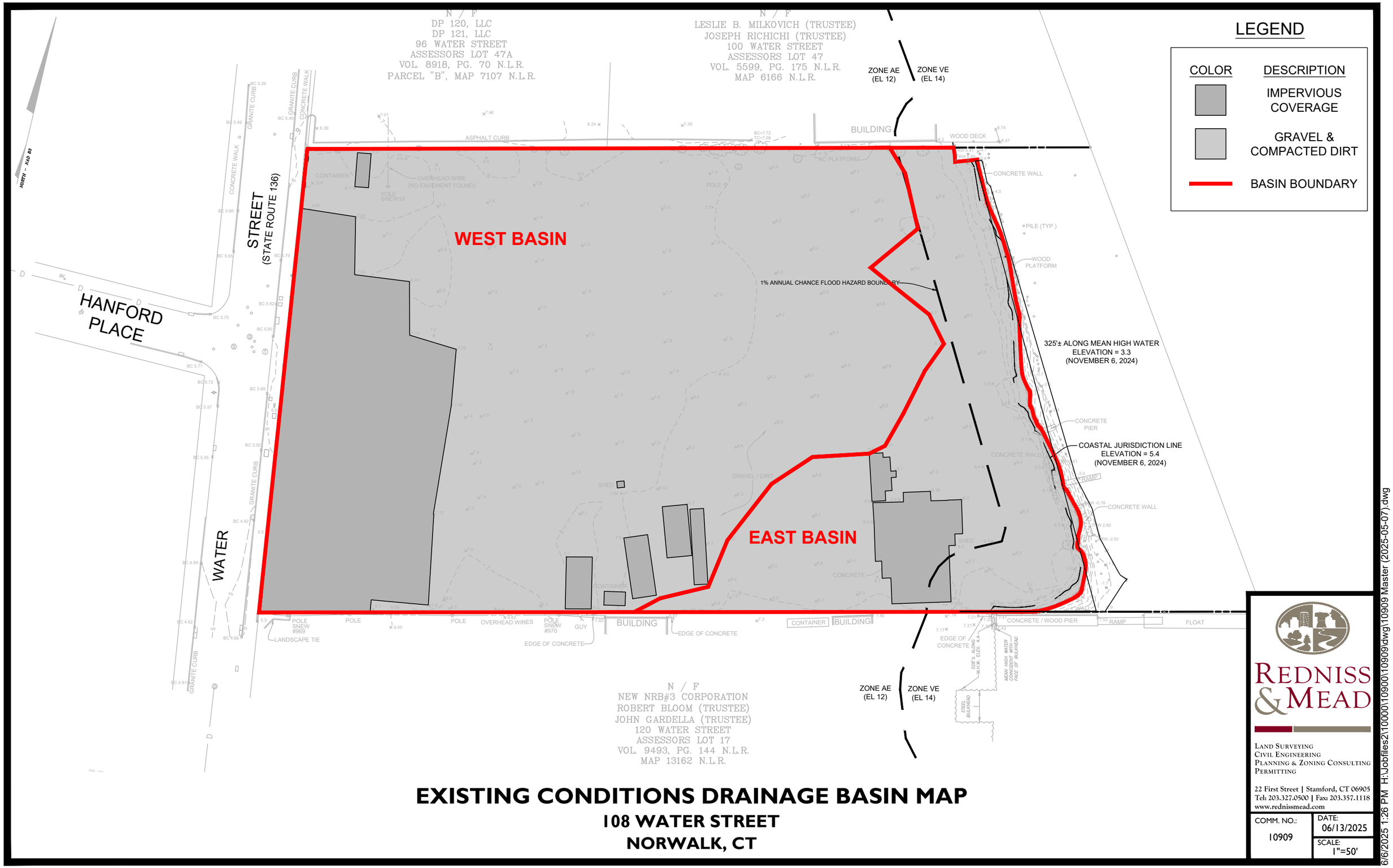
Under proposed conditions, the developer is seeking permission to construct a new four and one-half-story building with 59 residential units (25 one-bed units, 17 two-bed units, 13 three-bed units and 4 four-bed units), 110,900± sf of office floor area, 3,440± sf of personal service area, 3,820± sf of restaurant floor area, and 2,250± sf of water related floor area. It is proposed to connect the new building to the Water Street sewer main with a new sewer lateral; the existing sanitary sewer lateral(s) are to be removed in accordance with WPCA requirements. Using the CT Health Code guidelines, the proposed structure and usage of the site would result in a total average daily sewage flow of 34,496 GPD. Using a peak factor of 4, the peak sewage flow is 0.214 cfs (cubic feet per second). This represents a net increase in peak flow to the Water Street system of 0.211 cfs.

In addition to the above referenced analysis, flow monitoring data was provided by Norwalk WPCA based on a flow monitoring location of WPCA Manhole #15-1 in North Water Street; refer to appendix 8 for information provided by WPCA. The dates of the monitoring were 3/11/2021 to 8/24/2021 and the peak flow during that time period was 14.784 mgd (27.47 cfs).

Based upon the above and attached calculations, under proposed conditions the sewer system within Water Street operates at approximately 50% of the total capacity; this is conservative as the flows north of the site were not removed from the calculation. Refer to Appendix 7 for a Sanitary Sewer Connection Exhibit, the proposed sanitary flow assumptions, and pipe capacity calculations.

Based on the above information, it is our opinion the City owned sanitary sewer system has sufficient capacity to accommodate the proposed development, and with proper implementation of the design drawings, the proposed development will not adversely impact the existing sanitary sewer system.

Appendix 1



EXISTING CONDITIONS DRAINAGE BASIN MAP

108 WATER STREET

NORWALK, CT

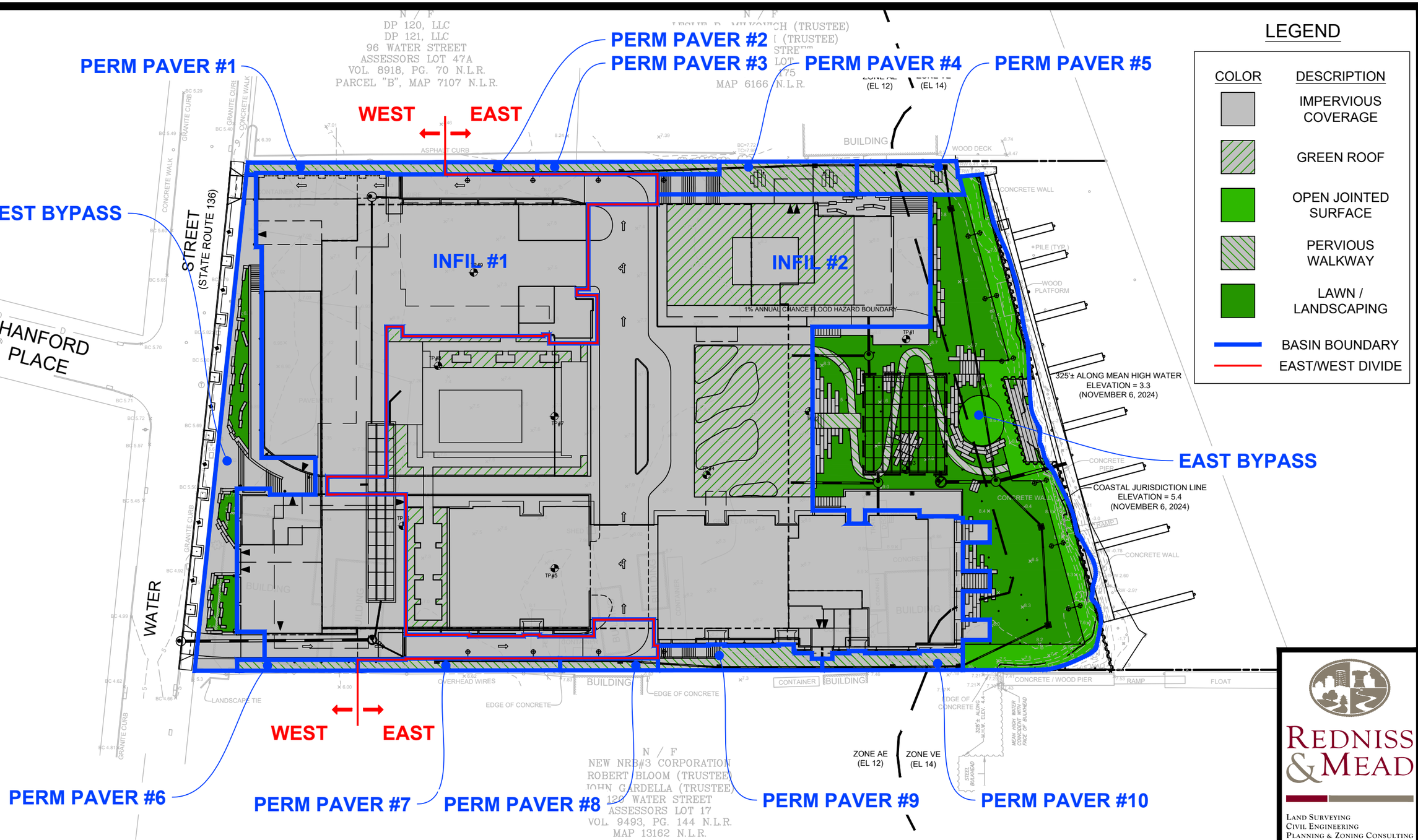
REDNISS & MEAD

LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING

22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax: 203.357.1118
www.rednissmead.com

COMM. NO.:	DATE:
10909	06/13/2025
	SCALE: 1"=50'

6/6/2025 1:26 PM H:\Jobfiles2\10000\10900\10909\dwg\10909 Master (2025-05-07).dwg



LEGEND

COLOR	DESCRIPTION
	IMPERVIOUS COVERAGE
	GREEN ROOF
	OPEN JOINTED SURFACE
	PERVIOUS WALKWAY
	LAWN / LANDSCAPING
	BASIN BOUNDARY
	EAST/WEST DIVIDE

PROPOSED CONDITIONS DRAINAGE BASIN MAP

108 WATER STREET

NORWALK, CT

REDNISS & MEAD

LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING

22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax: 203.357.1118
www.rednissmead.com

COMM. NO.:	DATE:
10909	06/13/2025
	SCALE: 1"=50'

6/6/2025 1:37 PM H:\Jobfiles2\10000\10900\10909\dwg\10909 Master (2025-05-07).dwg

Appendix 2

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Infiltration System #1 Basin

Area=	0.696	acres
Impervious Area=	0.696	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.072	ac. ft. [c]

WQV=	**3,121**	**ft.^{3}**
WQV PROVIDED=	**3,137.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Infiltration #1 below outlet elevation set to 7.00

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Infiltration System #2 Basin

Area=	1.007	acres*
Impervious Area=	1.007	acres*
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.104	ac. ft. [c]

WQV=	**4,515**	**ft.^{3}**
WQV PROVIDED=	**4,710.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Infiltration #2 below outlet elevation set to 7.20

* For the purposes of this calculation the green roof area was not included as the water quality volume for those areas is captured via green trays or soil mediums with depths greater than 4".

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #1 Basin

Area=	0.014	acres
Impervious Area=	0.014	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.001	ac. ft. [c]

WQV=	**64**	**ft.^{3}**
WQV PROVIDED=	**82.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #1 below outlet elevation set to 7.90

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #2 Basin

Area=	0.007	acres
Impervious Area=	0.007	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.001	ac. ft. [c]

WQV=	**33**	**ft.^{3}**
WQV PROVIDED=	**96.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #2 below outlet elevation set to 7.70

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #3 Basin

Area=	0.015	acres
Impervious Area=	0.015	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.002	ac. ft. [c]

WQV=	**66**	**ft.^{3}**
WQV PROVIDED=	**167.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #3 below outlet elevation set to 7.70

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #4 Basin

Area=	0.037	acres
Impervious Area=	0.037	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.004	ac. ft. [c]

WQV=	**167**	**ft.^{3}**
WQV PROVIDED=	**282.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #4 below outlet elevation set to 8.00

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #5 Basin

Area=	0.022	acres
Impervious Area=	0.022	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.002	ac. ft. [c]

WQV=	**99**	**ft.^{3}**
WQV PROVIDED=	**146.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #5 below outlet elevation set to 7.85

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #5 Basin

Area=	0.009	acres
Impervious Area=	0.009	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.001	ac. ft. [c]

WQV=	**38**	**ft.^{3}**
WQV PROVIDED=	**74.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #5 below outlet elevation set to 5.70

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #5 Basin

Area=	0.015	acres
Impervious Area=	0.015	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.002	ac. ft. [c]

WQV=	**69**	**ft.^{3}**
WQV PROVIDED=	**202.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #5 below outlet elevation set to 6.40

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #5 Basin

Area=	0.008	acres
Impervious Area=	0.008	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.001	ac. ft. [c]

WQV=	**34**	**ft.^{3}**
WQV PROVIDED=	**93.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #5 below outlet elevation set to 7.60

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #5 Basin

Area=	0.025	acres
Impervious Area=	0.025	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.003	ac. ft. [c]

WQV=	**111**	**ft.^{3}**
WQV PROVIDED=	**222.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #5 below outlet elevation set to 7.5

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Water Quality Volume Calculations

Project: *108 Water St*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *DML*	**Checked:** *VJH*

Perm Pavers #5 Basin

Area=	0.016	acres
Impervious Area=	0.016	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.002	ac. ft. [c]

WQV=	**72**	**ft.^{3}**
WQV PROVIDED=	**203.00**	**ft.^{3}** [d]

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[c] WQV=(1.3"xRxA)/12; Water Quality Volume, Equation taken from 2024 Connecticut Stormwater Quality Manual Chapter 4

[d] WQV provided by Permeable Pavers #5 below outlet elevation set to 7.45

[e] Although counted as pervious area for area calculations, the bonded aggregate walkway surfaces have been counted as impervious area for Water Quality calculation purposes.

Groundwater Recharge Volume Calculation

Project:	*108 Water Street*	**Project #:**	*10909*	**Date:**	*6/13/2025*
Location:	*Norwalk, CT*	**By:**	*VJH*	**Checked:**	*CJF*

Proposed Site

Total On-site Impervious Area (I) =	2.445 acres
NRCS Hydrologic Soil Group =	D [a]
Design Rainfall =	1.0 inches
Groundwater Recharge Depth (F) =	0.10 [b]

Groundwater Recharge Volume (GRV)=	**0.020 ac. ft.** [c]	**887.49 ft.^{3}**

[a] From Natural Resources Conservation Service

[b] Table 1-1 from the 2017 City of Norwalk Drainage Manual Section 1.4.4

[c] GRV = F x I from the 2017 City of Norwalk Drainage Manual Section 1.4.4

Note: As the GRV is lower than the Water Quality Volumes required for tributary area to the proposed infiltration systems, the systems are designed to infiltrate the larger volume.

Although counted as pervious area for area calculations, the bonded aggregate walking surfaces have been counted as impervious area for GRV and WQV calculation purposes.

HYDRAULIC DATA FOR RATIONAL METHOD

Project:	*108 Water Street*	**Project #:**	*10909*	**Date:**	*6/13/2025*
Location:	*Norwalk, CT*	**By:**	*VJH*	**Checked:**	*CJF*

25 Year Storm

Pipe From AD#1 to AD#2

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**					**5**	**8.60**	**0.00**

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)	Note
0.05	6	66	0.010	PVC	0.011	0.77	6.5%	0.25	Note: Flow Q in System = Hydrocad Inflow for Pr. PP#2 during 25-yr event.

Pipe From AD#2 to AD#3

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)	Note
0.15	6	102	0.010	PVC	0.010	0.73	20.5%	0.76	Note: Flow Q in System = Hydrocad Inflow for Pr. PP#3 during 25-yr event plus upstream flow.

Pipe From AD#3 to AD#4

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)	Note
0.40	6	43	0.010	PVC	0.010	0.73	54.7%	2.04	Note: Flow Q in System = Hydrocad Inflow for Pr. PP#4 during 25-yr event plus upstream flow.

Pipe From AD#4 to JB#1

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)	Note
0.55	6	22	0.010	PVC	0.011	0.77	71.7%	2.80	Note: Flow Q in System = Hydrocad Inflow for Pr. PP#5 during 25-yr event plus upstream flow.

Pipe From JB#1 to AD#4A

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)	Note
0.55	6	20	0.010	PVC	0.010	0.73	75.2%	2.80	Note: Flow Q in System = Upstream Flow

Pipe from AD#4A to MH#3

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
0.01	0.95	Impervious	0.01							
0.01	0.30	Pervious	0.00							
0.02		**Total**	**0.01**					**5**	**8.60**	**0.11**

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)	Note
0.66	8	143	0.010	PVC	0.010	1.58	41.7%	1.88	Note: Flow Q in System = Upstream Flow + new tributary area

HYDRAULIC DATA FOR RATIONAL METHOD

Project:	*108 Water Street*	**Project #:**	*10909*	**Date:**	*6/13/2025*
Location:	*Norwalk, CT*	**By:**	*VJH*	**Checked:**	*CJF*

25 Year Storm

Pipe From AD#5 to AD#6

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
0.10	6	96	0.010	PVC	0.010	0.73	13.7%	0.51

Note: Flow Q in System = Hydrocad Inflow for Pr. PP#7 during 25-yr event.

Pipe From AD#6 To AD#7

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
0.15	6	52	0.010	PVC	0.011	0.77	19.6%	0.76

Note: Flow Q in System = Hydrocad Inflow for Pr. PP#8 during 25-yr event plus upstream flow.

Pipe From AD#7 to AD#8

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
0.31	6	91	0.010	PVC	0.010	0.73	42.4%	1.58

Note: Flow Q in System = Hydrocad Inflow for Pr. PP#9 during 25-yr event plus upstream flow.

Pipe From AD#8 to JB#2

Basin				Drainage				Time (min)	Rainfall	Q = ACI
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description			
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
0.42	6	34	0.010	PVC	0.012	0.80	52.4%	2.14

Note: Flow Q in System = Hydrocad Inflow for Pr. PP#10 during 25-yr event plus upstream flow.

Pipe From JB#2 to AD#9

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
0.000	0.95	Impervious	0.00							
0.000	0.30	Pervious	0.00							
0.00		**Total**	**0.00**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
0.42	6	50	0.010	PVC	0.010	0.73	57.4%	2.14

Note: Flow Q in System = Upstream Flow

Pipe from AD#9 to AD#10

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
0.091	0.95	Impervious	0.086							
0.002	0.30	Pervious	0.001							
0.092		**Total**	**0.087**					**5**	**8.60**	**0.74**

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
1.16	8	50	0.010	PVC	0.010	1.58	73.9%	3.34

Note: Flow Q in System = Tributary Sheet Flow + Upstream Flow

HYDRAULIC DATA FOR RATIONAL METHOD

Project:	*108 Water Street*	**Project #:**	*10909*	**Date:**	*6/13/2025*
Location:	*Norwalk, CT*	**By:**	*VJH*	**Checked:**	*CJF*

25 Year Storm

Pipe From AD#10 to MH#3

Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
0.150	0.95	Impervious	0.143							
0.000	0.30	Pervious	0.000							
0.150		**Total**	**0.143**					**5**	**8.60**	**1.23**

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
2.39	12	30	0.010	PVC	0.010	4.64	51.5%	3.04

Note: Flow Q in System = Tributary Sheet Flow + Upstream Flow

Pipe From MH#3 to inv.=-1.70

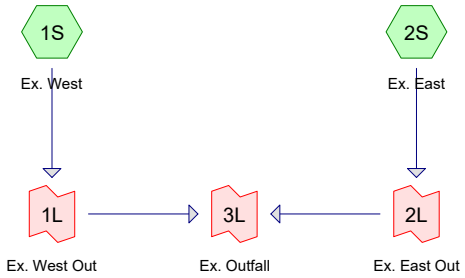
Basin Description				Drainage Path					25yr. Rainfall Intensity (in/hr)	Q = ACI (cfs)
Acres	C	Description	AC	Length (ft)	ΔH	Slope (%)	Description	Time (min)		
	0.95	Impervious	0.000							
	0.30	Pervious	0.000							
0.000		**Total**	**0.000**							

Q in system (cfs)	Pipe Size (in)	Pipe Length (ft)	Roughness coefficient	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{system} / Q_{full} (%)	Velocity (ft/s)
3.05	15	36	0.010	PVC	0.011	8.83	34.5%	2.48

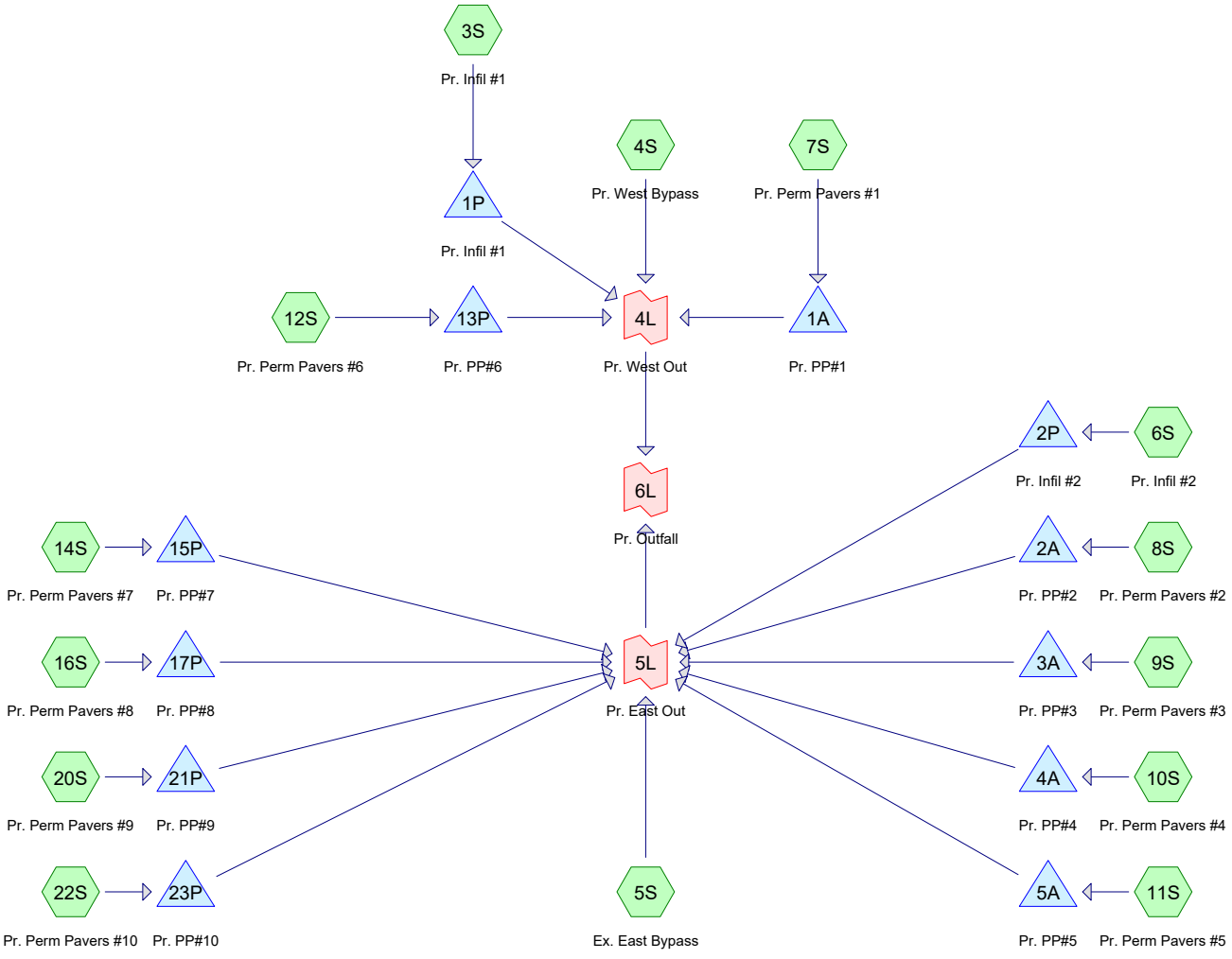
Note: Flow Q in System = Upstream flow

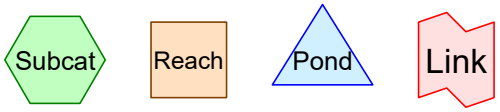
Appendix 3

EXISTING CONDITIONS



PROPOSED CONDITIONS





Routing Diagram for 10909 HydroCAD
Prepared by Redniss & Mead, Inc, Printed 6/6/2025
HydroCAD® 10.20-6a s/n 08721 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.49	2
2	5-Year	Type III 24-hr		Default	24.00	1	4.50	2
3	10-Year	Type III 24-hr		Default	24.00	1	5.33	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.48	2
5	50-Year	Type III 24-hr		Default	24.00	1	7.34	2
6	100-Year	Type III 24-hr		Default	24.00	1	8.26	2

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Ex. West Runoff Area=89,636 sf 23.65% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=91.13 Runoff=6.23 cfs 18,986 cf

Subcatchment2S: Ex. East Runoff Area=28,958 sf 10.38% Impervious Runoff Depth>2.43"
Tc=5.0 min CN=89.93 Runoff=1.94 cfs 5,864 cf

Subcatchment3S: Pr. Infil #1 Runoff Area=30,322 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=2.45 cfs 8,223 cf

Subcatchment4S: Pr. West Bypass Runoff Area=5,159 sf 79.43% Impervious Runoff Depth>2.85"
Tc=5.0 min CN=94.30 Runoff=0.39 cfs 1,227 cf

Subcatchment5S: Ex. East Bypass Runoff Area=20,268 sf 21.08% Impervious Runoff Depth>2.10"
Tc=5.0 min CN=86.15 Runoff=1.19 cfs 3,547 cf

Subcatchment6S: Pr. Infil #2 Runoff Area=55,520 sf 79.02% Impervious Runoff Depth>3.02"
Tc=5.0 min CN=95.90 Runoff=4.35 cfs 13,984 cf

Subcatchment7S: Pr. Perm Pavers #1 Runoff Area=618 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.05 cfs 168 cf

Subcatchment8S: Pr. Perm Pavers #2 Runoff Area=321 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.03 cfs 87 cf

Subcatchment9S: Pr. Perm Pavers #3 Runoff Area=643 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.05 cfs 174 cf

Subcatchment10S: Pr. Perm Pavers #4 Runoff Area=1,625 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.13 cfs 441 cf

Subcatchment11S: Pr. Perm Pavers #5 Runoff Area=961 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.08 cfs 261 cf

Subcatchment12S: Pr. Perm Pavers #6 Runoff Area=372 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.03 cfs 101 cf

Subcatchment14S: Pr. Perm Pavers #7 Runoff Area=673 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.05 cfs 183 cf

Subcatchment16S: Pr. Perm Pavers #8 Runoff Area=333 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.03 cfs 90 cf

Subcatchment20S: Pr. Perm Pavers #9 Runoff Area=1,080 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.09 cfs 293 cf

Subcatchment22S: Pr. Perm Pavers #10 Runoff Area=699 sf 100.00% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 190 cf

Pond 1A: Pr. PP#1 Peak Elev=5.89' Storage=71 cf Inflow=0.05 cfs 168 cf
Discarded=0.00 cfs 166 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 166 cf

Pond 1P: Pr. Infil #1 Peak Elev=7.30' Storage=3,322 cf Inflow=2.45 cfs 8,223 cf
Outflow=2.41 cfs 5,080 cf

Pond 2A: Pr. PP#2 Peak Elev=7.36' Storage=27 cf Inflow=0.03 cfs 87 cf
Discarded=0.01 cfs 87 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 87 cf

Pond 2P: Pr. Infil #2 Peak Elev=7.73' Storage=5,274 cf Inflow=4.35 cfs 13,984 cf
Outflow=4.21 cfs 9,136 cf

Pond 3A: Pr. PP#3 Peak Elev=7.26' Storage=58 cf Inflow=0.05 cfs 174 cf
Discarded=0.01 cfs 174 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 174 cf

Pond 4A: Pr. PP#4 Peak Elev=7.73' Storage=161 cf Inflow=0.13 cfs 441 cf
Discarded=0.02 cfs 440 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 440 cf

Pond 5A: Pr. PP#5 Peak Elev=7.70' Storage=95 cf Inflow=0.08 cfs 261 cf
Discarded=0.01 cfs 260 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 260 cf

Pond 13P: Pr. PP#6 Peak Elev=5.38' Storage=35 cf Inflow=0.03 cfs 101 cf
Discarded=0.01 cfs 101 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 101 cf

Pond 15P: Pr. PP#7 Peak Elev=5.56' Storage=42 cf Inflow=0.05 cfs 183 cf
Discarded=0.01 cfs 182 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 182 cf

Pond 17P: Pr. PP#8 Peak Elev=7.11' Storage=29 cf Inflow=0.03 cfs 90 cf
Discarded=0.01 cfs 90 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 90 cf

Pond 21P: Pr. PP#9 Peak Elev=7.15' Storage=102 cf Inflow=0.09 cfs 293 cf
Discarded=0.01 cfs 293 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 293 cf

Pond 23P: Pr. PP#10 Peak Elev=6.93' Storage=60 cf Inflow=0.06 cfs 190 cf
Discarded=0.01 cfs 189 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 189 cf

Link 1L: Ex. West Out Inflow=6.23 cfs 18,986 cf
Primary=6.23 cfs 18,986 cf

Link 2L: Ex. East Out Inflow=1.94 cfs 5,864 cf
Primary=1.94 cfs 5,864 cf

Link 3L: Ex. Outfall Inflow=8.17 cfs 24,850 cf
Primary=8.17 cfs 24,850 cf

Link 4L: Pr. West Out Inflow=2.79 cfs 6,307 cf
Primary=2.79 cfs 6,307 cf

Link 5L: Pr. East Out Inflow=5.38 cfs 12,683 cf
Primary=5.38 cfs 12,683 cf

Link 6L: Pr. Outfall Inflow=8.17 cfs 18,991 cf
Primary=8.17 cfs 18,991 cf

Total Runoff Area = 237,188 sf Runoff Volume = 53,817 cf Average Runoff Depth = 2.72"
51.90% Pervious = 123,091 sf 48.10% Impervious = 114,097 sf

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Ex. West Runoff Area=89,636 sf 23.65% Impervious Runoff Depth>3.51"
Tc=5.0 min CN=91.13 Runoff=8.47 cfs 26,208 cf

Subcatchment2S: Ex. East Runoff Area=28,958 sf 10.38% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=89.93 Runoff=2.66 cfs 8,171 cf

Subcatchment3S: Pr. Infil #1 Runoff Area=30,322 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=3.17 cfs 10,767 cf

Subcatchment4S: Pr. West Bypass Runoff Area=5,159 sf 79.43% Impervious Runoff Depth>3.85"
Tc=5.0 min CN=94.30 Runoff=0.52 cfs 1,653 cf

Subcatchment5S: Ex. East Bypass Runoff Area=20,268 sf 21.08% Impervious Runoff Depth>3.01"
Tc=5.0 min CN=86.15 Runoff=1.69 cfs 5,092 cf

Subcatchment6S: Pr. Infil #2 Runoff Area=55,520 sf 79.02% Impervious Runoff Depth>4.02"
Tc=5.0 min CN=95.90 Runoff=5.69 cfs 18,607 cf

Subcatchment7S: Pr. Perm Pavers #1 Runoff Area=618 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 219 cf

Subcatchment8S: Pr. Perm Pavers #2 Runoff Area=321 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.03 cfs 114 cf

Subcatchment9S: Pr. Perm Pavers #3 Runoff Area=643 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.07 cfs 228 cf

Subcatchment10S: Pr. Perm Pavers #4 Runoff Area=1,625 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.17 cfs 577 cf

Subcatchment11S: Pr. Perm Pavers #5 Runoff Area=961 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.10 cfs 341 cf

Subcatchment12S: Pr. Perm Pavers #6 Runoff Area=372 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.04 cfs 132 cf

Subcatchment14S: Pr. Perm Pavers #7 Runoff Area=673 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.07 cfs 239 cf

Subcatchment16S: Pr. Perm Pavers #8 Runoff Area=333 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.03 cfs 118 cf

Subcatchment20S: Pr. Perm Pavers #9 Runoff Area=1,080 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.11 cfs 383 cf

Subcatchment22S: Pr. Perm Pavers #10 Runoff Area=699 sf 100.00% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=98.00 Runoff=0.07 cfs 248 cf

Pond 1A: Pr. PP#1 Peak Elev=6.01' Storage=83 cf Inflow=0.06 cfs 219 cf
Discarded=0.00 cfs 193 cf Primary=0.02 cfs 16 cf Outflow=0.02 cfs 209 cf

Pond 1P: Pr. Infil #1 Peak Elev=7.36' Storage=3,356 cf Inflow=3.17 cfs 10,767 cf
Outflow=3.13 cfs 7,623 cf

Pond 2A: Pr. PP#2 Peak Elev=7.44' Storage=37 cf Inflow=0.03 cfs 114 cf
Discarded=0.01 cfs 114 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 114 cf

Pond 2P: Pr. Infil #2 Peak Elev=7.82' Storage=5,352 cf Inflow=5.69 cfs 18,607 cf
Outflow=5.57 cfs 13,755 cf

Pond 3A: Pr. PP#3 Peak Elev=7.36' Storage=79 cf Inflow=0.07 cfs 228 cf
Discarded=0.01 cfs 228 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 228 cf

Pond 4A: Pr. PP#4 Peak Elev=7.87' Storage=220 cf Inflow=0.17 cfs 577 cf
Discarded=0.02 cfs 576 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 576 cf

Pond 5A: Pr. PP#5 Peak Elev=7.80' Storage=127 cf Inflow=0.10 cfs 341 cf
Discarded=0.02 cfs 340 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 340 cf

Pond 13P: Pr. PP#6 Peak Elev=5.50' Storage=47 cf Inflow=0.04 cfs 132 cf
Discarded=0.01 cfs 132 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 132 cf

Pond 15P: Pr. PP#7 Peak Elev=5.65' Storage=63 cf Inflow=0.07 cfs 239 cf
Discarded=0.01 cfs 239 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 239 cf

Pond 17P: Pr. PP#8 Peak Elev=7.20' Storage=40 cf Inflow=0.03 cfs 118 cf
Discarded=0.01 cfs 118 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 118 cf

Pond 21P: Pr. PP#9 Peak Elev=7.26' Storage=140 cf Inflow=0.11 cfs 383 cf
Discarded=0.02 cfs 383 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 383 cf

Pond 23P: Pr. PP#10 Peak Elev=7.02' Storage=82 cf Inflow=0.07 cfs 248 cf
Discarded=0.01 cfs 248 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 248 cf

Link 1L: Ex. West Out Inflow=8.47 cfs 26,208 cf
Primary=8.47 cfs 26,208 cf

Link 2L: Ex. East Out Inflow=2.66 cfs 8,171 cf
Primary=2.66 cfs 8,171 cf

Link 3L: Ex. Outfall Inflow=11.13 cfs 34,379 cf
Primary=11.13 cfs 34,379 cf

Link 4L: Pr. West Out Inflow=3.64 cfs 9,292 cf
Primary=3.64 cfs 9,292 cf

Link 5L: Pr. East Out Inflow=7.25 cfs 18,847 cf
Primary=7.25 cfs 18,847 cf

Link 6L: Pr. Outfall

Inflow=10.89 cfs 28,139 cf
Primary=10.89 cfs 28,139 cf

Total Runoff Area = 237,188 sf Runoff Volume = 73,099 cf Average Runoff Depth = 3.70"
51.90% Pervious = 123,091 sf 48.10% Impervious = 114,097 sf

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Ex. West Runoff Area=89,636 sf 23.65% Impervious Runoff Depth>4.31"
Tc=5.0 min CN=91.13 Runoff=10.29 cfs 32,222 cf

Subcatchment2S: Ex. East Runoff Area=28,958 sf 10.38% Impervious Runoff Depth>4.18"
Tc=5.0 min CN=89.93 Runoff=3.26 cfs 10,097 cf

Subcatchment3S: Pr. Infil #1 Runoff Area=30,322 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=3.77 cfs 12,860 cf

Subcatchment4S: Pr. West Bypass Runoff Area=5,159 sf 79.43% Impervious Runoff Depth>4.66"
Tc=5.0 min CN=94.30 Runoff=0.62 cfs 2,005 cf

Subcatchment5S: Ex. East Bypass Runoff Area=20,268 sf 21.08% Impervious Runoff Depth>3.79"
Tc=5.0 min CN=86.15 Runoff=2.11 cfs 6,398 cf

Subcatchment6S: Pr. Infil #2 Runoff Area=55,520 sf 79.02% Impervious Runoff Depth>4.85"
Tc=5.0 min CN=95.90 Runoff=6.79 cfs 22,419 cf

Subcatchment7S: Pr. Perm Pavers #1 Runoff Area=618 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.08 cfs 262 cf

Subcatchment8S: Pr. Perm Pavers #2 Runoff Area=321 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.04 cfs 136 cf

Subcatchment9S: Pr. Perm Pavers #3 Runoff Area=643 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.08 cfs 273 cf

Subcatchment10S: Pr. Perm Pavers #4 Runoff Area=1,625 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.20 cfs 689 cf

Subcatchment11S: Pr. Perm Pavers #5 Runoff Area=961 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.12 cfs 408 cf

Subcatchment12S: Pr. Perm Pavers #6 Runoff Area=372 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.05 cfs 158 cf

Subcatchment14S: Pr. Perm Pavers #7 Runoff Area=673 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.08 cfs 285 cf

Subcatchment16S: Pr. Perm Pavers #8 Runoff Area=333 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.04 cfs 141 cf

Subcatchment20S: Pr. Perm Pavers #9 Runoff Area=1,080 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.13 cfs 458 cf

Subcatchment22S: Pr. Perm Pavers #10 Runoff Area=699 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98.00 Runoff=0.09 cfs 296 cf

Pond 1A: Pr. PP#1 Peak Elev=6.02' Storage=84 cf Inflow=0.08 cfs 262 cf
Discarded=0.00 cfs 204 cf Primary=0.05 cfs 42 cf Outflow=0.05 cfs 247 cf

Pond 1P: Pr. Infil #1 Peak Elev=7.40' Storage=3,381 cf Inflow=3.77 cfs 12,860 cf
Outflow=3.72 cfs 9,714 cf

Pond 2A: Pr. PP#2 Peak Elev=7.51' Storage=47 cf Inflow=0.04 cfs 136 cf
Discarded=0.01 cfs 136 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 136 cf

Pond 2P: Pr. Infil #2 Peak Elev=7.87' Storage=5,410 cf Inflow=6.79 cfs 22,419 cf
Outflow=6.67 cfs 17,563 cf

Pond 3A: Pr. PP#3 Peak Elev=7.43' Storage=97 cf Inflow=0.08 cfs 273 cf
Discarded=0.01 cfs 272 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 272 cf

Pond 4A: Pr. PP#4 Peak Elev=7.98' Storage=271 cf Inflow=0.20 cfs 689 cf
Discarded=0.02 cfs 688 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 688 cf

Pond 5A: Pr. PP#5 Peak Elev=7.85' Storage=147 cf Inflow=0.12 cfs 408 cf
Discarded=0.02 cfs 397 cf Primary=0.02 cfs 8 cf Outflow=0.04 cfs 405 cf

Pond 13P: Pr. PP#6 Peak Elev=5.58' Storage=58 cf Inflow=0.05 cfs 158 cf
Discarded=0.01 cfs 157 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 157 cf

Pond 15P: Pr. PP#7 Peak Elev=5.73' Storage=81 cf Inflow=0.08 cfs 285 cf
Discarded=0.01 cfs 285 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 285 cf

Pond 17P: Pr. PP#8 Peak Elev=7.27' Storage=49 cf Inflow=0.04 cfs 141 cf
Discarded=0.01 cfs 141 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 141 cf

Pond 21P: Pr. PP#9 Peak Elev=7.36' Storage=174 cf Inflow=0.13 cfs 458 cf
Discarded=0.02 cfs 457 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 457 cf

Pond 23P: Pr. PP#10 Peak Elev=7.09' Storage=102 cf Inflow=0.09 cfs 296 cf
Discarded=0.01 cfs 296 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 296 cf

Link 1L: Ex. West Out Inflow=10.29 cfs 32,222 cf
Primary=10.29 cfs 32,222 cf

Link 2L: Ex. East Out Inflow=3.26 cfs 10,097 cf
Primary=3.26 cfs 10,097 cf

Link 3L: Ex. Outfall Inflow=13.55 cfs 42,319 cf
Primary=13.55 cfs 42,319 cf

Link 4L: Pr. West Out Inflow=4.33 cfs 11,761 cf
Primary=4.33 cfs 11,761 cf

Link 5L: Pr. East Out Inflow=8.76 cfs 23,970 cf
Primary=8.76 cfs 23,970 cf

Link 6L: Pr. Outfall

Inflow=13.09 cfs 35,731 cf
Primary=13.09 cfs 35,731 cf

Total Runoff Area = 237,188 sf Runoff Volume = 89,108 cf Average Runoff Depth = 4.51"
51.90% Pervious = 123,091 sf 48.10% Impervious = 114,097 sf

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Ex. West Runoff Area=89,636 sf 23.65% Impervious Runoff Depth>5.44"
Tc=5.0 min CN=91.13 Runoff=12.81 cfs 40,623 cf

Subcatchment2S: Ex. East Runoff Area=28,958 sf 10.38% Impervious Runoff Depth>5.30"
Tc=5.0 min CN=89.93 Runoff=4.07 cfs 12,795 cf

Subcatchment3S: Pr. Infil #1 Runoff Area=30,322 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=4.59 cfs 15,760 cf

Subcatchment4S: Pr. West Bypass Runoff Area=5,159 sf 79.43% Impervious Runoff Depth>5.80"
Tc=5.0 min CN=94.30 Runoff=0.76 cfs 2,495 cf

Subcatchment5S: Ex. East Bypass Runoff Area=20,268 sf 21.08% Impervious Runoff Depth>4.88"
Tc=5.0 min CN=86.15 Runoff=2.69 cfs 8,242 cf

Subcatchment6S: Pr. Infil #2 Runoff Area=55,520 sf 79.02% Impervious Runoff Depth>5.99"
Tc=5.0 min CN=95.90 Runoff=8.31 cfs 27,712 cf

Subcatchment7S: Pr. Perm Pavers #1 Runoff Area=618 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.09 cfs 321 cf

Subcatchment8S: Pr. Perm Pavers #2 Runoff Area=321 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.05 cfs 167 cf

Subcatchment9S: Pr. Perm Pavers #3 Runoff Area=643 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.10 cfs 334 cf

Subcatchment10S: Pr. Perm Pavers #4 Runoff Area=1,625 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.25 cfs 845 cf

Subcatchment11S: Pr. Perm Pavers #5 Runoff Area=961 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.15 cfs 499 cf

Subcatchment12S: Pr. Perm Pavers #6 Runoff Area=372 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 193 cf

Subcatchment14S: Pr. Perm Pavers #7 Runoff Area=673 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.10 cfs 350 cf

Subcatchment16S: Pr. Perm Pavers #8 Runoff Area=333 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.05 cfs 173 cf

Subcatchment20S: Pr. Perm Pavers #9 Runoff Area=1,080 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.16 cfs 561 cf

Subcatchment22S: Pr. Perm Pavers #10 Runoff Area=699 sf 100.00% Impervious Runoff Depth>6.24"
Tc=5.0 min CN=98.00 Runoff=0.11 cfs 363 cf

Pond 1A: Pr. PP#1 Peak Elev=6.03' Storage=85 cf Inflow=0.09 cfs 321 cf
Discarded=0.00 cfs 219 cf Primary=0.09 cfs 81 cf Outflow=0.09 cfs 300 cf

Pond 1P: Pr. Infil #1 Peak Elev=7.45' Storage=3,413 cf Inflow=4.59 cfs 15,760 cf
Outflow=4.54 cfs 12,612 cf

Pond 2A: Pr. PP#2 Peak Elev=7.62' Storage=60 cf Inflow=0.05 cfs 167 cf
Discarded=0.01 cfs 167 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 167 cf

Pond 2P: Pr. Infil #2 Peak Elev=7.95' Storage=5,482 cf Inflow=8.31 cfs 27,712 cf
Outflow=8.19 cfs 22,850 cf

Pond 3A: Pr. PP#3 Peak Elev=7.54' Storage=125 cf Inflow=0.10 cfs 334 cf
Discarded=0.01 cfs 334 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 334 cf

Pond 4A: Pr. PP#4 Peak Elev=8.00' Storage=284 cf Inflow=0.25 cfs 845 cf
Discarded=0.03 cfs 778 cf Primary=0.09 cfs 65 cf Outflow=0.11 cfs 843 cf

Pond 5A: Pr. PP#5 Peak Elev=7.85' Storage=147 cf Inflow=0.15 cfs 499 cf
Discarded=0.02 cfs 445 cf Primary=0.08 cfs 50 cf Outflow=0.10 cfs 496 cf

Pond 13P: Pr. PP#6 Peak Elev=5.69' Storage=73 cf Inflow=0.06 cfs 193 cf
Discarded=0.01 cfs 193 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 193 cf

Pond 15P: Pr. PP#7 Peak Elev=5.84' Storage=106 cf Inflow=0.10 cfs 350 cf
Discarded=0.01 cfs 349 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 349 cf

Pond 17P: Pr. PP#8 Peak Elev=7.38' Storage=64 cf Inflow=0.05 cfs 173 cf
Discarded=0.01 cfs 173 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 173 cf

Pond 21P: Pr. PP#9 Peak Elev=7.50' Storage=222 cf Inflow=0.16 cfs 561 cf
Discarded=0.02 cfs 560 cf Primary=0.00 cfs 1 cf Outflow=0.02 cfs 560 cf

Pond 23P: Pr. PP#10 Peak Elev=7.20' Storage=132 cf Inflow=0.11 cfs 363 cf
Discarded=0.01 cfs 363 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 363 cf

Link 1L: Ex. West Out Inflow=12.81 cfs 40,623 cf
Primary=12.81 cfs 40,623 cf

Link 2L: Ex. East Out Inflow=4.07 cfs 12,795 cf
Primary=4.07 cfs 12,795 cf

Link 3L: Ex. Outfall Inflow=16.88 cfs 53,417 cf
Primary=16.88 cfs 53,417 cf

Link 4L: Pr. West Out Inflow=5.38 cfs 15,188 cf
Primary=5.38 cfs 15,188 cf

Link 5L: Pr. East Out Inflow=10.85 cfs 31,207 cf
Primary=10.85 cfs 31,207 cf

Link 6L: Pr. Outfall

Inflow=16.23 cfs 46,395 cf
Primary=16.23 cfs 46,395 cf

Total Runoff Area = 237,188 sf Runoff Volume = 111,433 cf Average Runoff Depth = 5.64"
51.90% Pervious = 123,091 sf 48.10% Impervious = 114,097 sf

Summary for Subcatchment 1S: Ex. West

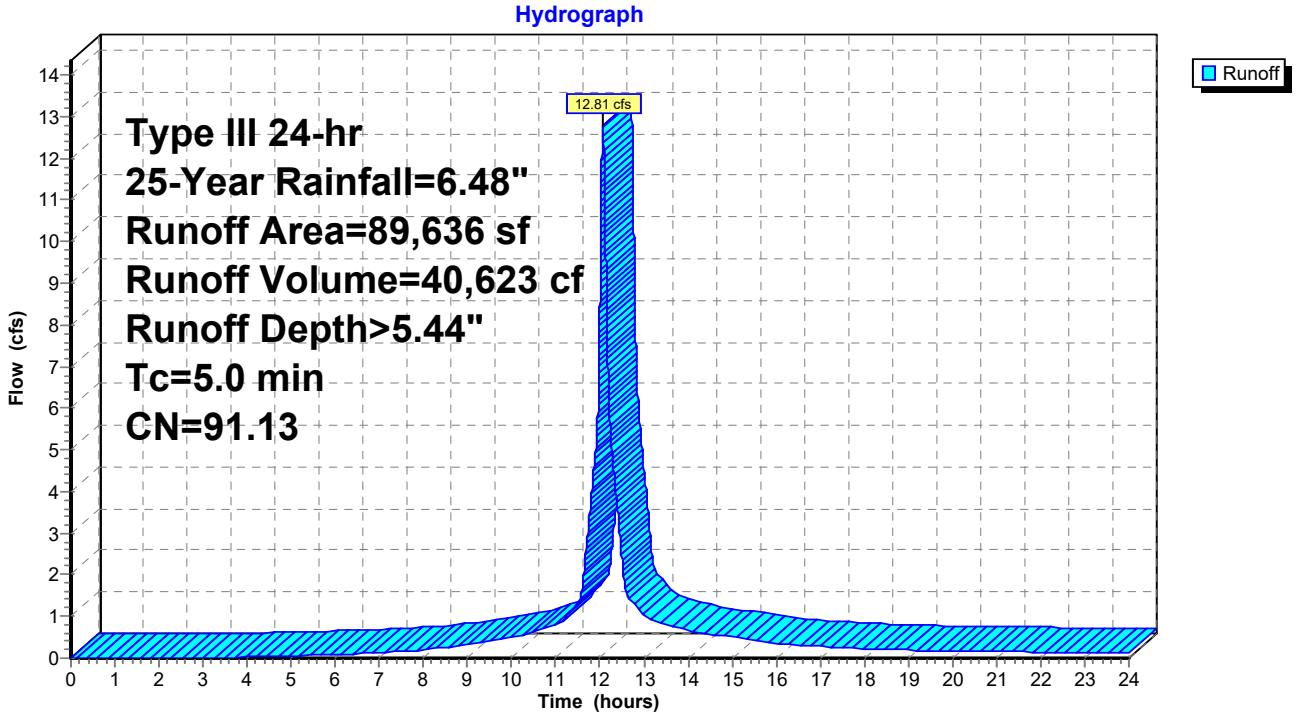
Runoff = 12.81 cfs @ 12.07 hrs, Volume= 40,623 cf, Depth> 5.44"
Routed to Link 1L : Ex. West Out

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	68,433	89.00	Gravel and Compacted Dirt
*	21,203	98.00	Paved parking, HSG D
	89,636	91.13	Weighted Average
	68,433		76.35% Pervious Area
	21,203		23.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Ex. West



Summary for Subcatchment 2S: Ex. East

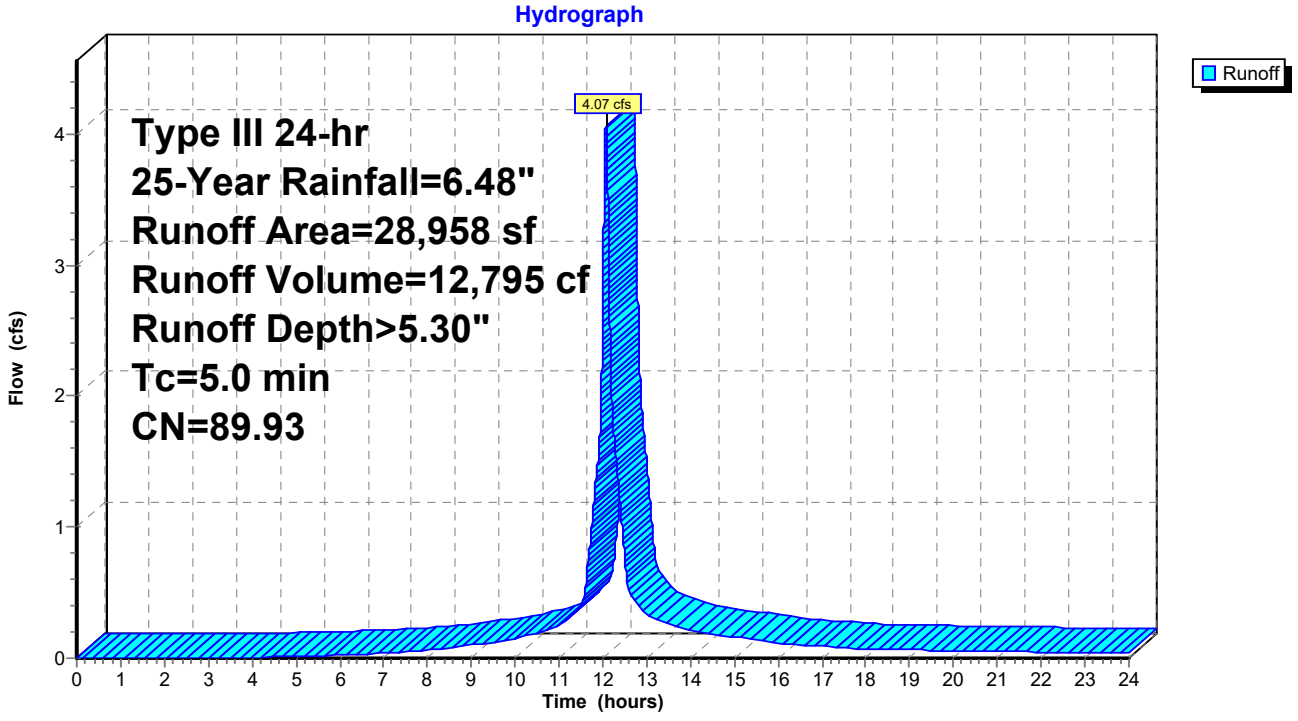
Runoff = 4.07 cfs @ 12.07 hrs, Volume= 12,795 cf, Depth> 5.30"
Routed to Link 2L : Ex. East Out

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	25,952	89.00	Gravel and Compacted Dirt
*	3,006	98.00	Paved parking, HSG D
	28,958	89.93	Weighted Average
	25,952		89.62% Pervious Area
	3,006		10.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Ex. East



Summary for Subcatchment 3S: Pr. Infil #1

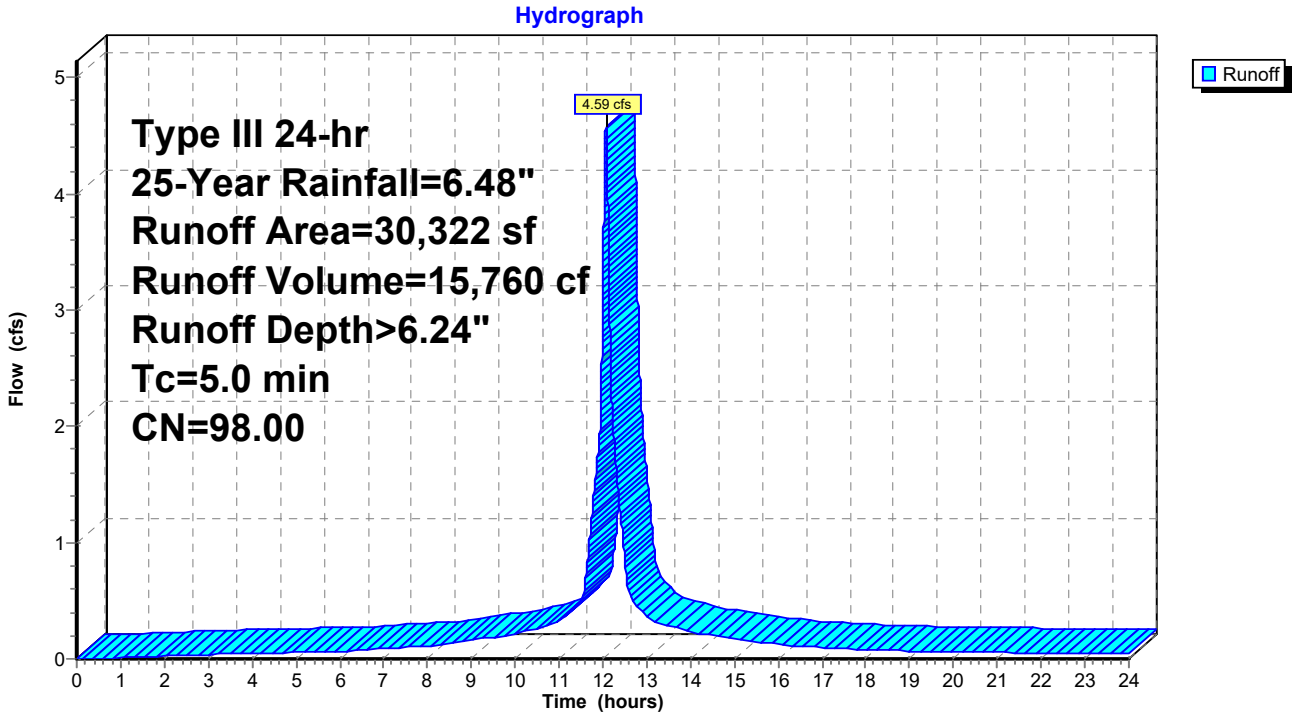
Runoff = 4.59 cfs @ 12.07 hrs, Volume= 15,760 cf, Depth> 6.24"
Routed to Pond 1P : Pr. Infil #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	30,322	98.00	Impervious, HSG D
	30,322		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Pr. Infil #1



Summary for Subcatchment 4S: Pr. West Bypass

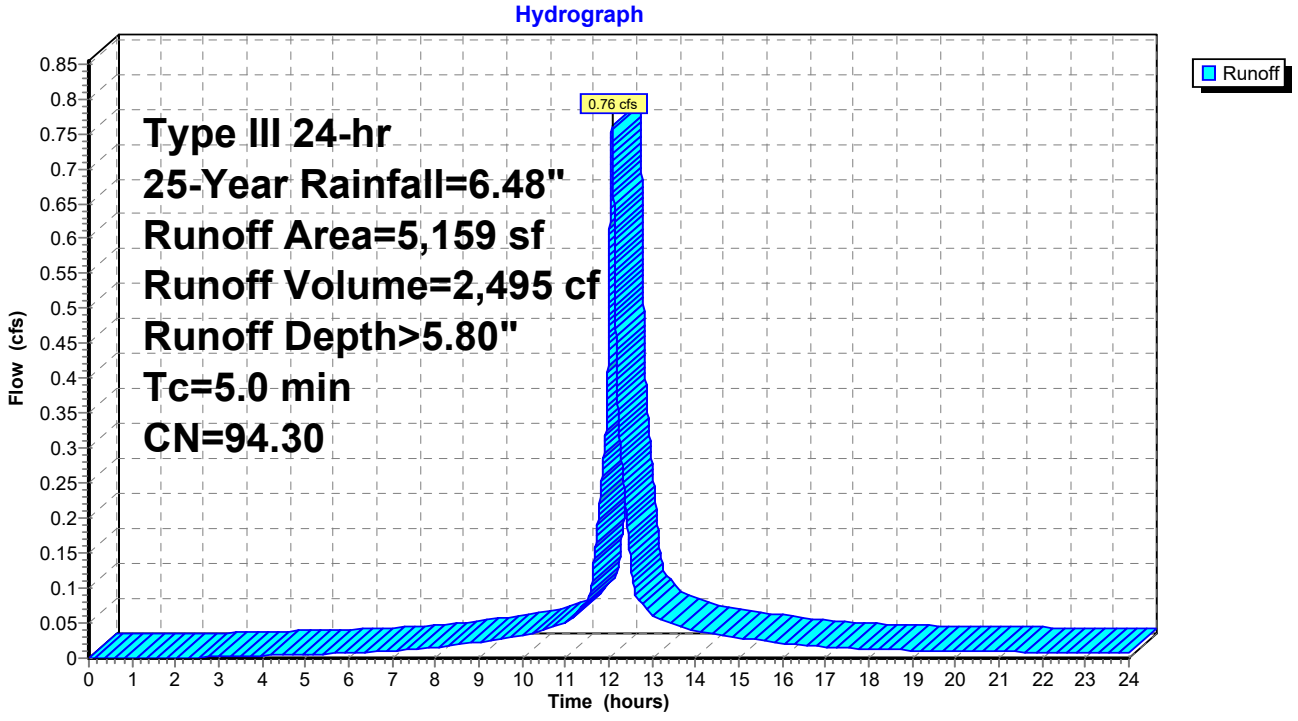
Runoff = 0.76 cfs @ 12.07 hrs, Volume= 2,495 cf, Depth> 5.80"
Routed to Link 4L : Pr. West Out

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	4,098	98.00	Impervious, HSG D
	1,061	80.00	>75% Grass cover, Good, HSG D
	5,159	94.30	Weighted Average
	1,061		20.57% Pervious Area
	4,098		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Pr. West Bypass



Summary for Subcatchment 5S: Ex. East Bypass

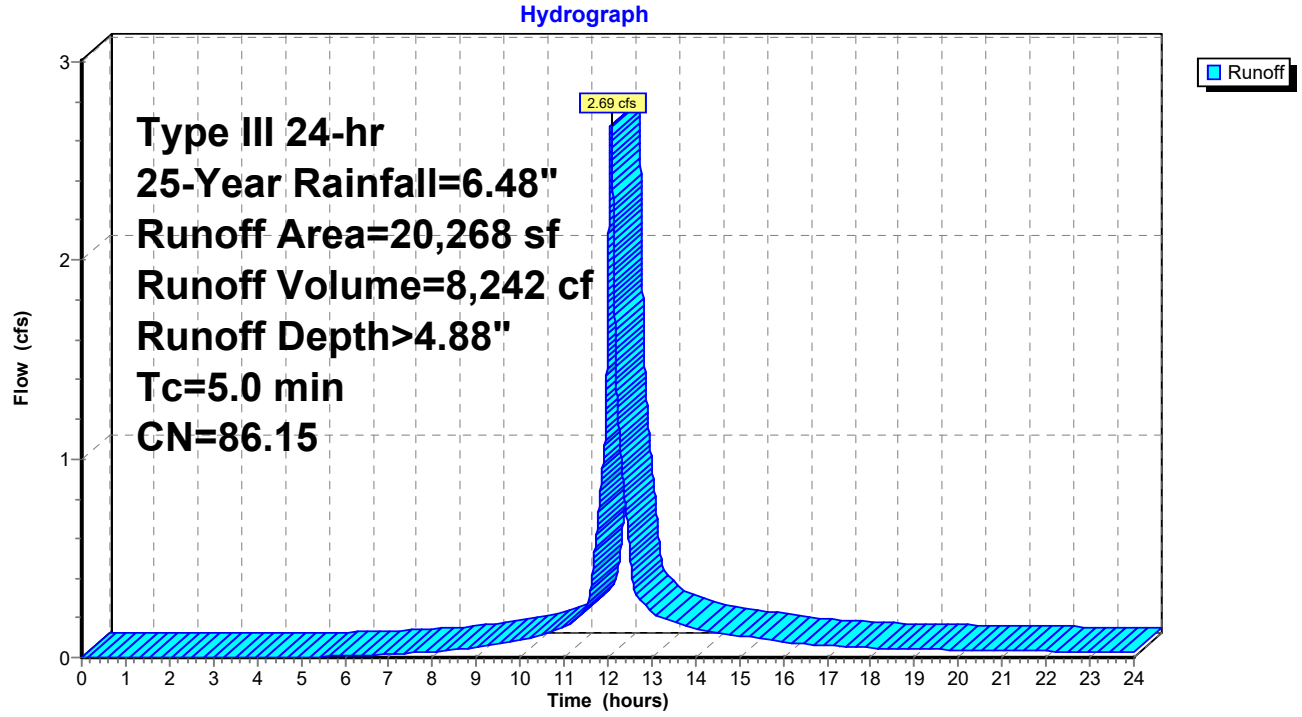
Runoff = 2.69 cfs @ 12.07 hrs, Volume= 8,242 cf, Depth> 4.88"
Routed to Link 5L : Pr. East Out

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	3,930	98.00	Impervious, HSG D
*	4,126	89.00	Open-jointed Surface
*	1,178	89.00	Bonded Aggregate, HSG D
	10,692	80.00	>75% Grass cover, Good, HSG D
*	342	98.00	Water
	20,268	86.15	Weighted Average
	15,996		78.92% Pervious Area
	4,272		21.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Ex. East Bypass



Summary for Subcatchment 6S: Pr. Infil #2

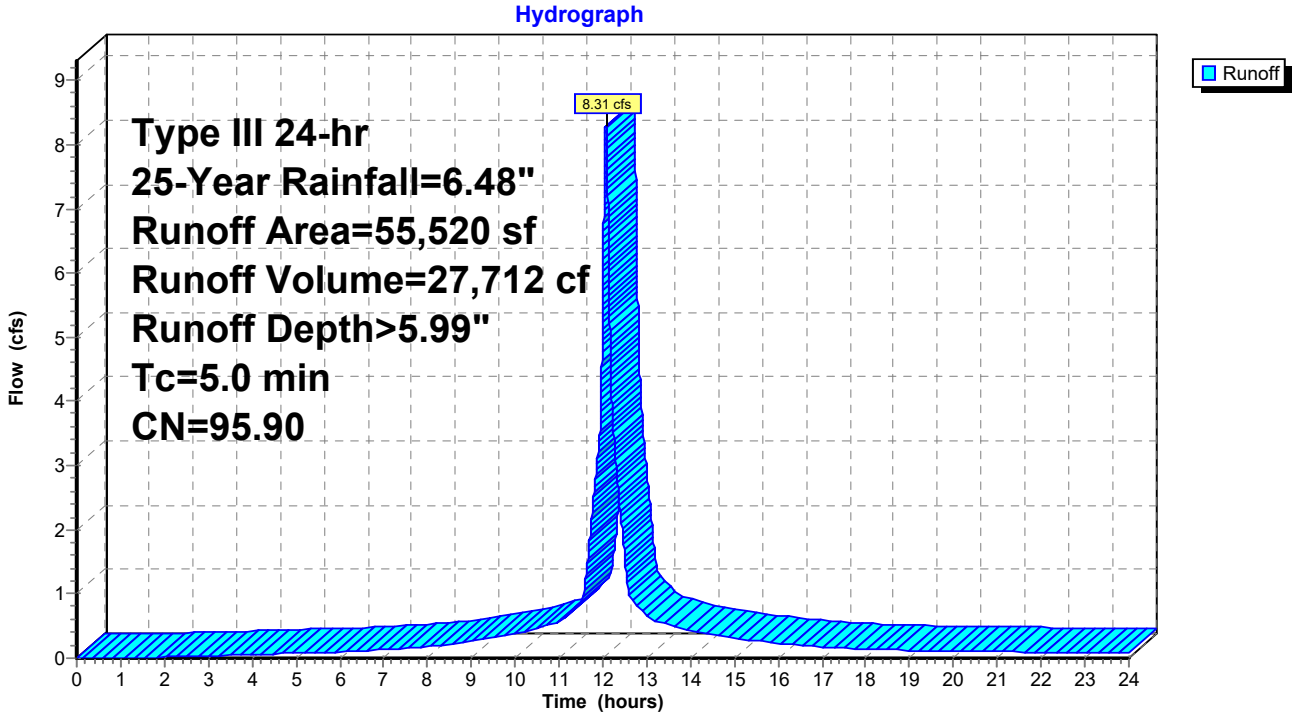
Runoff = 8.31 cfs @ 12.07 hrs, Volume= 27,712 cf, Depth> 5.99"
Routed to Pond 2P : Pr. Infil #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	43,871	98.00	Impervious, HSG D
*	11,649	88.00	Green Roof
	55,520	95.90	Weighted Average
	11,649		20.98% Pervious Area
	43,871		79.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Pr. Infil #2



Summary for Subcatchment 7S: Pr. Perm Pavers #1

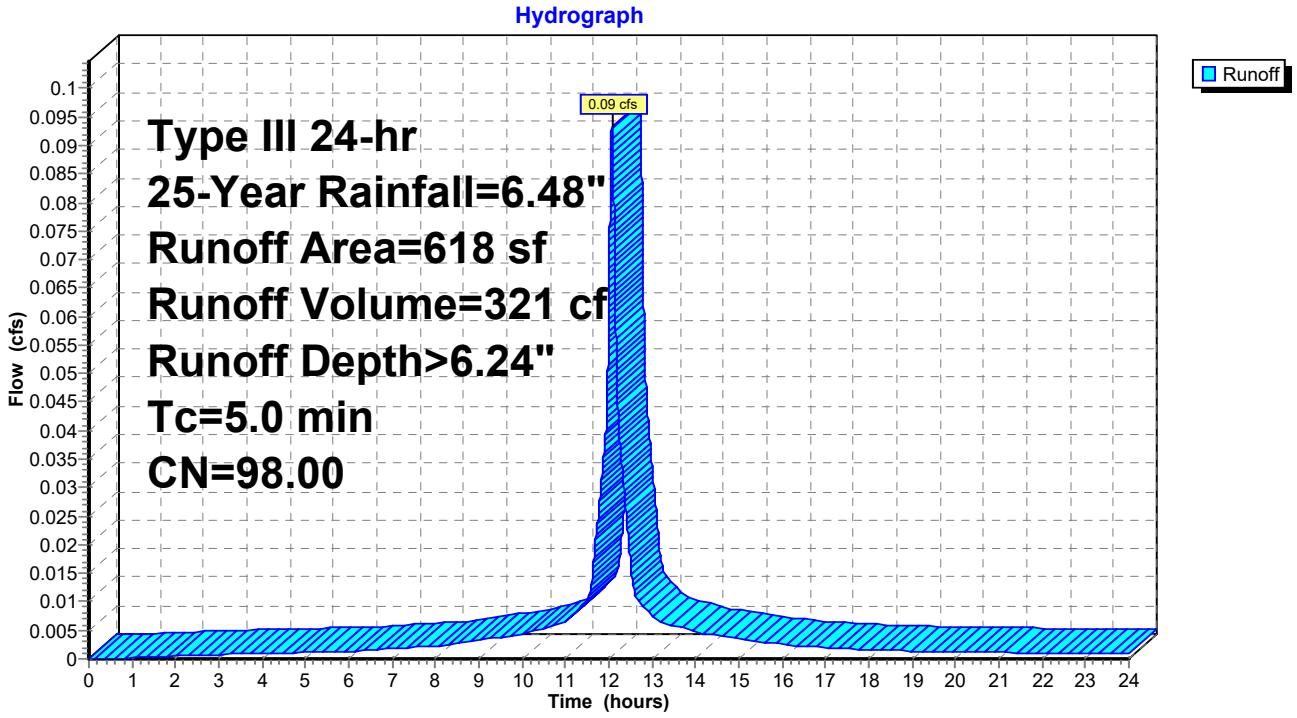
Runoff = 0.09 cfs @ 12.07 hrs, Volume= 321 cf, Depth> 6.24"
Routed to Pond 1A : Pr. PP#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	618	98.00	Pavers, HSG D
	618		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: Pr. Perm Pavers #1



Summary for Subcatchment 8S: Pr. Perm Pavers #2

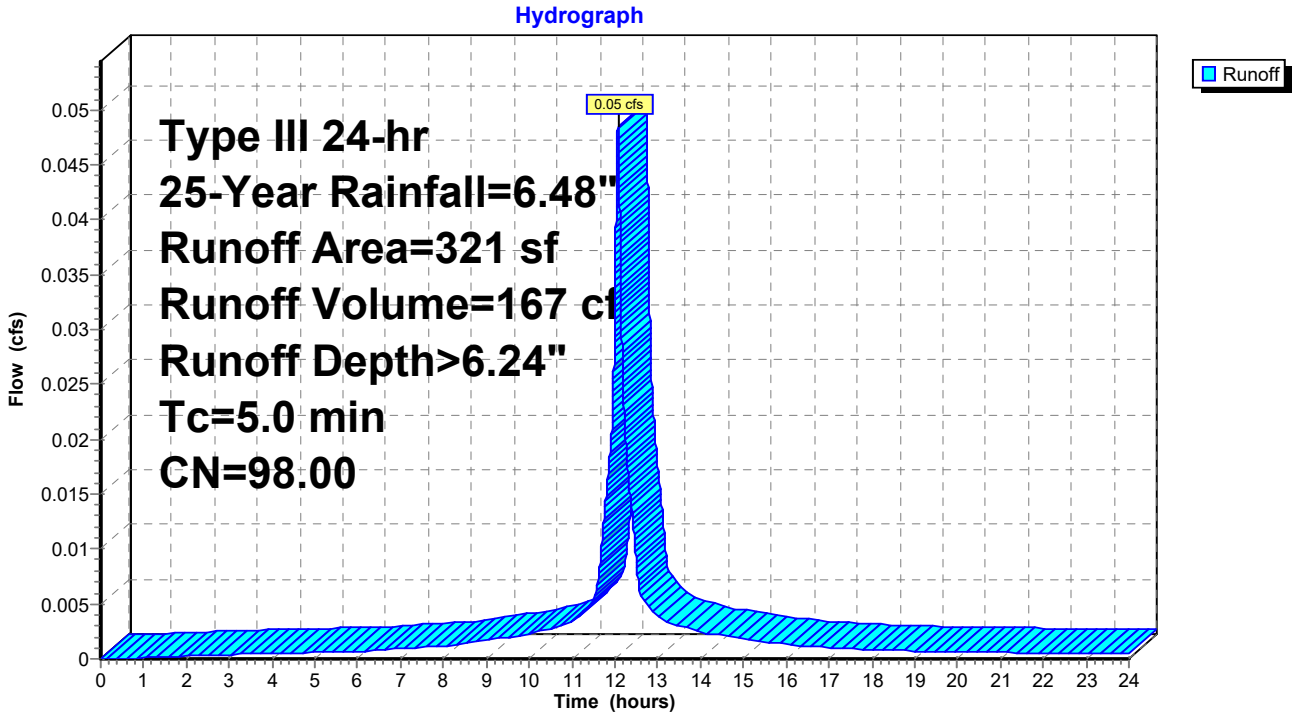
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 167 cf, Depth> 6.24"
Routed to Pond 2A : Pr. PP#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	321	98.00	Bonded Aggregate, HSG D
	321		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: Pr. Perm Pavers #2



Summary for Subcatchment 9S: Pr. Perm Pavers #3

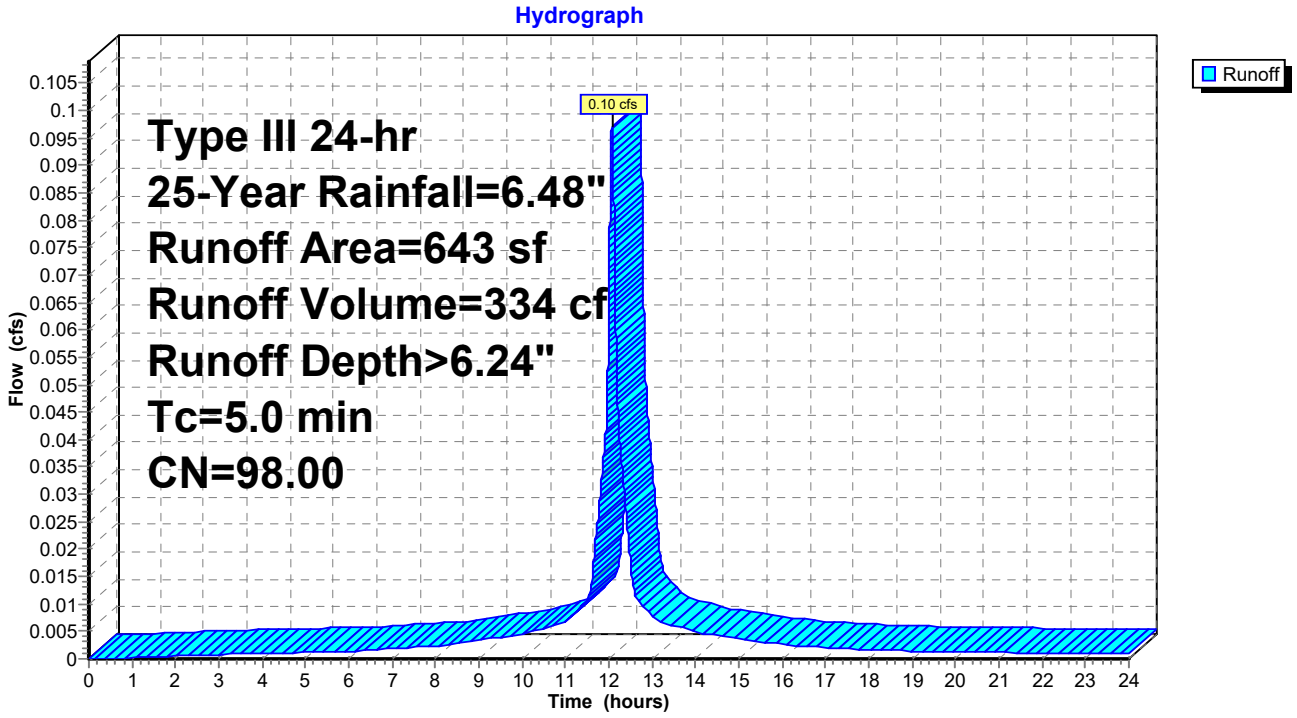
Runoff = 0.10 cfs @ 12.07 hrs, Volume= 334 cf, Depth> 6.24"
Routed to Pond 3A : Pr. PP#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	643	98.00	Bonded Aggregate, HSG D
	643		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 9S: Pr. Perm Pavers #3



Summary for Subcatchment 10S: Pr. Perm Pavers #4

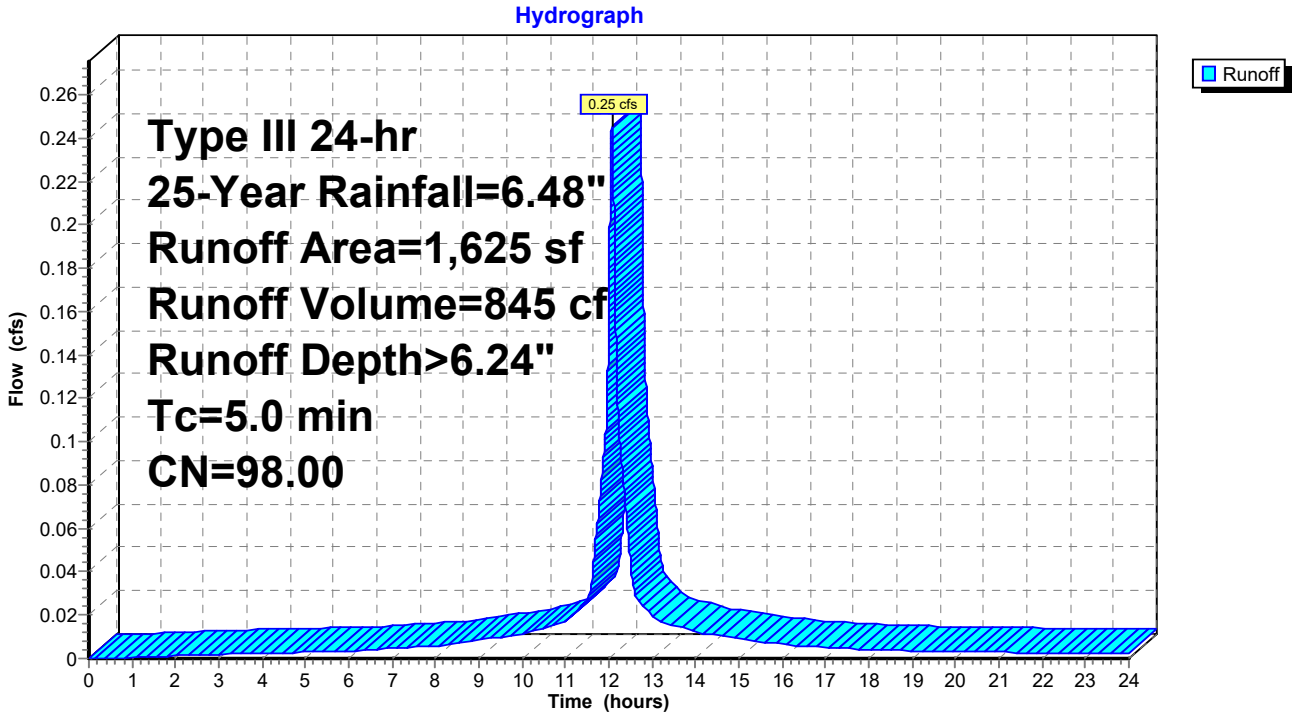
Runoff = 0.25 cfs @ 12.07 hrs, Volume= 845 cf, Depth> 6.24"
Routed to Pond 4A : Pr. PP#4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	1,273	98.00	Bonded Aggregate, HSG D
*	352	98.00	Impervious, HSG D
	1,625	98.00	Weighted Average
	1,625		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 10S: Pr. Perm Pavers #4



Summary for Subcatchment 11S: Pr. Perm Pavers #5

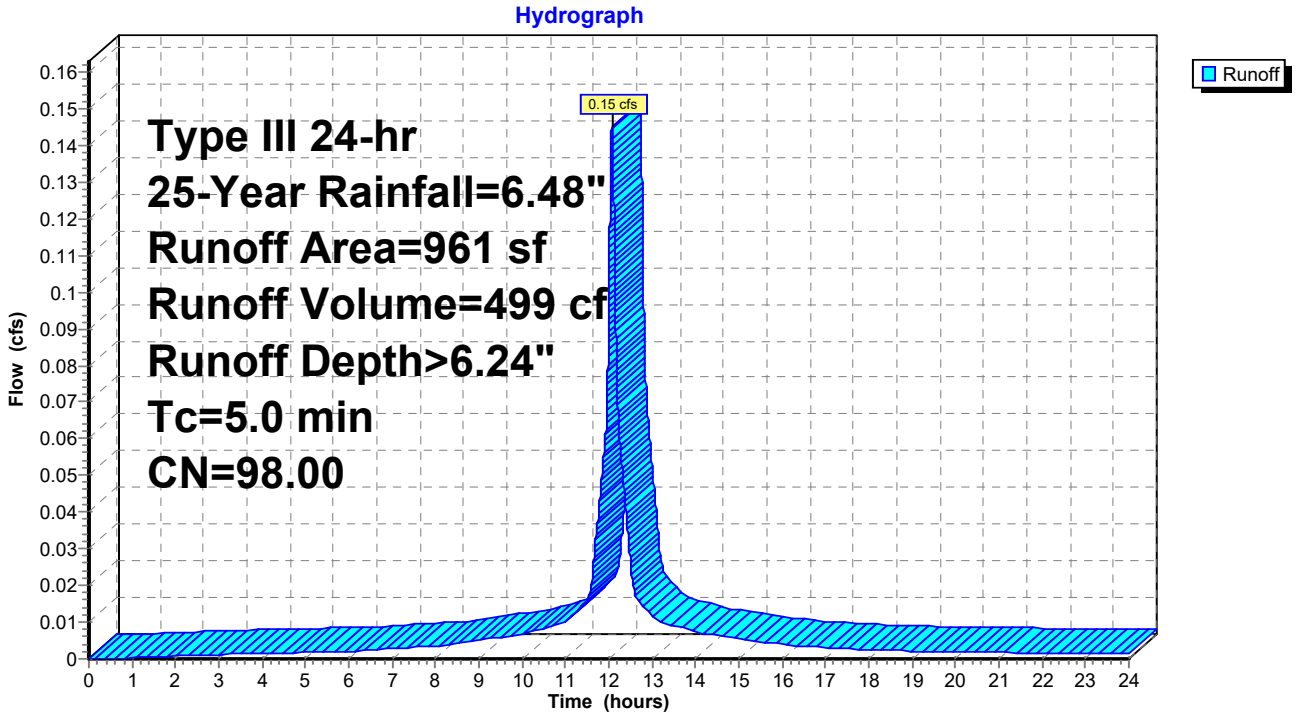
Runoff = 0.15 cfs @ 12.07 hrs, Volume= 499 cf, Depth> 6.24"
Routed to Pond 5A : Pr. PP#5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	961	98.00	Bonded Aggregate, HSG D
	961		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 11S: Pr. Perm Pavers #5



Summary for Subcatchment 12S: Pr. Perm Pavers #6

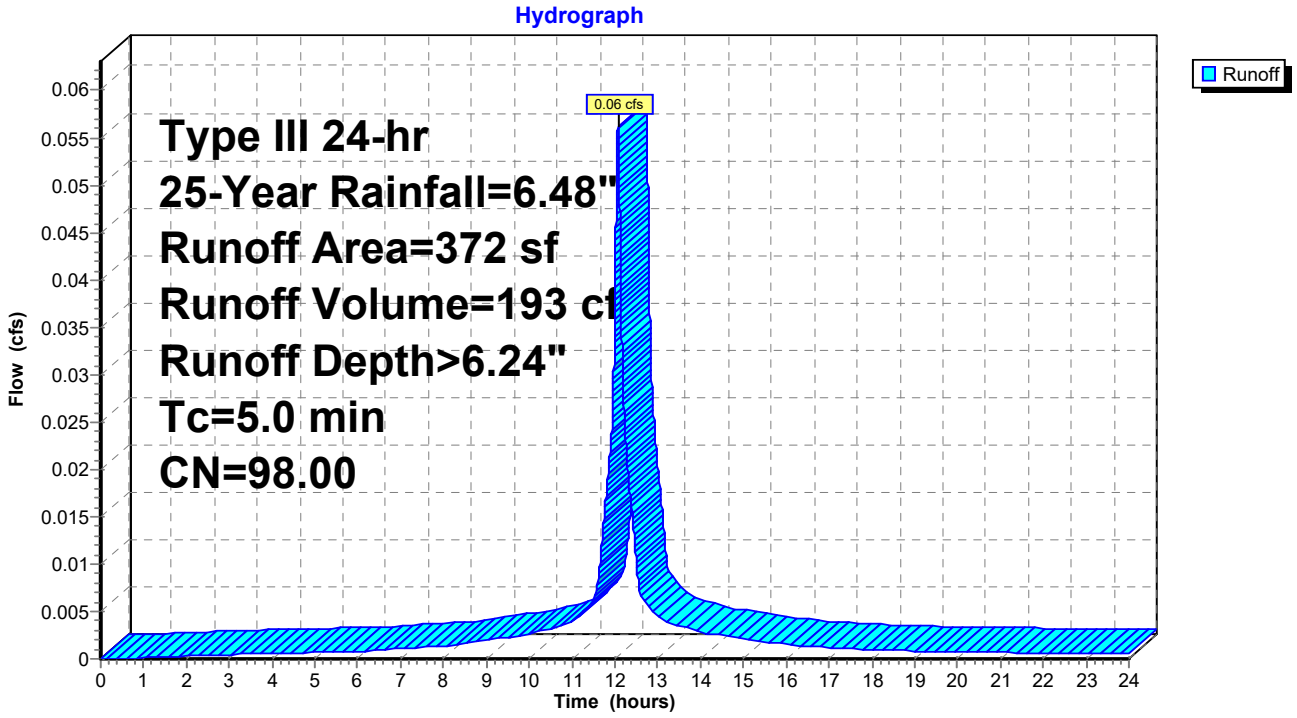
Runoff = 0.06 cfs @ 12.07 hrs, Volume= 193 cf, Depth> 6.24"
Routed to Pond 13P : Pr. PP#6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	372	98.00	Pavers, HSG D
	372		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 12S: Pr. Perm Pavers #6



Summary for Subcatchment 14S: Pr. Perm Pavers #7

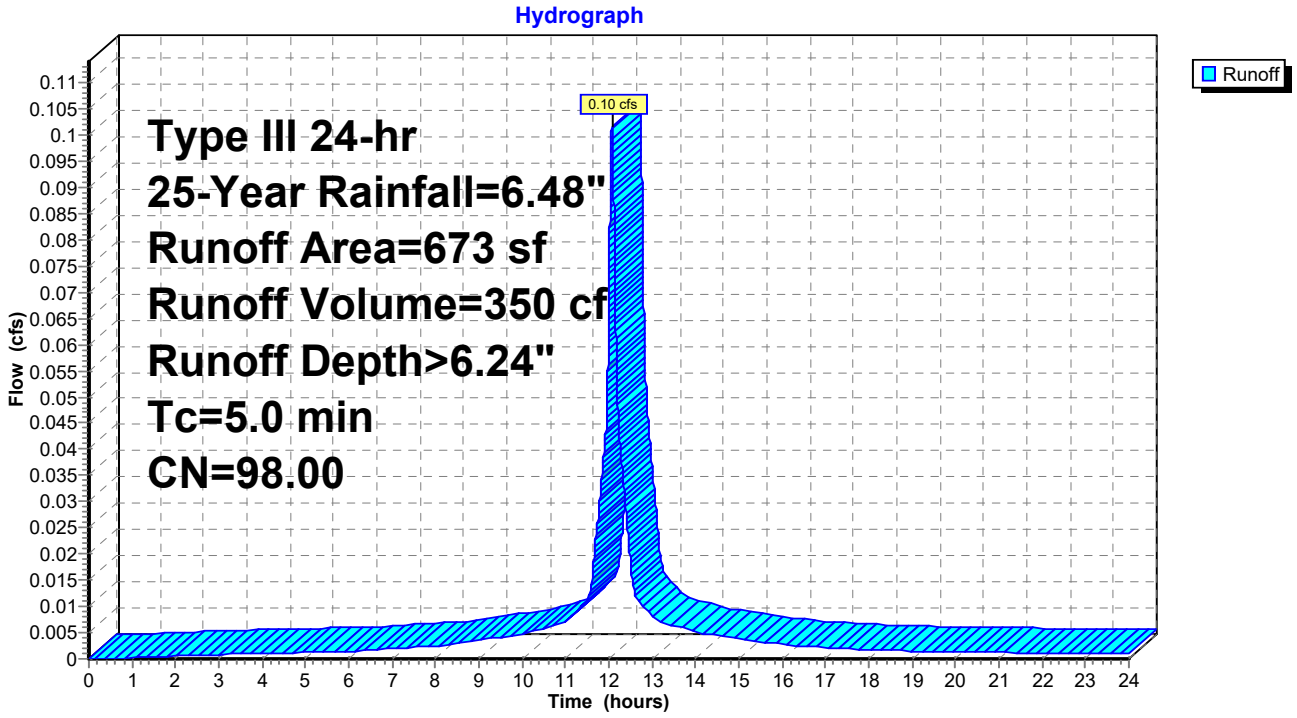
Runoff = 0.10 cfs @ 12.07 hrs, Volume= 350 cf, Depth> 6.24"
Routed to Pond 15P : Pr. PP#7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	673	98.00	Bonded Aggregate, HSG D
	673		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 14S: Pr. Perm Pavers #7



Summary for Subcatchment 16S: Pr. Perm Pavers #8

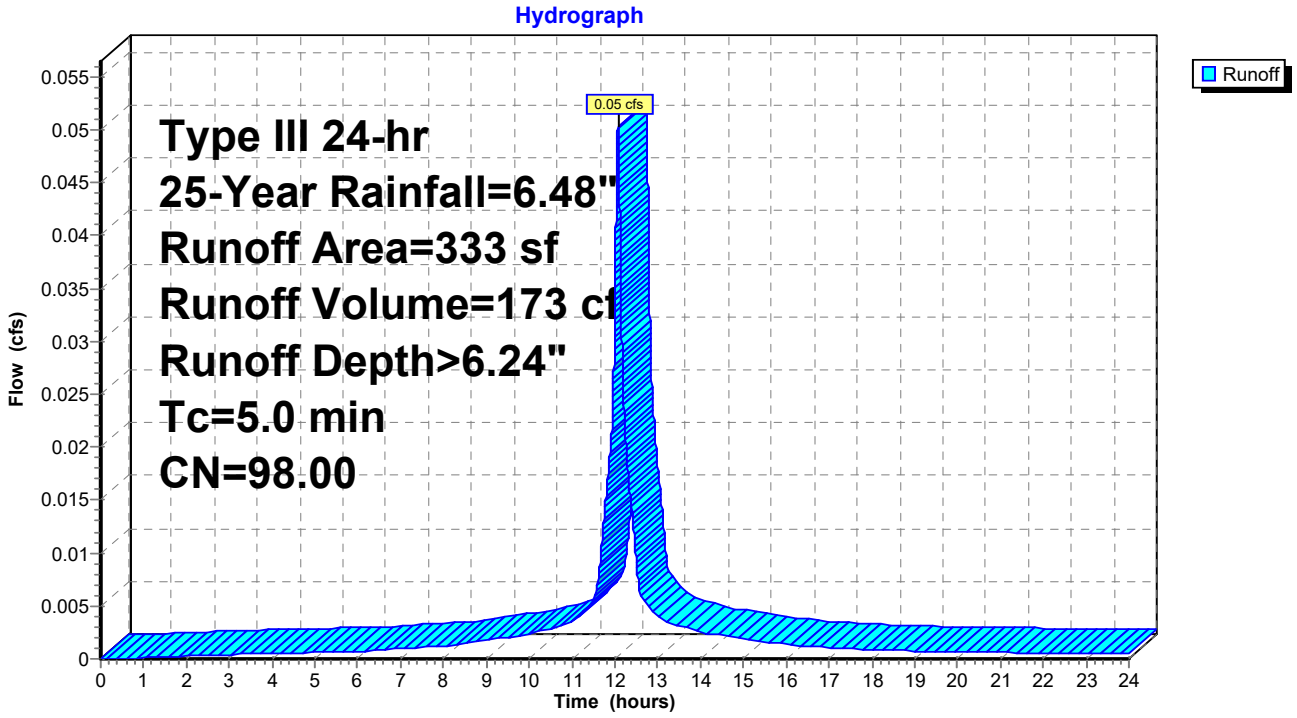
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 173 cf, Depth> 6.24"
Routed to Pond 17P : Pr. PP#8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	333	98.00	Bonded Aggregate, HSG D
	333		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 16S: Pr. Perm Pavers #8



Summary for Subcatchment 20S: Pr. Perm Pavers #9

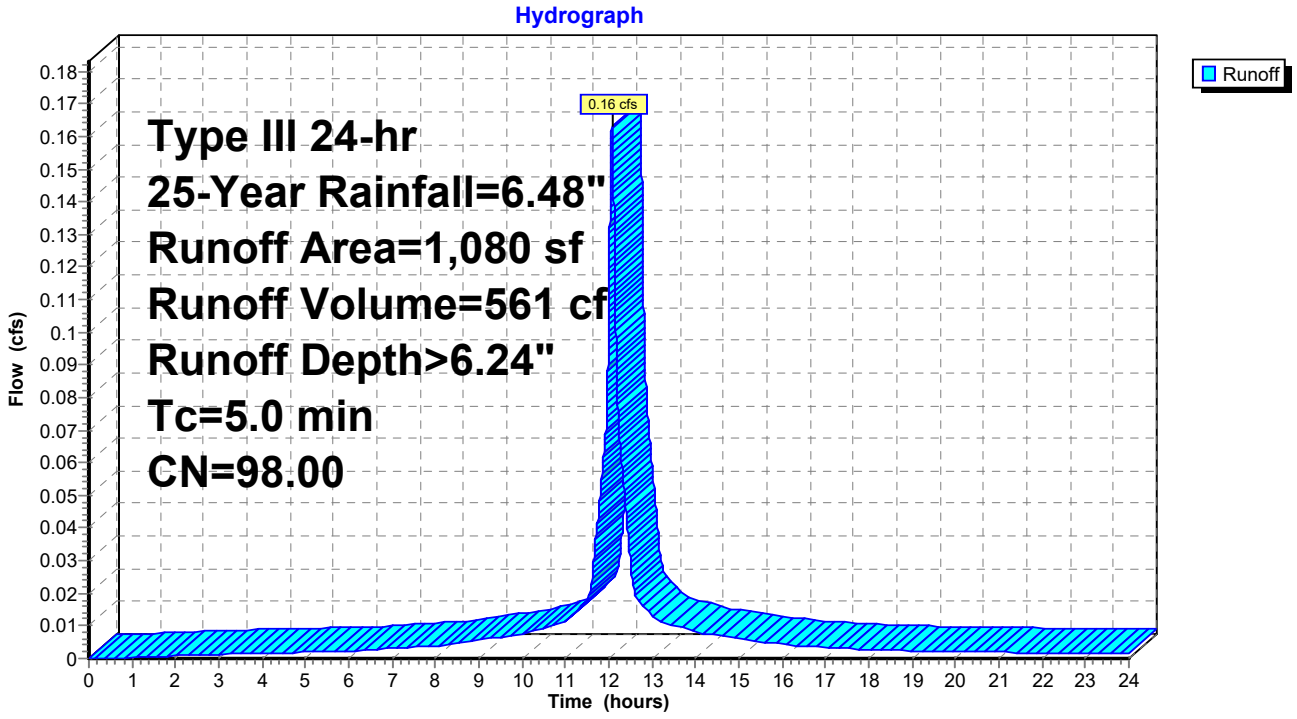
Runoff = 0.16 cfs @ 12.07 hrs, Volume= 561 cf, Depth> 6.24"
Routed to Pond 21P : Pr. PP#9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	854	98.00	Bonded Aggregate, HSG D
*	226	98.00	Impervious, HSG D
	1,080	98.00	Weighted Average
	1,080		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 20S: Pr. Perm Pavers #9



Summary for Subcatchment 22S: Pr. Perm Pavers #10

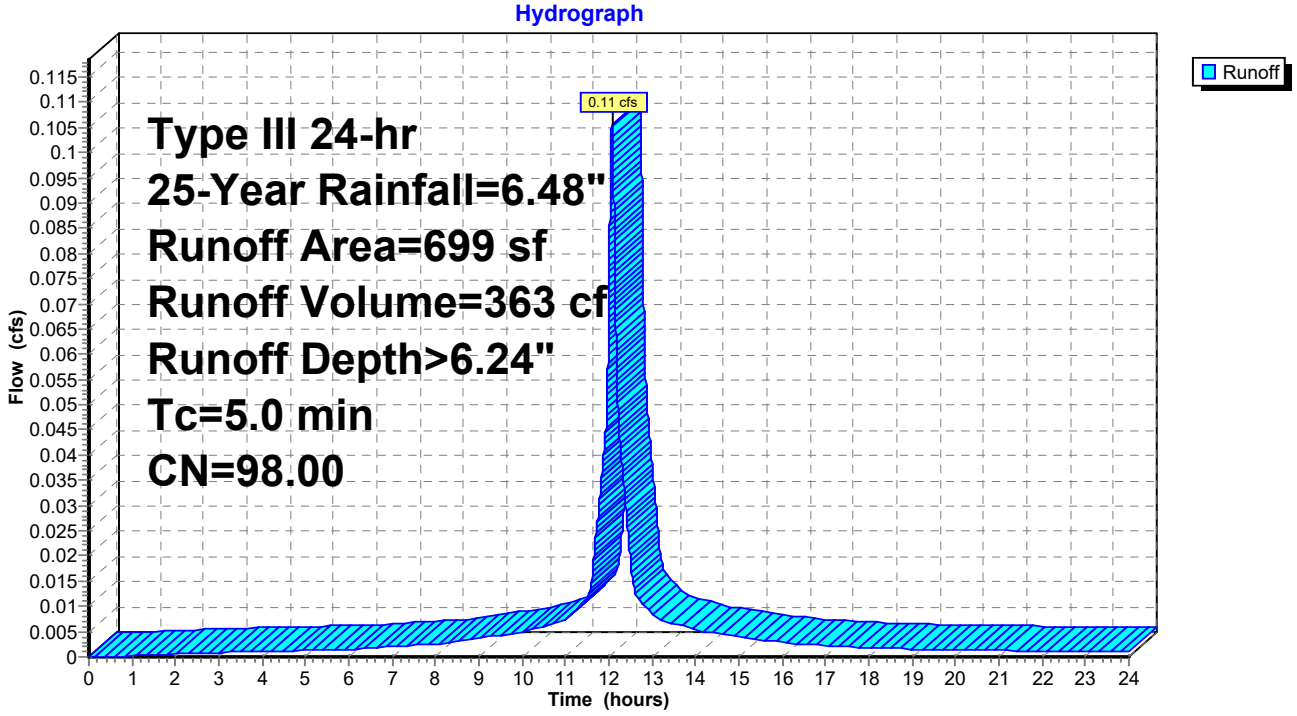
Runoff = 0.11 cfs @ 12.07 hrs, Volume= 363 cf, Depth> 6.24"
Routed to Pond 23P : Pr. PP#10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Type III 24-hr 25-Year Rainfall=6.48"

	Area (sf)	CN	Description
*	699	98.00	Bonded Aggregate, HSG D
	699		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 22S: Pr. Perm Pavers #10



Summary for Pond 1A: Pr. PP#1

Inflow Area = 618 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 321 cf
Outflow = 0.09 cfs @ 12.08 hrs, Volume= 300 cf, Atten= 1%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 219 cf
Primary = 0.09 cfs @ 12.08 hrs, Volume= 81 cf
Routed to Link 4L : Pr. West Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 6.03' @ 12.08 hrs Surf.Area= 302 sf Storage= 85 cf

Plug-Flow detention time= 140.2 min calculated for 300 cf (93% of inflow)
Center-of-Mass det. time= 103.0 min (845.6 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	273 cf	**Custom Stage Data (Prismatic)** Listed below 684 cf Overall x 40.0% Voids

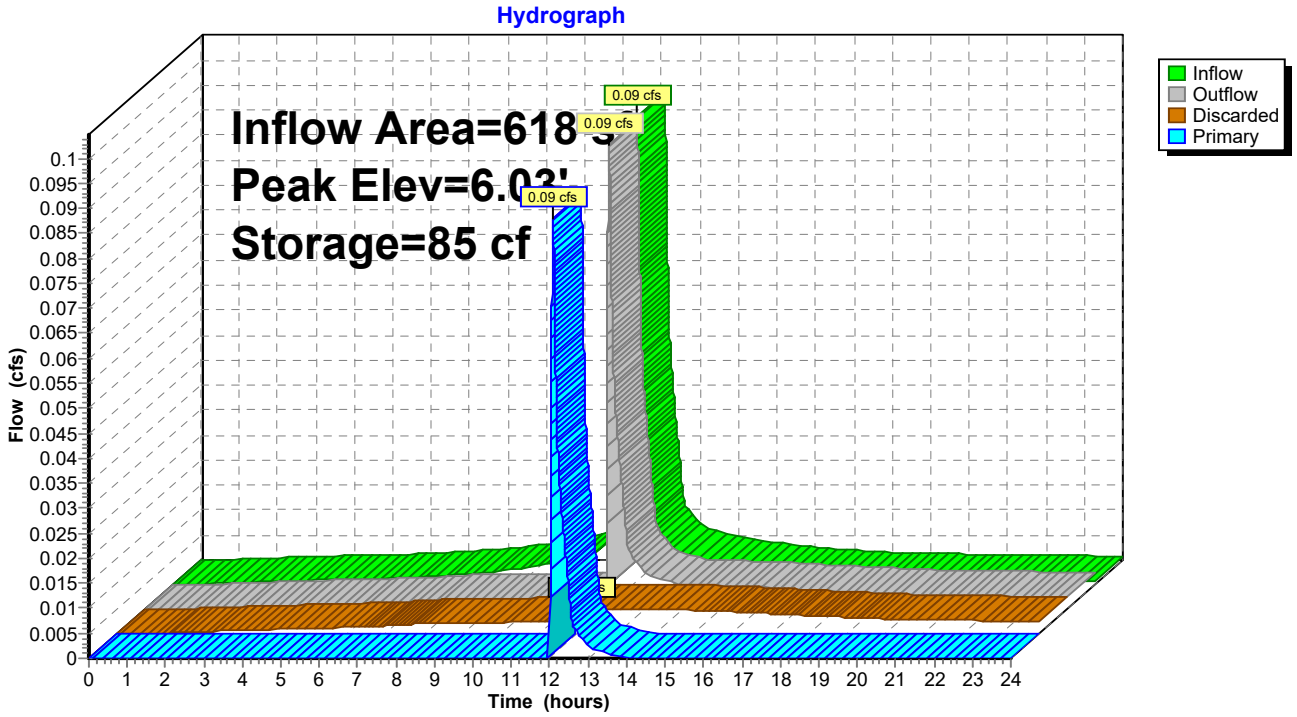
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	181	0	0
5.60	181	109	109
6.00	304	97	206
7.40	221	368	573
8.40	0	111	684

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	6.00'	**7.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=6.03' (Free Discharge)
1=Exfiltration (Controls 0.00 cfs)

Primary OutFlow Max=0.08 cfs @ 12.08 hrs HW=6.03' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.08 cfs @ 0.42 fps)

Pond 1A: Pr. PP#1



Stage-Area-Storage for Pond 1A: Pr. PP#1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
5.00	181	0
5.05	181	4
5.10	181	7
5.15	181	11
5.20	181	14
5.25	181	18
5.30	181	22
5.35	181	25
5.40	181	29
5.45	181	33
5.50	181	36
5.55	181	40
5.60	181	43
5.65	196	48
5.70	212	53
5.75	227	58
5.80	243	63
5.85	258	68
5.90	273	73
5.95	289	77
6.00	**304**	82
6.05	301	87
6.10	298	93
6.15	295	98
6.20	292	103
6.25	289	108
6.30	286	114
6.35	283	119
6.40	280	124
6.45	277	129
6.50	274	135
6.55	271	140
6.60	268	145
6.65	265	150
6.70	263	156
6.75	260	161
6.80	257	166
6.85	254	171
6.90	251	177
6.95	248	182
7.00	245	187
7.05	242	192
7.10	239	198
7.15	236	203
7.20	233	208
7.25	230	213
7.30	227	219
7.35	224	224
7.40	221	229
7.45	210	231
7.50	199	234
7.55	188	236
7.60	177	238
7.65	166	240
7.70	155	243
7.75	144	245
7.80	133	247
7.85	122	249
7.90	111	251
7.95	99	254
8.00	88	256
8.05	77	258
8.10	66	260
8.15	55	262
8.20	44	265
8.25	33	267
8.30	22	269
8.35	11	271
8.40	0	**273**

Summary for Pond 1P: Pr. Infil #1

Inflow Area = 30,322 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 4.59 cfs @ 12.07 hrs, Volume= 15,760 cf
Outflow = 4.54 cfs @ 12.08 hrs, Volume= 12,612 cf, Atten= 1%, Lag= 0.5 min
Primary = 4.54 cfs @ 12.08 hrs, Volume= 12,612 cf
Routed to Link 4L : Pr. West Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3
Peak Elev= 7.45' @ 12.08 hrs Surf.Area= 1,516 sf Storage= 3,413 cf

Plug-Flow detention time= 146.7 min calculated for 12,612 cf (80% of inflow)
Center-of-Mass det. time= 69.5 min (812.1 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.80'	1,477 cf	**15.75'W x 96.28'L x 3.75'H Field A** 5,687 cf Overall - 1,994 cf Embedded = 3,693 cf x 40.0% Voids
#2A	4.30'	1,994 cf	**ADS_StormTech SC-800 +Cap** x 39 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 39 Chambers in 3 Rows Cap Storage= 3.4 cf x 2 x 3 rows = 20.5 cf
		3,471 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	7.00'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.54 cfs @ 12.08 hrs HW=7.45' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 4.54 cfs @ 2.00 fps)

Pond 1P: Pr. Infil #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 3 rows = 20.5 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

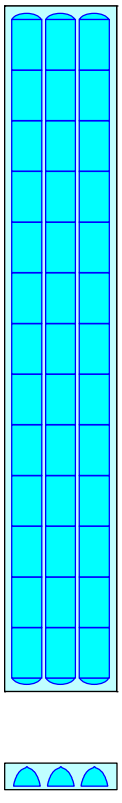
13 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 94.28' Row Length +12.0" End Stone x 2 = 96.28' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

39 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 3 Rows = 1,993.6 cf Chamber Storage

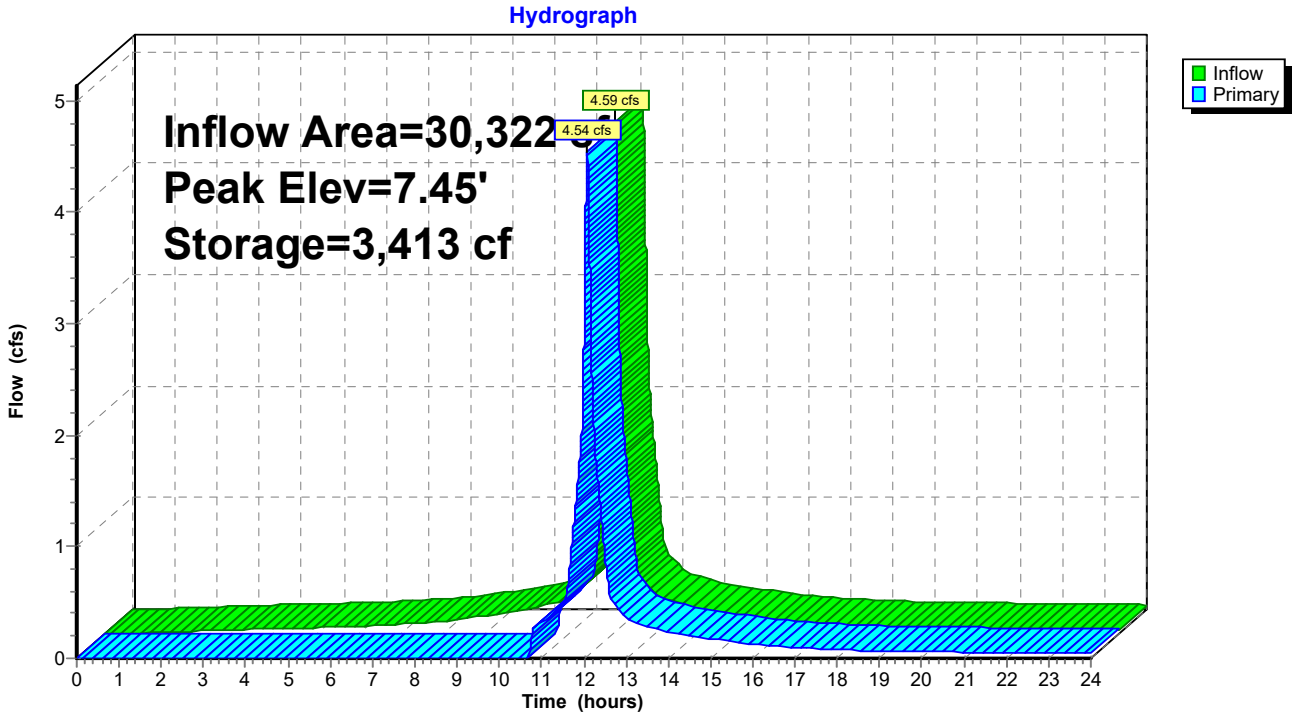
5,686.7 cf Field - 1,993.6 cf Chambers = 3,693.1 cf Stone x 40.0% Voids = 1,477.2 cf Stone Storage

Chamber Storage + Stone Storage = 3,470.9 cf = 0.080 af
Overall Storage Efficiency = 61.0%
Overall System Size = 96.28' x 15.75' x 3.75'

39 Chambers
210.6 cy Field
136.8 cy Stone



Pond 1P: Pr. Infil #1



Stage-Area-Storage for Pond 1P: Pr. Infil #1

Elevation (feet)	Storage (cubic-feet)
3.80	0
3.85	30
3.90	61
3.95	91
4.00	121
4.05	152
4.10	182
4.15	212
4.20	243
4.25	273
4.30	303
4.35	365
4.40	427
4.45	488
4.50	550
4.55	611
4.60	672
4.65	733
4.70	793
4.75	854
4.80	914
4.85	974
4.90	1,034
4.95	1,093
5.00	1,152
5.05	1,211
5.10	1,270
5.15	1,328
5.20	1,387
5.25	1,445
5.30	1,502
5.35	1,559
5.40	1,616
5.45	1,673
5.50	1,729
5.55	1,785
5.60	1,841
5.65	1,896
5.70	1,951
5.75	2,005
5.80	2,059
5.85	2,112
5.90	2,165
5.95	2,218
6.00	2,270
6.05	2,321
6.10	2,372
6.15	2,423
6.20	2,472
6.25	2,522
6.30	2,570
6.35	2,618
6.40	2,665
6.45	2,711
6.50	2,756
6.55	2,801
6.60	2,844
6.65	2,886
6.70	2,926
6.75	2,965
6.80	3,002
6.85	3,037
6.90	3,071
6.95	3,104
7.00	3,137
7.05	3,168
7.10	3,198
7.15	3,228
7.20	3,259
7.25	3,289
7.30	3,319
7.35	3,350
7.40	3,380
7.45	3,410
7.50	3,441
7.55	**3,471**

Summary for Pond 2A: Pr. PP#2

Inflow Area = 321 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 167 cf
Outflow = 0.01 cfs @ 12.58 hrs, Volume= 167 cf, Atten= 87%, Lag= 30.3 min
Discarded = 0.01 cfs @ 12.58 hrs, Volume= 167 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 7.62' @ 12.58 hrs Surf.Area= 321 sf Storage= 60 cf

Plug-Flow detention time= 78.9 min calculated for 167 cf (100% of inflow)
Center-of-Mass det. time= 78.1 min (820.8 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.90'	128 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 321 cf Overall x 40.0% Voids

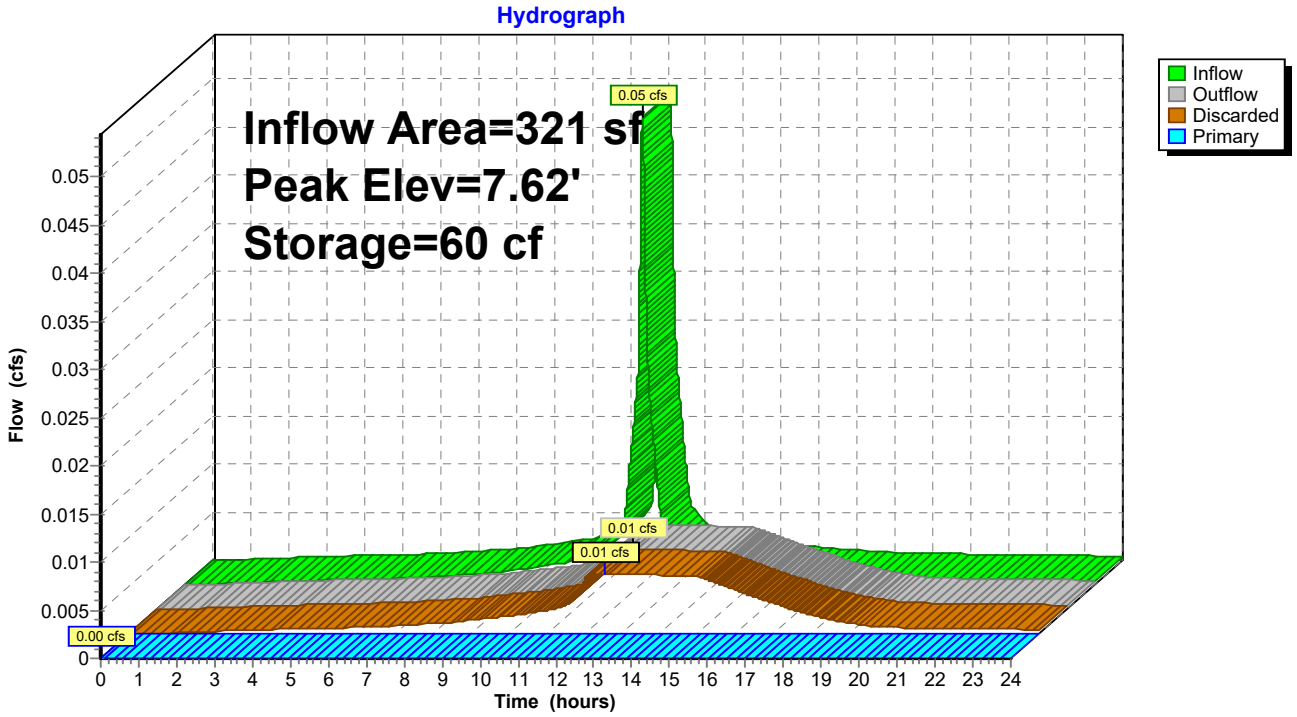
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.90	0	0	0
7.40	321	80	80
7.90	321	161	241
8.40	0	80	321

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.90'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	7.90'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.01 cfs @ 12.58 hrs HW=7.62' (Free Discharge)
↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.90' (Free Discharge)
↑**2=Special & User-Defined** (Controls 0.00 cfs)

Pond 2A: Pr. PP#2



Stage-Area-Storage for Pond 2A: Pr. PP#2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.90	0	0
6.95	32	0
7.00	64	1
7.05	96	3
7.10	128	5
7.15	161	8
7.20	193	12
7.25	225	16
7.30	257	21
7.35	289	26
7.40	**321**	32
7.45	321	39
7.50	321	45
7.55	321	51
7.60	321	58
7.65	321	64
7.70	321	71
7.75	321	77
7.80	321	83
7.85	321	90
7.90	321	96
7.95	289	102
8.00	257	108
8.05	225	113
8.10	193	117
8.15	161	120
8.20	128	123
8.25	96	126
8.30	64	127
8.35	32	128
8.40	0	**128**

Summary for Pond 2P: Pr. Infil #2

Inflow Area = 55,520 sf, 79.02% Impervious, Inflow Depth > 5.99" for 25-Year event
Inflow = 8.31 cfs @ 12.07 hrs, Volume= 27,712 cf
Outflow = 8.19 cfs @ 12.08 hrs, Volume= 22,850 cf, Atten= 1%, Lag= 0.7 min
Primary = 8.19 cfs @ 12.08 hrs, Volume= 22,850 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3
Peak Elev= 7.95' @ 12.08 hrs Surf.Area= 2,420 sf Storage= 5,482 cf

Plug-Flow detention time= 128.3 min calculated for 22,850 cf (82% of inflow)
Center-of-Mass det. time= 57.8 min (813.5 - 755.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.30'	2,331 cf	**44.75'W x 54.08'L x 3.75'H Field A** 9,076 cf Overall - 3,249 cf Embedded = 5,827 cf x 40.0% Voids
#2A	4.80'	3,249 cf	**ADS_StormTech SC-800 +Cap** x 63 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 63 Chambers in 9 Rows Cap Storage= 3.4 cf x 2 x 9 rows = 61.6 cf
		5,580 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	7.30'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.18 cfs @ 12.08 hrs HW=7.95' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 8.18 cfs @ 2.52 fps)

Pond 2P: Pr. Infil #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 9 rows = 61.6 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

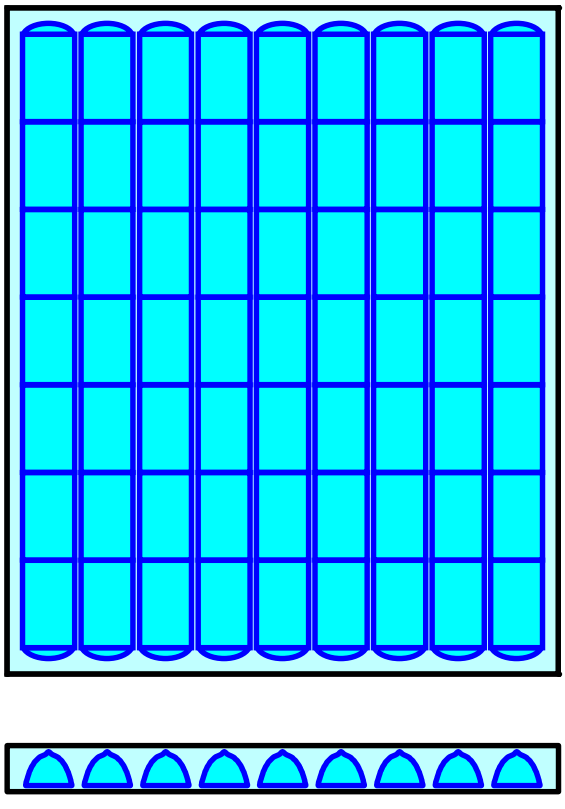
7 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 51.58' Row Length +15.0" End Stone x 2 = 54.08' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 15.0" Side Stone x 2 = 44.75' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

63 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 9 Rows = 3,248.9 cf Chamber Storage

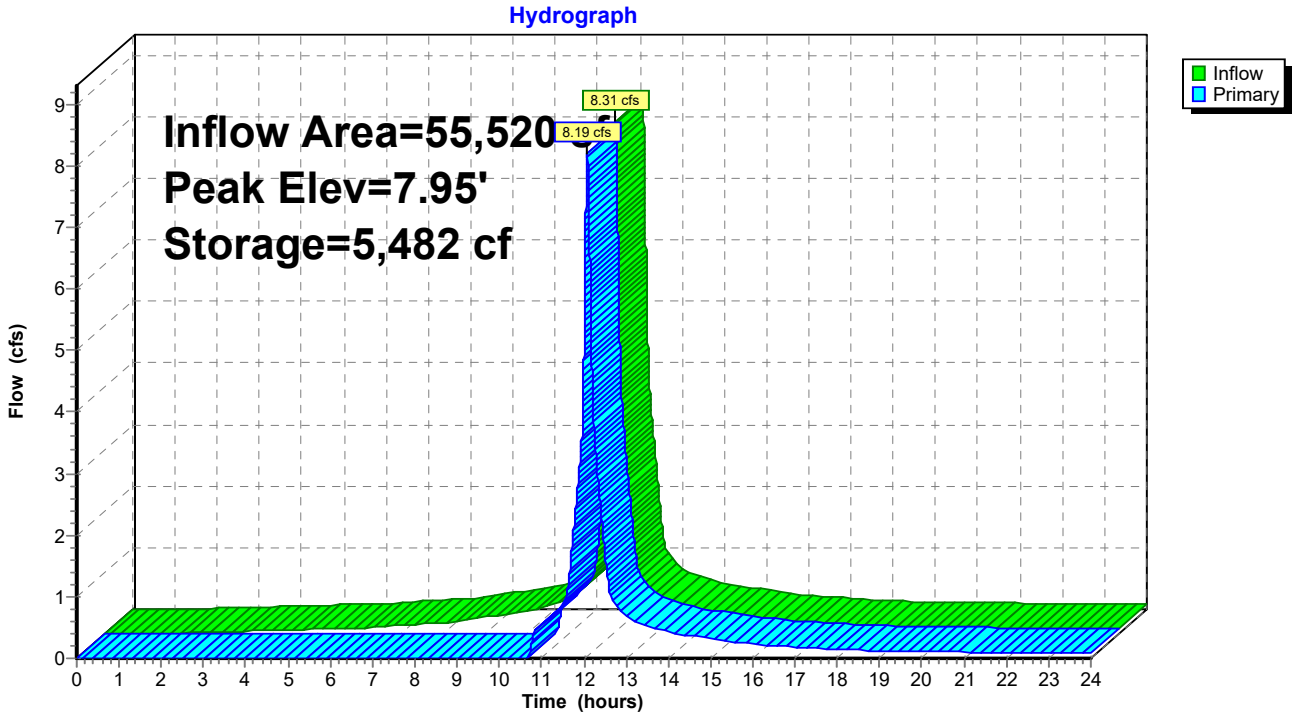
9,075.9 cf Field - 3,248.9 cf Chambers = 5,827.0 cf Stone x 40.0% Voids = 2,330.8 cf Stone Storage

Chamber Storage + Stone Storage = 5,579.7 cf = 0.128 af
Overall Storage Efficiency = 61.5%
Overall System Size = 54.08' x 44.75' x 3.75'

63 Chambers
336.1 cy Field
215.8 cy Stone



Pond 2P: Pr. Infil #2



Stage-Area-Storage for Pond 2P: Pr. Infil #2

Elevation (feet)	Storage (cubic-feet)
4.30	0
4.35	48
4.40	97
4.45	145
4.50	194
4.55	242
4.60	290
4.65	339
4.70	387
4.75	436
4.80	484
4.85	584
4.90	683
4.95	783
5.00	882
5.05	980
5.10	1,079
5.15	1,177
5.20	1,274
5.25	1,372
5.30	1,469
5.35	1,566
5.40	1,662
5.45	1,758
5.50	1,853
5.55	1,948
5.60	2,043
5.65	2,137
5.70	2,231
5.75	2,324
5.80	2,417
5.85	2,510
5.90	2,601
5.95	2,693
6.00	2,783
6.05	2,873
6.10	2,963
6.15	3,052
6.20	3,140
6.25	3,227
6.30	3,314
6.35	3,400
6.40	3,486
6.45	3,570
6.50	3,654
6.55	3,737
6.60	3,819
6.65	3,900
6.70	3,980
6.75	4,059
6.80	4,137
6.85	4,214
6.90	4,289
6.95	4,364
7.00	4,437
7.05	4,508
7.10	4,577
7.15	4,645
7.20	4,710
7.25	4,772
7.30	4,831
7.35	4,888
7.40	4,942
7.45	4,995
7.50	5,046
7.55	5,096
7.60	5,144
7.65	5,192
7.70	5,241
7.75	5,289
7.80	5,338
7.85	5,386
7.90	5,434
7.95	5,483
8.00	5,531
8.05	**5,580**

Summary for Pond 3A: Pr. PP#3

Inflow Area = 643 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 334 cf
Outflow = 0.01 cfs @ 12.57 hrs, Volume= 334 cf, Atten= 87%, Lag= 30.2 min
Discarded = 0.01 cfs @ 12.57 hrs, Volume= 334 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 7.54' @ 12.57 hrs Surf.Area= 643 sf Storage= 125 cf

Plug-Flow detention time= 88.9 min calculated for 334 cf (100% of inflow)
Center-of-Mass det. time= 87.8 min (830.4 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.70'	257 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 643 cf Overall x 40.0% Voids

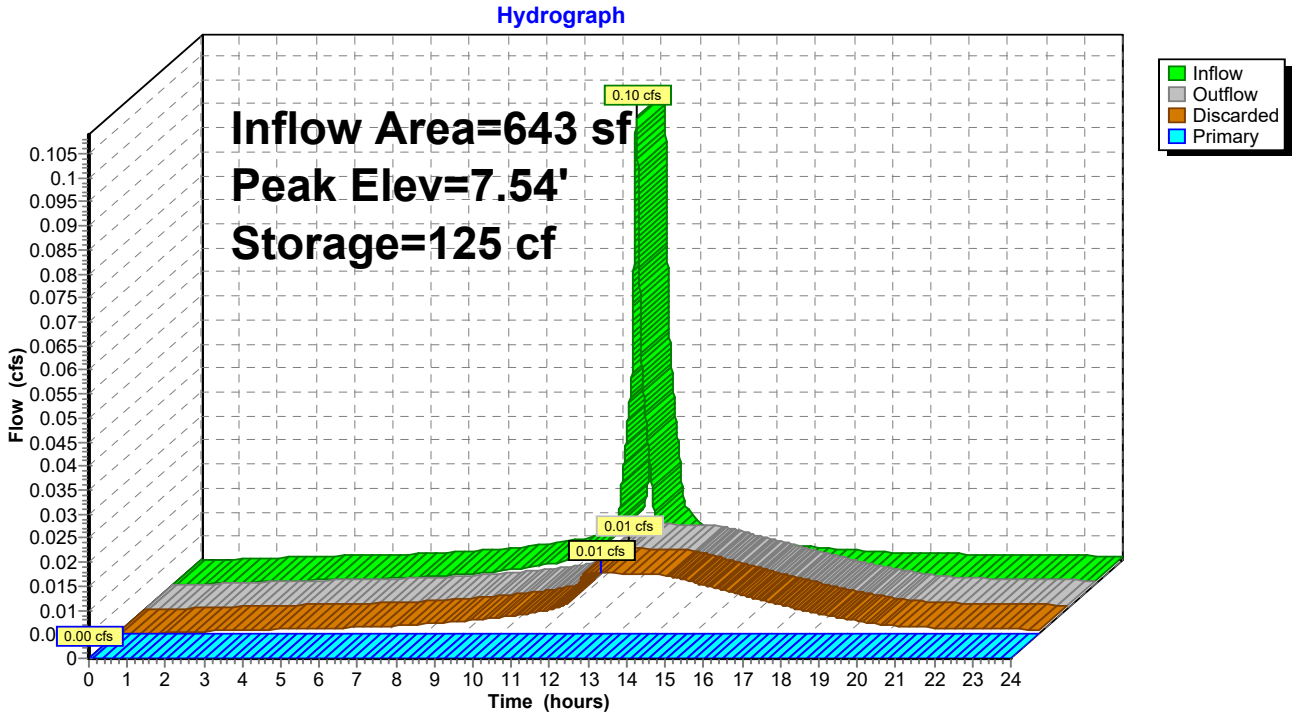
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.70	0	0	0
7.40	643	225	225
7.70	643	193	418
8.40	0	225	643

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.70'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	7.70'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.01 cfs @ 12.57 hrs HW=7.54' (Free Discharge)
↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.70' (Free Discharge)
↑**2=Special & User-Defined** (Controls 0.00 cfs)

Pond 3A: Pr. PP#3



Stage-Area-Storage for Pond 3A: Pr. PP#3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.70	0	0
6.75	46	0
6.80	92	2
6.85	138	4
6.90	184	7
6.95	230	11
7.00	276	17
7.05	321	23
7.10	367	29
7.15	413	37
7.20	459	46
7.25	505	56
7.30	551	66
7.35	597	78
7.40	**643**	90
7.45	643	103
7.50	643	116
7.55	643	129
7.60	643	141
7.65	643	154
7.70	643	167
7.75	597	180
7.80	551	191
7.85	505	202
7.90	459	211
7.95	413	220
8.00	367	228
8.05	321	235
8.10	276	241
8.15	230	246
8.20	184	250
8.25	138	253
8.30	92	255
8.35	46	257
8.40	0	**257**

Summary for Pond 4A: Pr. PP#4

Inflow Area = 1,625 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 845 cf
Outflow = 0.11 cfs @ 12.21 hrs, Volume= 843 cf, Atten= 54%, Lag= 8.6 min
Discarded = 0.03 cfs @ 12.21 hrs, Volume= 778 cf
Primary = 0.09 cfs @ 12.21 hrs, Volume= 65 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 8.00' @ 12.21 hrs Surf.Area= 1,255 sf Storage= 284 cf

Plug-Flow detention time= 105.3 min calculated for 843 cf (100% of inflow)
Center-of-Mass det. time= 103.8 min (846.5 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	7.00'	346 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 864 cf Overall x 40.0% Voids

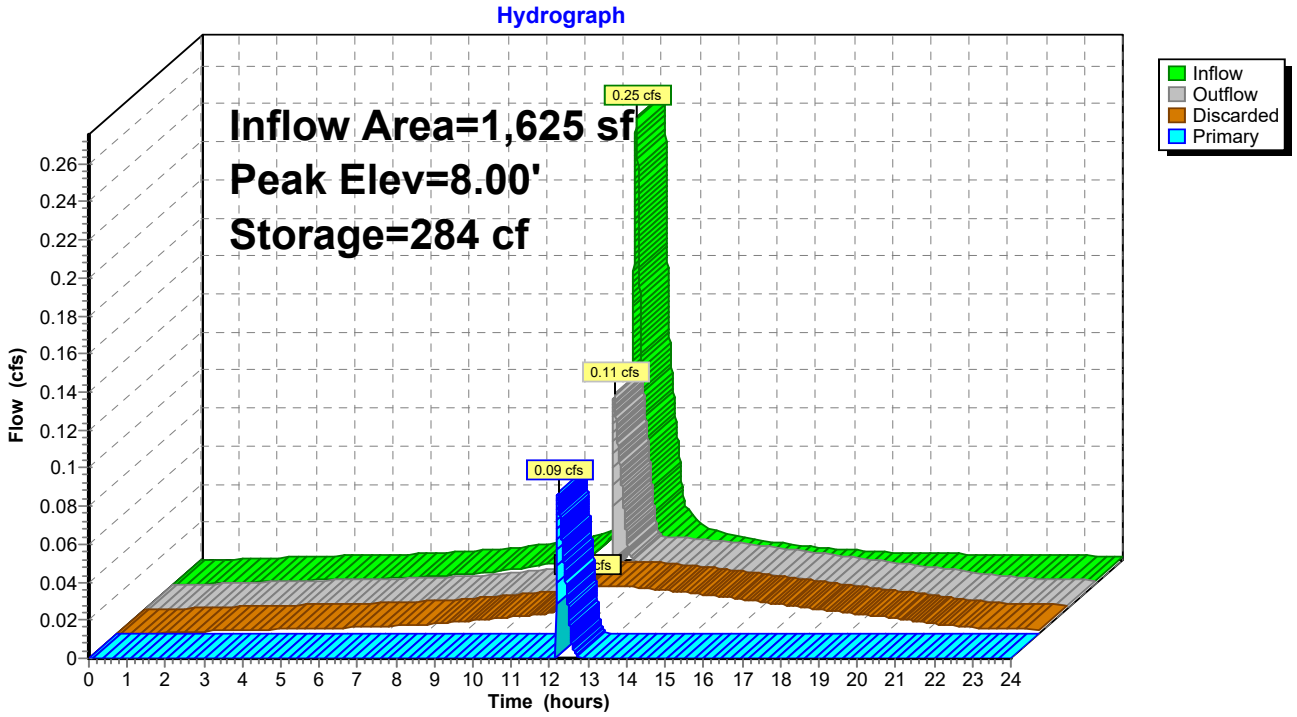
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.00	0	0	0
7.25	455	57	57
8.00	1,273	648	705
8.25	0	159	864

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.00'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	8.00'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.03 cfs @ 12.21 hrs HW=8.00' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.09 cfs @ 12.21 hrs HW=8.00' (Free Discharge)
↑**2=Special & User-Defined** (Custom Controls 0.09 cfs)

Pond 4A: Pr. PP#4



Stage-Area-Storage for Pond 4A: Pr. PP#4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
7.00	0	0
7.05	91	1
7.10	182	4
7.15	273	8
7.20	364	15
7.25	455	23
7.30	510	32
7.35	564	43
7.40	619	55
7.45	673	68
7.50	728	82
7.55	782	97
7.60	837	113
7.65	891	130
7.70	946	149
7.75	1,000	168
7.80	1,055	189
7.85	1,109	210
7.90	1,164	233
7.95	1,218	257
8.00	**1,273**	282
8.05	1,018	305
8.10	764	323
8.15	509	335
8.20	255	343
8.25	0	**346**
8.30	0	346
8.35	0	346
8.40	0	346
8.45	0	346
8.50	0	346

Summary for Pond 5A: Pr. PP#5

Inflow Area = 961 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 499 cf
Outflow = 0.10 cfs @ 12.14 hrs, Volume= 496 cf, Atten= 29%, Lag= 4.2 min
Discarded = 0.02 cfs @ 12.59 hrs, Volume= 445 cf
Primary = 0.08 cfs @ 12.14 hrs, Volume= 50 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 7.85' @ 12.14 hrs Surf.Area= 952 sf Storage= 147 cf

Plug-Flow detention time= 83.8 min calculated for 496 cf (99% of inflow)
Center-of-Mass det. time= 78.6 min (821.2 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.85'	223 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 558 cf Overall x 40.0% Voids

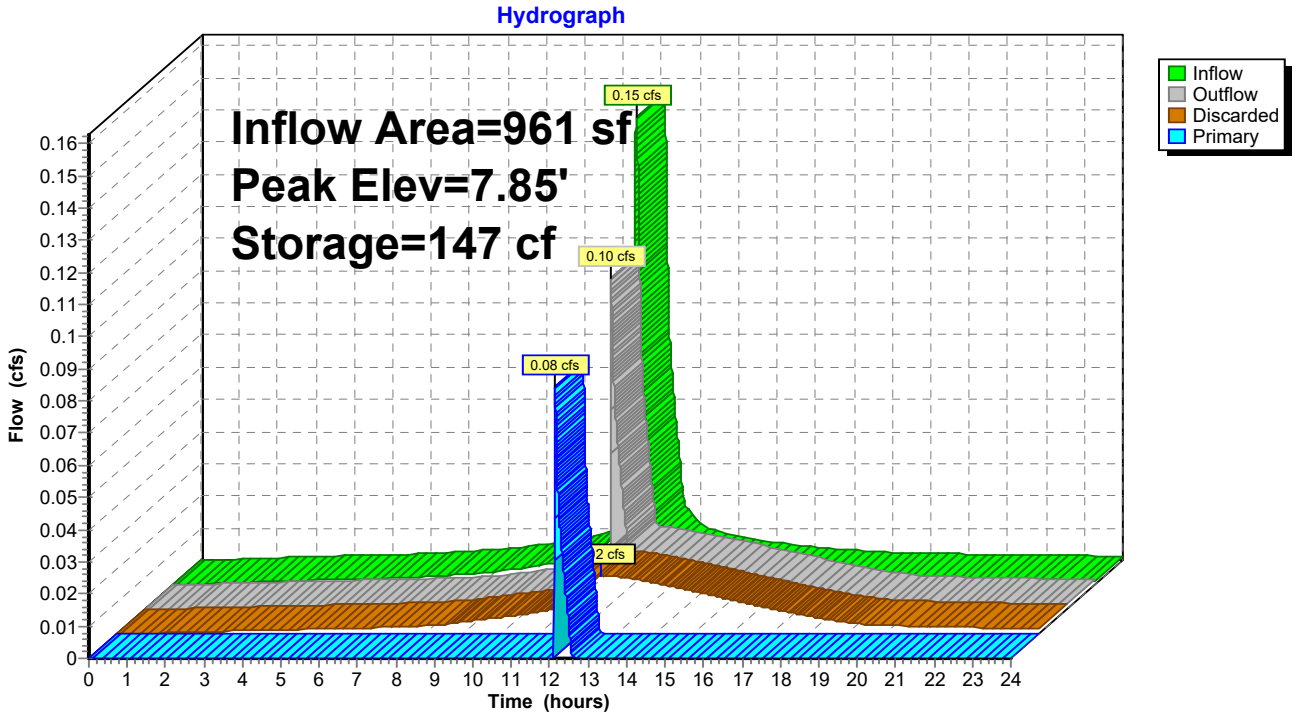
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.85	0	0	0
7.25	155	31	31
7.85	960	334	365
8.25	0	192	558

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.85'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	7.85'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.02 cfs @ 12.59 hrs HW=7.85' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.08 cfs @ 12.14 hrs HW=7.85' (Free Discharge)
↑**2=Special & User-Defined** (Custom Controls 0.08 cfs)

Pond 5A: Pr. PP#5



Stage-Area-Storage for Pond 5A: Pr. PP#5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.85	0	0
6.90	19	0
6.95	39	1
7.00	58	2
7.05	78	3
7.10	97	5
7.15	116	7
7.20	136	9
7.25	155	12
7.30	222	16
7.35	289	21
7.40	356	28
7.45	423	36
7.50	490	45
7.55	558	55
7.60	625	67
7.65	692	80
7.70	759	95
7.75	826	110
7.80	893	128
7.85	**960**	146
7.90	840	164
7.95	720	180
8.00	600	193
8.05	480	204
8.10	360	212
8.15	240	218
8.20	120	222
8.25	0	**223**
8.30	0	223
8.35	0	223

Summary for Pond 13P: Pr. PP#6

Inflow Area = 372 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 193 cf
Outflow = 0.01 cfs @ 12.55 hrs, Volume= 193 cf, Atten= 85%, Lag= 28.5 min
Discarded = 0.01 cfs @ 12.55 hrs, Volume= 193 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 4L : Pr. West Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 5.69' @ 12.55 hrs Surf.Area= 369 sf Storage= 73 cf

Plug-Flow detention time= 92.8 min calculated for 193 cf (100% of inflow)
Center-of-Mass det. time= 91.2 min (833.8 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	4.70'	149 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 372 cf Overall x 40.0% Voids

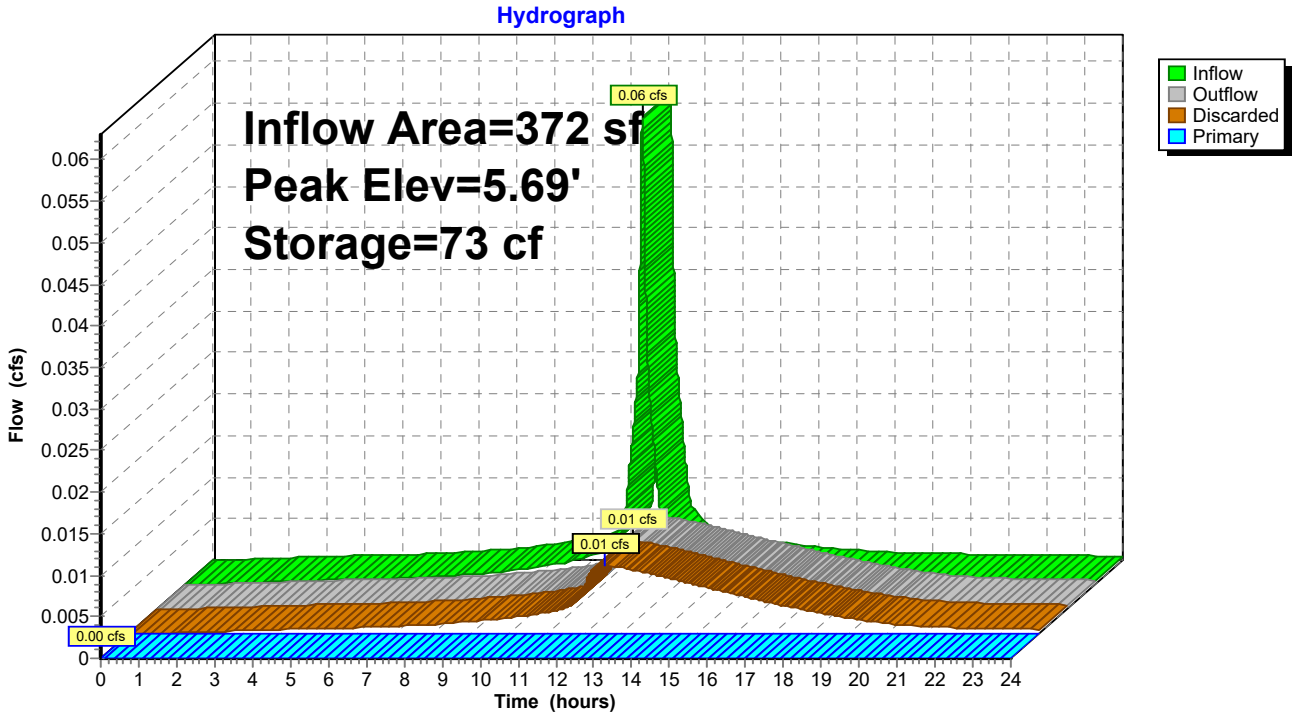
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4.70	0	0	0
5.70	372	186	186
6.70	0	186	372

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.70'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	5.70'	**5.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.01 cfs @ 12.55 hrs HW=5.69' (Free Discharge)
↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=4.70' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: Pr. PP#6



Stage-Area-Storage for Pond 13P: Pr. PP#6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
4.70	0	0
4.75	19	0
4.80	37	1
4.85	56	2
4.90	74	3
4.95	93	5
5.00	112	7
5.05	130	9
5.10	149	12
5.15	167	15
5.20	186	19
5.25	205	23
5.30	223	27
5.35	242	31
5.40	260	36
5.45	279	42
5.50	298	48
5.55	316	54
5.60	335	60
5.65	353	67
5.70	**372**	74
5.75	353	82
5.80	335	89
5.85	316	95
5.90	298	101
5.95	279	107
6.00	260	112
6.05	242	117
6.10	223	122
6.15	205	126
6.20	186	130
6.25	167	134
6.30	149	137
6.35	130	140
6.40	112	142
6.45	93	144
6.50	74	146
6.55	56	147
6.60	37	148
6.65	19	149
6.70	0	**149**

Summary for Pond 15P: Pr. PP#7

Inflow Area = 673 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 350 cf
Outflow = 0.01 cfs @ 12.56 hrs, Volume= 349 cf, Atten= 86%, Lag= 29.1 min
Discarded = 0.01 cfs @ 12.56 hrs, Volume= 349 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 5.84' @ 12.56 hrs Surf.Area= 523 sf Storage= 106 cf

Plug-Flow detention time= 51.3 min calculated for 349 cf (100% of inflow)
Center-of-Mass det. time= 50.2 min (792.8 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5.40'	322 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 805 cf Overall x 40.0% Voids

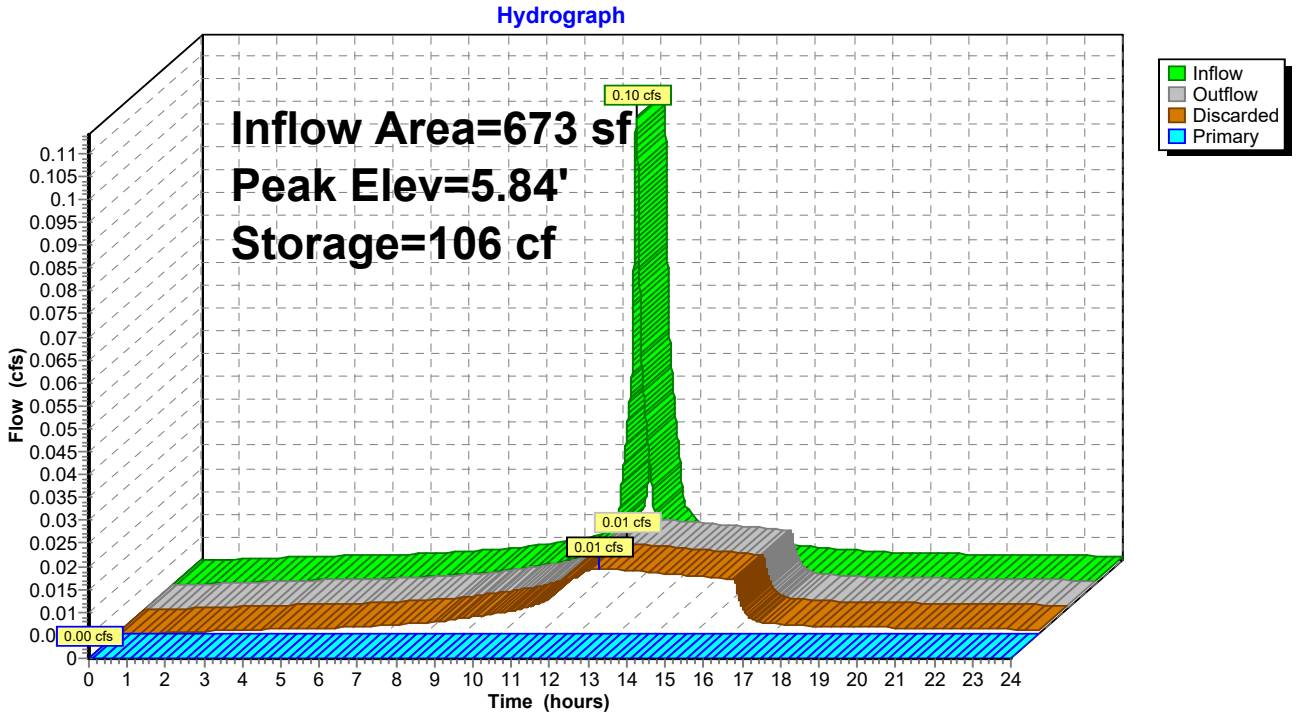
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.40	673	0	0
6.40	335	504	504
8.20	0	301	805

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.40'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	6.40'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.01 cfs @ 12.56 hrs HW=5.84' (Free Discharge)
↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=5.40' (Free Discharge)
↑**2=Special & User-Defined** (Controls 0.00 cfs)

Pond 15P: Pr. PP#7



Stage-Area-Storage for Pond 15P: Pr. PP#7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
5.40	**673**	0
5.45	656	13
5.50	639	26
5.55	622	39
5.60	605	51
5.65	589	63
5.70	572	75
5.75	555	86
5.80	538	97
5.85	521	107
5.90	504	118
5.95	487	128
6.00	470	137
6.05	453	146
6.10	436	155
6.15	420	164
6.20	403	172
6.25	386	180
6.30	369	188
6.35	352	195
6.40	335	202
6.45	326	208
6.50	316	215
6.55	307	221
6.60	298	227
6.65	288	233
6.70	279	238
6.75	270	244
6.80	261	249
6.85	251	254
6.90	242	259
6.95	233	264
7.00	223	269
7.05	214	273
7.10	205	277
7.15	195	281
7.20	186	285
7.25	177	289
7.30	167	292
7.35	158	295
7.40	149	298
7.45	140	301
7.50	130	304
7.55	121	306
7.60	112	309
7.65	102	311
7.70	93	313
7.75	84	315
7.80	74	316
7.85	65	318
7.90	56	319
7.95	47	320
8.00	37	321
8.05	28	321
8.10	19	322
8.15	9	322
8.20	0	**322**

Summary for Pond 17P: Pr. PP#8

Inflow Area = 333 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 173 cf
Outflow = 0.01 cfs @ 12.57 hrs, Volume= 173 cf, Atten= 87%, Lag= 30.2 min
Discarded = 0.01 cfs @ 12.57 hrs, Volume= 173 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 7.38' @ 12.57 hrs Surf.Area= 333 sf Storage= 64 cf

Plug-Flow detention time= 83.4 min calculated for 173 cf (100% of inflow)
Center-of-Mass det. time= 82.4 min (825.0 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.60'	133 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 333 cf Overall x 40.0% Voids

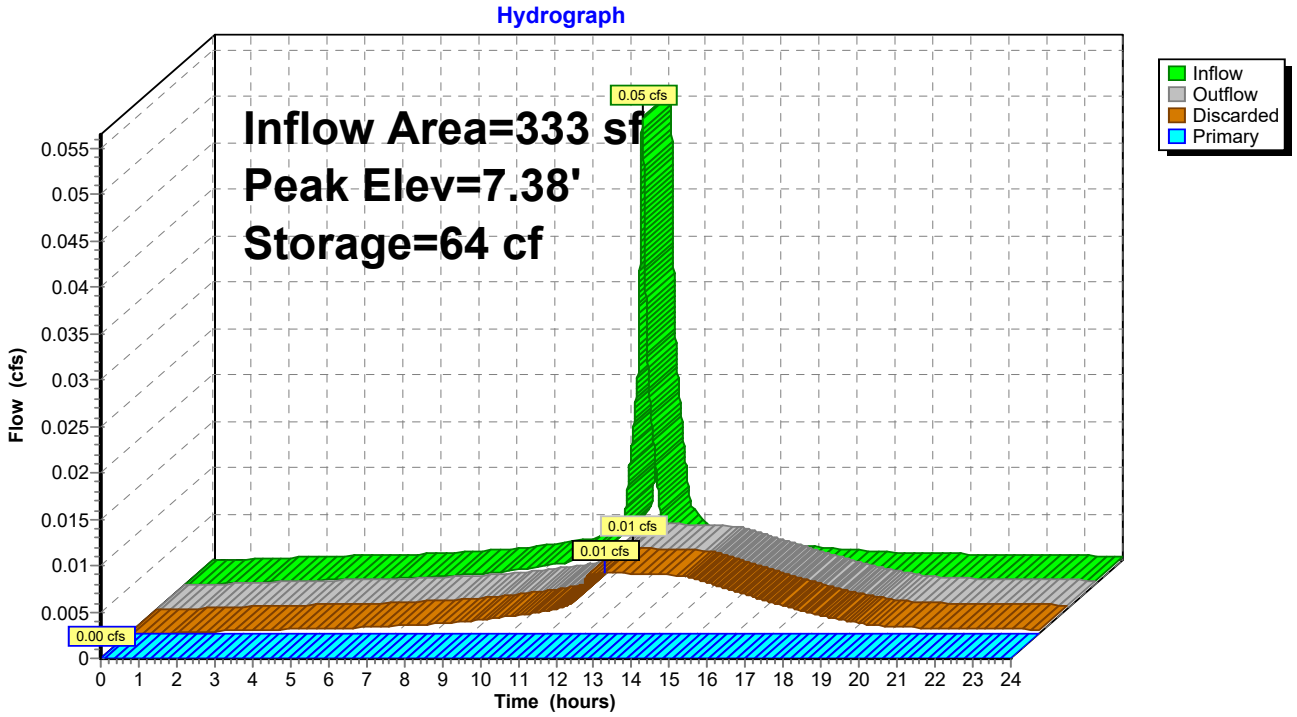
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.60	0	0	0
7.20	333	100	100
7.60	333	133	233
8.20	0	100	333

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.60'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	7.60'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.01 cfs @ 12.57 hrs HW=7.38' (Free Discharge)
↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.60' (Free Discharge)
↑**2=Special & User-Defined** (Controls 0.00 cfs)

Pond 17P: Pr. PP#8



Stage-Area-Storage for Pond 17P: Pr. PP#8

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.60	0	0
6.65	28	0
6.70	55	1
6.75	83	2
6.80	111	4
6.85	139	7
6.90	166	10
6.95	194	14
7.00	222	18
7.05	250	22
7.10	277	28
7.15	305	34
7.20	**333**	40
7.25	**333**	47
7.30	333	53
7.35	333	60
7.40	333	67
7.45	333	73
7.50	333	80
7.55	333	87
7.60	333	93
7.65	305	100
7.70	278	105
7.75	250	111
7.80	222	115
7.85	194	120
7.90	167	123
7.95	139	126
8.00	111	129
8.05	83	131
8.10	55	132
8.15	28	133
8.20	0	**133**

Summary for Pond 21P: Pr. PP#9

Inflow Area = 1,080 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 561 cf
Outflow = 0.02 cfs @ 12.58 hrs, Volume= 560 cf, Atten= 87%, Lag= 30.5 min
Discarded = 0.02 cfs @ 12.58 hrs, Volume= 560 cf
Primary = 0.00 cfs @ 12.58 hrs, Volume= 1 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 7.50' @ 12.58 hrs Surf.Area= 854 sf Storage= 222 cf

Plug-Flow detention time= 112.9 min calculated for 560 cf (100% of inflow)
Center-of-Mass det. time= 111.4 min (854.1 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	342 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 854 cf Overall x 40.0% Voids

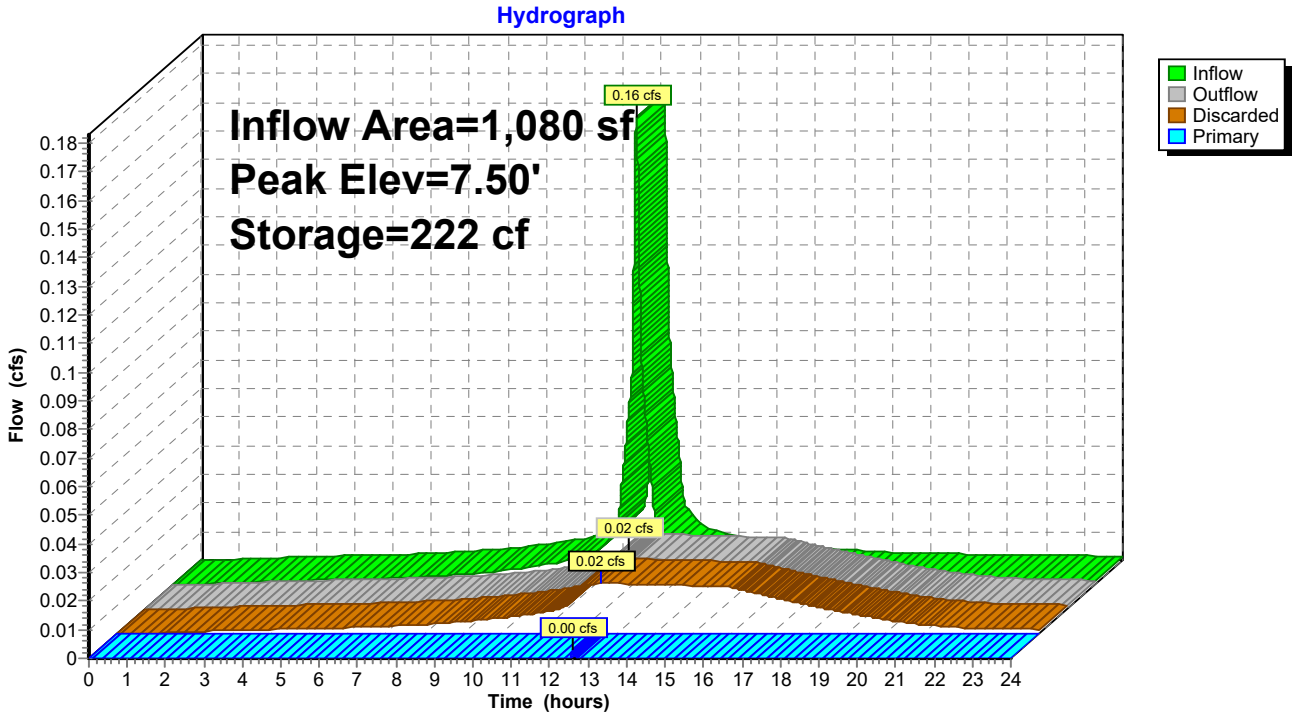
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	0	0	0
7.20	854	299	299
7.50	854	256	555
8.20	0	299	854

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.50'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	7.50'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.02 cfs @ 12.58 hrs HW=7.50' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 12.58 hrs HW=7.50' (Free Discharge)
↑**2=Special & User-Defined** (Custom Controls 0.00 cfs)

Pond 21P: Pr. PP#9



Stage-Area-Storage for Pond 21P: Pr. PP#9

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.50	0	0
6.55	61	1
6.60	122	2
6.65	183	5
6.70	244	10
6.75	305	15
6.80	366	22
6.85	427	30
6.90	488	39
6.95	549	49
7.00	610	61
7.05	671	74
7.10	732	88
7.15	793	103
7.20	**854**	120
7.25	854	137
7.30	854	154
7.35	854	171
7.40	854	188
7.45	854	205
7.50	854	222
7.55	793	239
7.60	732	254
7.65	671	268
7.70	610	281
7.75	549	292
7.80	488	303
7.85	427	312
7.90	366	320
7.95	305	326
8.00	244	332
8.05	183	336
8.10	122	339
8.15	61	341
8.20	0	**342**

Summary for Pond 23P: Pr. PP#10

Inflow Area = 699 sf,100.00% Impervious, Inflow Depth > 6.24" for 25-Year event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 363 cf
Outflow = 0.01 cfs @ 12.57 hrs, Volume= 363 cf, Atten= 87%, Lag= 30.1 min
Discarded = 0.01 cfs @ 12.57 hrs, Volume= 363 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : Pr. East Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 2
Peak Elev= 7.20' @ 12.57 hrs Surf.Area= 699 sf Storage= 132 cf

Plug-Flow detention time= 80.3 min calculated for 363 cf (100% of inflow)
Center-of-Mass det. time= 79.5 min (822.1 - 742.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.45'	280 cf	**Stone Storage (Prismatic)** Listed below (Recalc) 699 cf Overall x 40.0% Voids

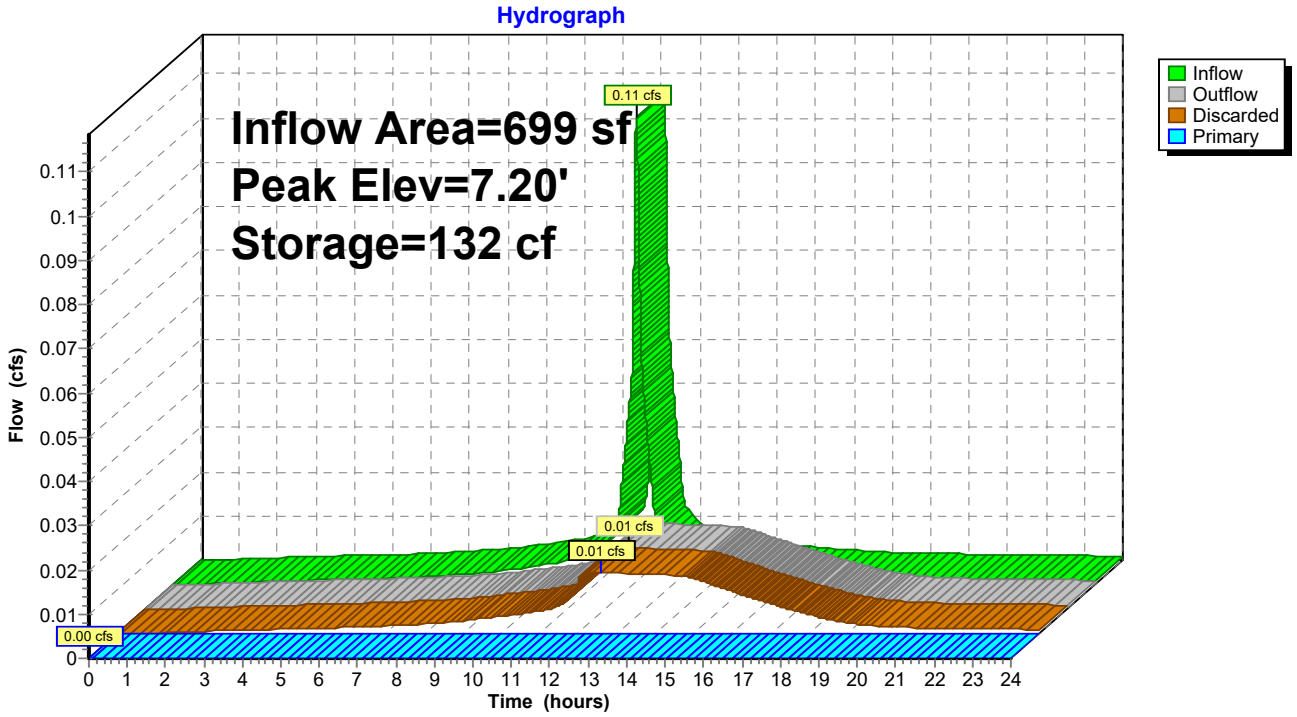
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.45	0	0	0
7.00	699	192	192
7.45	699	315	507
8.00	0	192	699

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.45'	**0.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 3.30'
#2	Primary	7.45'	**Special & User-Defined** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 Disch. (cfs) 0.000 2.000 2.700 3.400 3.800 4.400 4.700

Discarded OutFlow Max=0.01 cfs @ 12.57 hrs HW=7.20' (Free Discharge)
↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.45' (Free Discharge)
↑**2=Special & User-Defined** (Controls 0.00 cfs)

Pond 23P: Pr. PP#10



Stage-Area-Storage for Pond 23P: Pr. PP#10

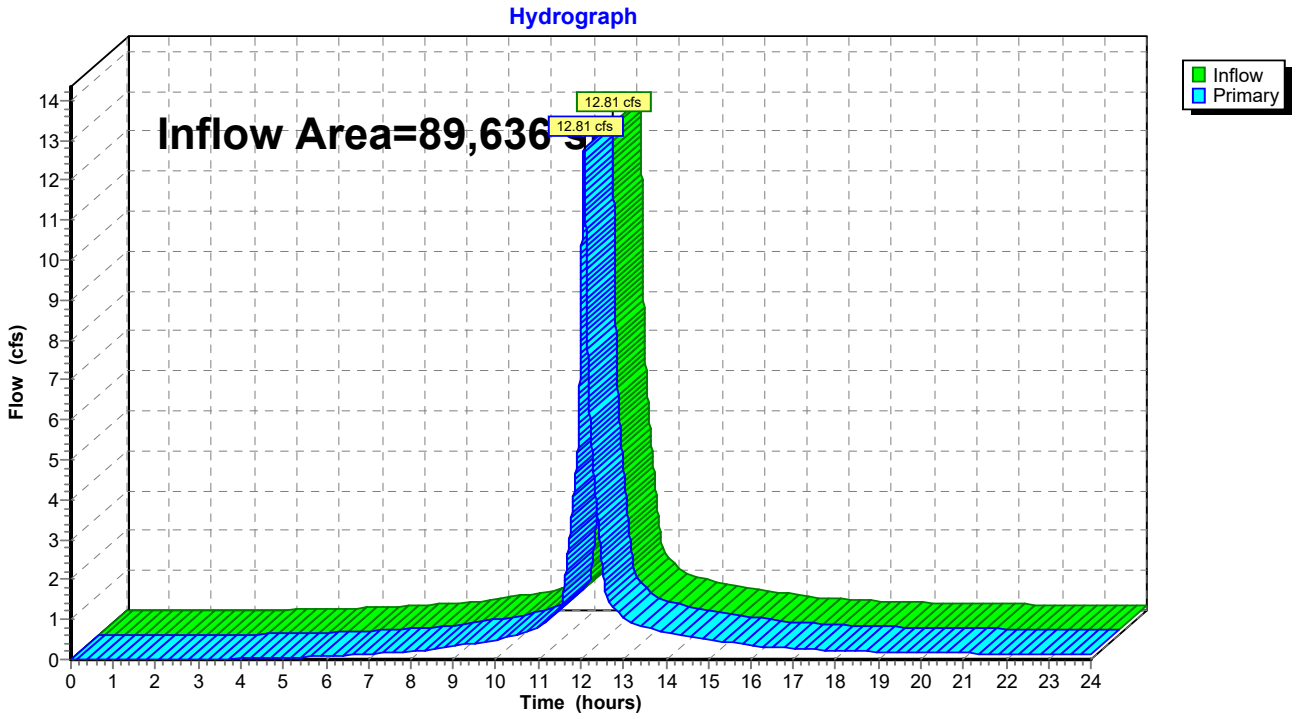
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.45	0	0
6.50	64	1
6.55	127	3
6.60	191	6
6.65	254	10
6.70	318	16
6.75	381	23
6.80	445	31
6.85	508	41
6.90	572	51
6.95	635	64
7.00	**699**	77
7.05	699	91
7.10	699	105
7.15	699	119
7.20	699	133
7.25	699	147
7.30	699	161
7.35	699	175
7.40	699	189
7.45	699	203
7.50	635	216
7.55	572	228
7.60	508	239
7.65	445	248
7.70	381	257
7.75	318	264
7.80	254	269
7.85	191	274
7.90	127	277
7.95	64	279
8.00	0	**280**

Summary for Link 1L: Ex. West Out

Inflow Area = 89,636 sf, 23.65% Impervious, Inflow Depth > 5.44" for 25-Year event
Inflow = 12.81 cfs @ 12.07 hrs, Volume= 40,623 cf
Primary = 12.81 cfs @ 12.07 hrs, Volume= 40,623 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Ex. Outfall

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Link 1L: Ex. West Out

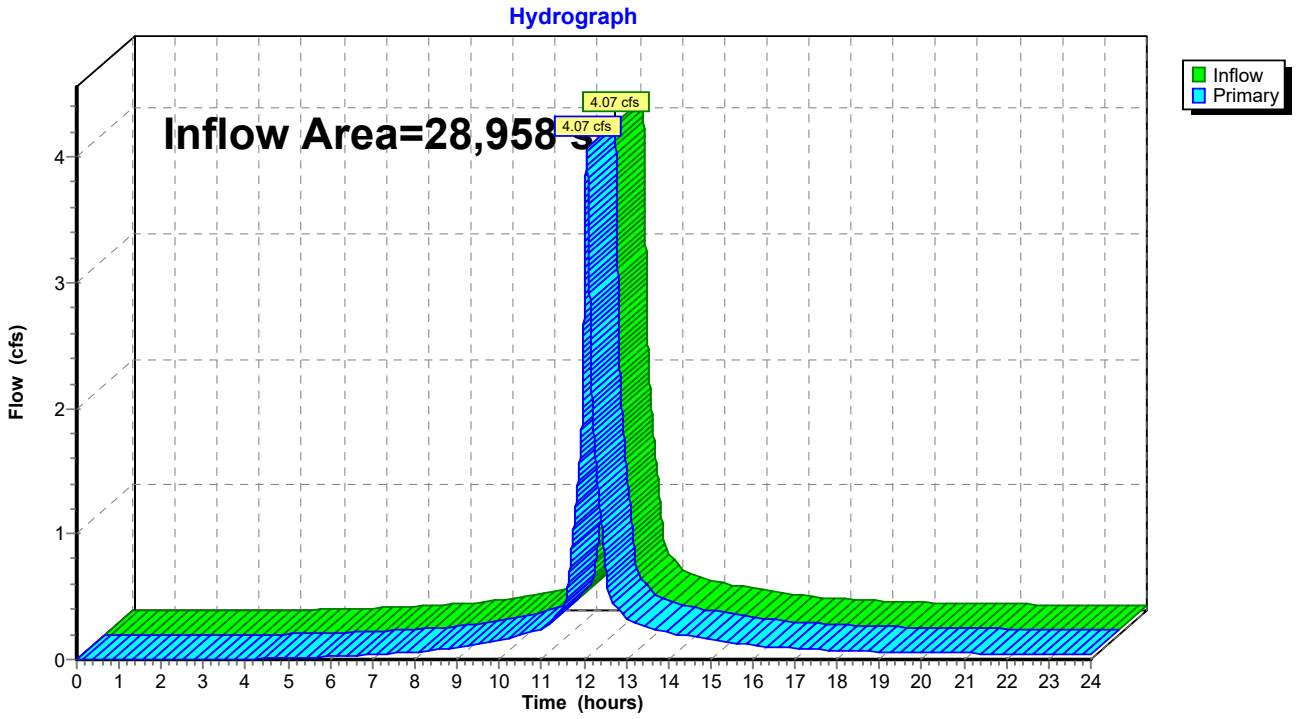


Summary for Link 2L: Ex. East Out

Inflow Area = 28,958 sf, 10.38% Impervious, Inflow Depth > 5.30" for 25-Year event
Inflow = 4.07 cfs @ 12.07 hrs, Volume= 12,795 cf
Primary = 4.07 cfs @ 12.07 hrs, Volume= 12,795 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : Ex. Outfall

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Link 2L: Ex. East Out

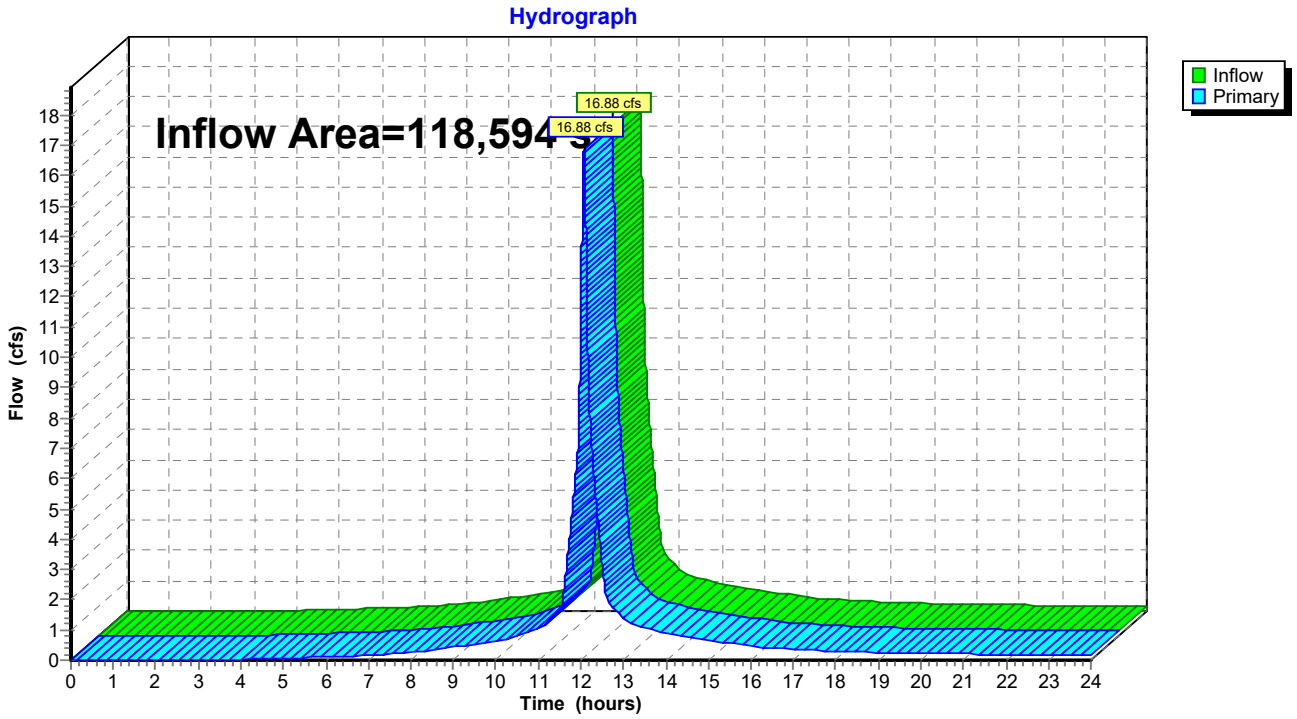


Summary for Link 3L: Ex. Outfall

Inflow Area = 118,594 sf, 20.41% Impervious, Inflow Depth > 5.41" for 25-Year event
Inflow = 16.88 cfs @ 12.07 hrs, Volume= 53,417 cf
Primary = 16.88 cfs @ 12.07 hrs, Volume= 53,417 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Link 3L: Ex. Outfall

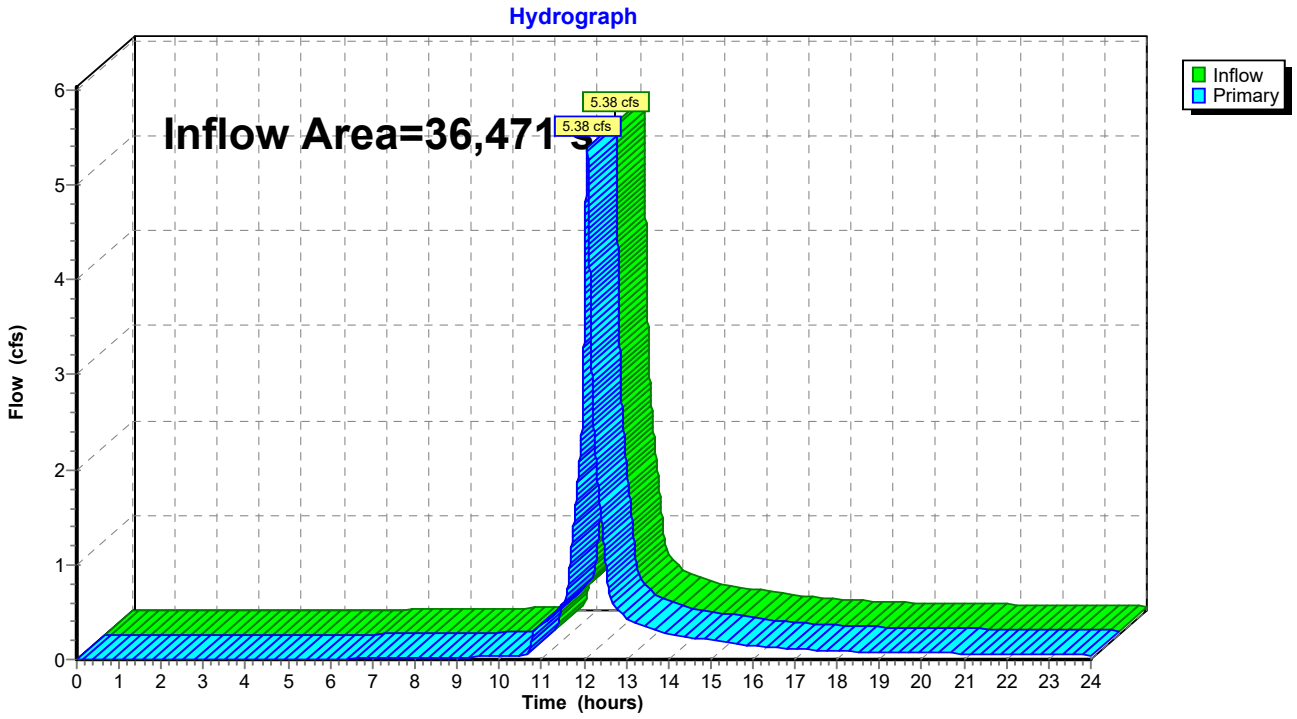


Summary for Link 4L: Pr. West Out

Inflow Area = 36,471 sf, 97.09% Impervious, Inflow Depth > 5.00" for 25-Year event
Inflow = 5.38 cfs @ 12.08 hrs, Volume= 15,188 cf
Primary = 5.38 cfs @ 12.08 hrs, Volume= 15,188 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Pr. Outfall

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Link 4L: Pr. West Out

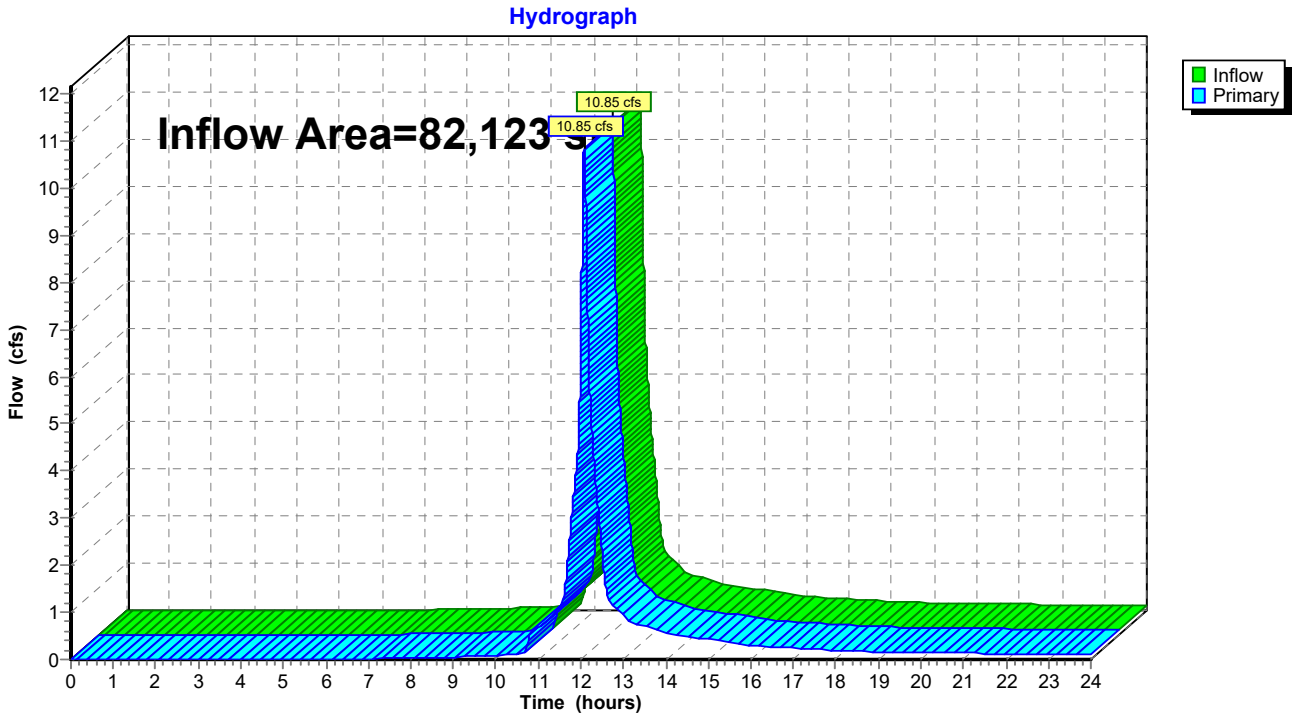


Summary for Link 5L: Pr. East Out

Inflow Area = 82,123 sf, 66.34% Impervious, Inflow Depth > 4.56" for 25-Year event
Inflow = 10.85 cfs @ 12.08 hrs, Volume= 31,207 cf
Primary = 10.85 cfs @ 12.08 hrs, Volume= 31,207 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Pr. Outfall

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Link 5L: Pr. East Out

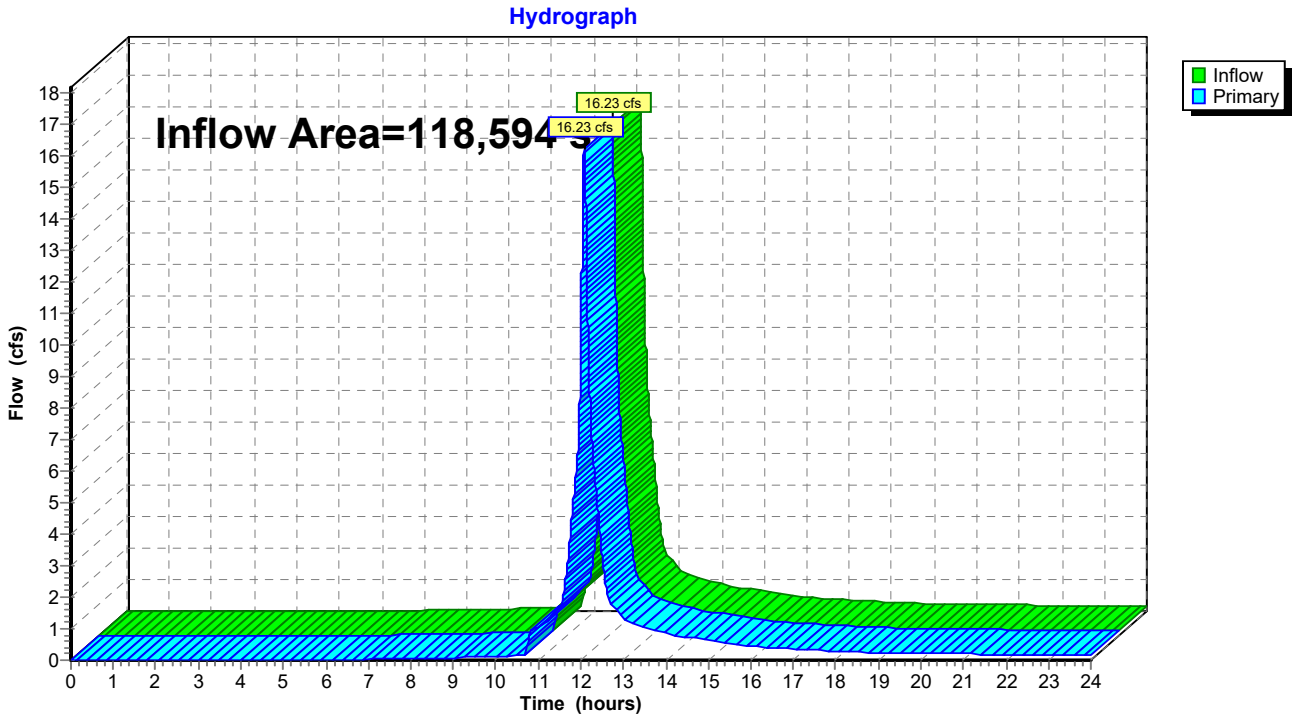


Summary for Link 6L: Pr. Outfall

Inflow Area = 118,594 sf, 75.79% Impervious, Inflow Depth > 4.69" for 25-Year event
Inflow = 16.23 cfs @ 12.08 hrs, Volume= 46,395 cf
Primary = 16.23 cfs @ 12.08 hrs, Volume= 46,395 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Link 6L: Pr. Outfall



Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Ex. West Runoff Area=89,636 sf 23.65% Impervious Runoff Depth>6.28"
Tc=5.0 min CN=91.13 Runoff=14.67 cfs 46,939 cf

Subcatchment2S: Ex. East Runoff Area=28,958 sf 10.38% Impervious Runoff Depth>6.14"
Tc=5.0 min CN=89.93 Runoff=4.68 cfs 14,826 cf

Subcatchment3S: Pr. Infil #1 Runoff Area=30,322 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=5.20 cfs 17,930 cf

Subcatchment4S: Pr. West Bypass Runoff Area=5,159 sf 79.43% Impervious Runoff Depth>6.66"
Tc=5.0 min CN=94.30 Runoff=0.87 cfs 2,862 cf

Subcatchment5S: Ex. East Bypass Runoff Area=20,268 sf 21.08% Impervious Runoff Depth>5.71"
Tc=5.0 min CN=86.15 Runoff=3.12 cfs 9,637 cf

Subcatchment6S: Pr. Infil #2 Runoff Area=55,520 sf 79.02% Impervious Runoff Depth>6.85"
Tc=5.0 min CN=95.90 Runoff=9.44 cfs 31,674 cf

Subcatchment7S: Pr. Perm Pavers #1 Runoff Area=618 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.11 cfs 365 cf

Subcatchment8S: Pr. Perm Pavers #2 Runoff Area=321 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 190 cf

Subcatchment9S: Pr. Perm Pavers #3 Runoff Area=643 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.11 cfs 380 cf

Subcatchment10S: Pr. Perm Pavers #4 Runoff Area=1,625 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.28 cfs 961 cf

Subcatchment11S: Pr. Perm Pavers #5 Runoff Area=961 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.16 cfs 568 cf

Subcatchment12S: Pr. Perm Pavers #6 Runoff Area=372 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 220 cf

Subcatchment14S: Pr. Perm Pavers #7 Runoff Area=673 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.12 cfs 398 cf

Subcatchment16S: Pr. Perm Pavers #8 Runoff Area=333 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 197 cf

Subcatchment20S: Pr. Perm Pavers #9 Runoff Area=1,080 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.19 cfs 639 cf

Subcatchment22S: Pr. Perm Pavers #10 Runoff Area=699 sf 100.00% Impervious Runoff Depth>7.10"
Tc=5.0 min CN=98.00 Runoff=0.12 cfs 413 cf

Pond 1A: Pr. PP#1 Peak Elev=6.03' Storage=85 cf Inflow=0.11 cfs 365 cf
Discarded=0.00 cfs 229 cf Primary=0.10 cfs 111 cf Outflow=0.11 cfs 340 cf

Pond 1P: Pr. Infil #1 Peak Elev=7.49' Storage=3,435 cf Inflow=5.20 cfs 17,930 cf
Outflow=5.15 cfs 14,781 cf

Pond 2A: Pr. PP#2 Peak Elev=7.70' Storage=71 cf Inflow=0.06 cfs 190 cf
Discarded=0.01 cfs 190 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 190 cf

Pond 2P: Pr. Infil #2 Peak Elev=8.00' Storage=5,530 cf Inflow=9.44 cfs 31,674 cf
Outflow=9.32 cfs 26,808 cf

Pond 3A: Pr. PP#3 Peak Elev=7.62' Storage=147 cf Inflow=0.11 cfs 380 cf
Discarded=0.01 cfs 380 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 380 cf

Pond 4A: Pr. PP#4 Peak Elev=8.01' Storage=286 cf Inflow=0.28 cfs 961 cf
Discarded=0.03 cfs 832 cf Primary=0.19 cfs 126 cf Outflow=0.21 cfs 958 cf

Pond 5A: Pr. PP#5 Peak Elev=7.86' Storage=148 cf Inflow=0.16 cfs 568 cf
Discarded=0.02 cfs 480 cf Primary=0.14 cfs 83 cf Outflow=0.15 cfs 563 cf

Pond 13P: Pr. PP#6 Peak Elev=5.71' Storage=75 cf Inflow=0.06 cfs 220 cf
Discarded=0.01 cfs 209 cf Primary=0.02 cfs 11 cf Outflow=0.02 cfs 219 cf

Pond 15P: Pr. PP#7 Peak Elev=5.94' Storage=125 cf Inflow=0.12 cfs 398 cf
Discarded=0.01 cfs 397 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 397 cf

Pond 17P: Pr. PP#8 Peak Elev=7.46' Storage=75 cf Inflow=0.06 cfs 197 cf
Discarded=0.01 cfs 197 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 197 cf

Pond 21P: Pr. PP#9 Peak Elev=7.50' Storage=223 cf Inflow=0.19 cfs 639 cf
Discarded=0.02 cfs 597 cf Primary=0.06 cfs 40 cf Outflow=0.07 cfs 637 cf

Pond 23P: Pr. PP#10 Peak Elev=7.28' Storage=155 cf Inflow=0.12 cfs 413 cf
Discarded=0.01 cfs 413 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 413 cf

Link 1L: Ex. West Out Inflow=14.67 cfs 46,939 cf
Primary=14.67 cfs 46,939 cf

Link 2L: Ex. East Out Inflow=4.68 cfs 14,826 cf
Primary=4.68 cfs 14,826 cf

Link 3L: Ex. Outfall Inflow=19.35 cfs 61,765 cf
Primary=19.35 cfs 61,765 cf

Link 4L: Pr. West Out Inflow=6.11 cfs 17,765 cf
Primary=6.11 cfs 17,765 cf

Link 5L: Pr. East Out Inflow=12.47 cfs 36,695 cf
Primary=12.47 cfs 36,695 cf

Link 6L: Pr. Outfall

Inflow=18.57 cfs 54,459 cf
Primary=18.57 cfs 54,459 cf

Total Runoff Area = 237,188 sf Runoff Volume = 128,199 cf Average Runoff Depth = 6.49"
51.90% Pervious = 123,091 sf 48.10% Impervious = 114,097 sf

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Ex. West Runoff Area=89,636 sf 23.65% Impervious Runoff Depth>7.19"
Tc=5.0 min CN=91.13 Runoff=16.66 cfs 53,718 cf

Subcatchment2S: Ex. East Runoff Area=28,958 sf 10.38% Impervious Runoff Depth>7.05"
Tc=5.0 min CN=89.93 Runoff=5.32 cfs 17,008 cf

Subcatchment3S: Pr. Infil #1 Runoff Area=30,322 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=5.86 cfs 20,252 cf

Subcatchment4S: Pr. West Bypass Runoff Area=5,159 sf 79.43% Impervious Runoff Depth>7.57"
Tc=5.0 min CN=94.30 Runoff=0.98 cfs 3,255 cf

Subcatchment5S: Ex. East Bypass Runoff Area=20,268 sf 21.08% Impervious Runoff Depth>6.60"
Tc=5.0 min CN=86.15 Runoff=3.57 cfs 11,141 cf

Subcatchment6S: Pr. Infil #2 Runoff Area=55,520 sf 79.02% Impervious Runoff Depth>7.76"
Tc=5.0 min CN=95.90 Runoff=10.65 cfs 35,916 cf

Subcatchment7S: Pr. Perm Pavers #1 Runoff Area=618 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.12 cfs 413 cf

Subcatchment8S: Pr. Perm Pavers #2 Runoff Area=321 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 214 cf

Subcatchment9S: Pr. Perm Pavers #3 Runoff Area=643 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.12 cfs 429 cf

Subcatchment10S: Pr. Perm Pavers #4 Runoff Area=1,625 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.31 cfs 1,085 cf

Subcatchment11S: Pr. Perm Pavers #5 Runoff Area=961 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.19 cfs 642 cf

Subcatchment12S: Pr. Perm Pavers #6 Runoff Area=372 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.07 cfs 248 cf

Subcatchment14S: Pr. Perm Pavers #7 Runoff Area=673 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.13 cfs 449 cf

Subcatchment16S: Pr. Perm Pavers #8 Runoff Area=333 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.06 cfs 222 cf

Subcatchment20S: Pr. Perm Pavers #9 Runoff Area=1,080 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.21 cfs 721 cf

Subcatchment22S: Pr. Perm Pavers #10 Runoff Area=699 sf 100.00% Impervious Runoff Depth>8.01"
Tc=5.0 min CN=98.00 Runoff=0.14 cfs 467 cf

Pond 1A: Pr. PP#1 Peak Elev=6.03' Storage=86 cf Inflow=0.12 cfs 413 cf
Discarded=0.00 cfs 238 cf Primary=0.11 cfs 145 cf Outflow=0.12 cfs 383 cf

Pond 1P: Pr. Infil #1 Peak Elev=7.53' Storage=3,458 cf Inflow=5.86 cfs 20,252 cf
Outflow=5.81 cfs 17,101 cf

Pond 2A: Pr. PP#2 Peak Elev=7.79' Storage=82 cf Inflow=0.06 cfs 214 cf
Discarded=0.01 cfs 214 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 214 cf

Pond 2P: Pr. Infil #2 Peak Elev=8.05' Storage=5,579 cf Inflow=10.65 cfs 35,916 cf
Outflow=10.52 cfs 31,046 cf

Pond 3A: Pr. PP#3 Peak Elev=7.70' Storage=167 cf Inflow=0.12 cfs 429 cf
Discarded=0.01 cfs 426 cf Primary=0.01 cfs 3 cf Outflow=0.02 cfs 429 cf

Pond 4A: Pr. PP#4 Peak Elev=8.01' Storage=287 cf Inflow=0.31 cfs 1,085 cf
Discarded=0.03 cfs 887 cf Primary=0.27 cfs 194 cf Outflow=0.30 cfs 1,082 cf

Pond 5A: Pr. PP#5 Peak Elev=7.86' Storage=149 cf Inflow=0.19 cfs 642 cf
Discarded=0.02 cfs 515 cf Primary=0.17 cfs 120 cf Outflow=0.19 cfs 635 cf

Pond 13P: Pr. PP#6 Peak Elev=5.71' Storage=76 cf Inflow=0.07 cfs 248 cf
Discarded=0.01 cfs 223 cf Primary=0.03 cfs 24 cf Outflow=0.04 cfs 248 cf

Pond 15P: Pr. PP#7 Peak Elev=6.05' Storage=146 cf Inflow=0.13 cfs 449 cf
Discarded=0.02 cfs 449 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 449 cf

Pond 17P: Pr. PP#8 Peak Elev=7.55' Storage=87 cf Inflow=0.06 cfs 222 cf
Discarded=0.01 cfs 222 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 222 cf

Pond 21P: Pr. PP#9 Peak Elev=7.50' Storage=224 cf Inflow=0.21 cfs 721 cf
Discarded=0.02 cfs 636 cf Primary=0.11 cfs 83 cf Outflow=0.13 cfs 719 cf

Pond 23P: Pr. PP#10 Peak Elev=7.37' Storage=180 cf Inflow=0.14 cfs 467 cf
Discarded=0.01 cfs 466 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 466 cf

Link 1L: Ex. West Out Inflow=16.66 cfs 53,718 cf
Primary=16.66 cfs 53,718 cf

Link 2L: Ex. East Out Inflow=5.32 cfs 17,008 cf
Primary=5.32 cfs 17,008 cf

Link 3L: Ex. Outfall Inflow=21.99 cfs 70,725 cf
Primary=21.99 cfs 70,725 cf

Link 4L: Pr. West Out Inflow=6.89 cfs 20,525 cf
Primary=6.89 cfs 20,525 cf

Link 5L: Pr. East Out Inflow=14.48 cfs 42,588 cf
Primary=14.48 cfs 42,588 cf

Link 6L: Pr. Outfall

Inflow=21.36 cfs 63,113 cf
Primary=21.36 cfs 63,113 cf

Total Runoff Area = 237,188 sf Runoff Volume = 146,181 cf Average Runoff Depth = 7.40"
51.90% Pervious = 123,091 sf 48.10% Impervious = 114,097 sf

Appendix 4

NOAA Atlas 14, Volume 10, Version 3
Location name: Norwalk, Connecticut, USA*
Latitude: 41.0962°, Longitude: -73.4155°
Elevation: 7 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.366** (0.295-0.454)	**0.426** (0.342-0.529)	**0.524** (0.419-0.652)	**0.605** (0.481-0.758)	**0.716** (0.548-0.937)	**0.801** (0.597-1.07)	**0.888** (0.638-1.23)	**0.981** (0.668-1.40)	**1.11** (0.722-1.65)	**1.21** (0.766-1.84)
10-min	**0.519** (0.417-0.643)	**0.603** (0.485-0.749)	**0.741** (0.593-0.923)	**0.857** (0.681-1.07)	**1.02** (0.776-1.33)	**1.14** (0.847-1.52)	**1.26** (0.904-1.74)	**1.39** (0.946-1.99)	**1.57** (1.02-2.34)	**1.72** (1.08-2.61)
15-min	**0.610** (0.491-0.757)	**0.710** (0.571-0.881)	**0.873** (0.699-1.09)	**1.01** (0.801-1.26)	**1.19** (0.913-1.56)	**1.34** (0.996-1.79)	**1.48** (1.06-2.05)	**1.64** (1.11-2.34)	**1.85** (1.20-2.75)	**2.02** (1.28-3.07)
30-min	**0.848** (0.683-1.05)	**0.987** (0.794-1.23)	**1.21** (0.973-1.51)	**1.40** (1.12-1.76)	**1.66** (1.27-2.17)	**1.86** (1.39-2.48)	**2.06** (1.48-2.85)	**2.27** (1.55-3.25)	**2.55** (1.66-3.79)	**2.77** (1.75-4.21)
60-min	**1.09** (0.874-1.35)	**1.26** (1.02-1.57)	**1.56** (1.25-1.94)	**1.80** (1.43-2.26)	**2.13** (1.63-2.78)	**2.39** (1.78-3.19)	**2.65** (1.89-3.65)	**2.91** (1.98-4.16)	**3.26** (2.12-4.84)	**3.52** (2.23-5.35)
2-hr	**1.38** (1.12-1.70)	**1.64** (1.32-2.02)	**2.06** (1.66-2.55)	**2.40** (1.92-2.99)	**2.88** (2.22-3.75)	**3.24** (2.43-4.32)	**3.62** (2.62-5.00)	**4.03** (2.75-5.73)	**4.60** (3.00-6.80)	**5.06** (3.22-7.65)
3-hr	**1.58** (1.29-1.94)	**1.89** (1.54-2.32)	**2.40** (1.94-2.95)	**2.81** (2.26-3.49)	**3.39** (2.62-4.40)	**3.82** (2.88-5.08)	**4.27** (3.11-5.91)	**4.78** (3.27-6.78)	**5.52** (3.61-8.12)	**6.12** (3.89-9.20)
6-hr	**2.00** (1.63-2.43)	**2.40** (1.96-2.92)	**3.05** (2.49-3.74)	**3.60** (2.91-4.44)	**4.35** (3.38-5.63)	**4.91** (3.73-6.51)	**5.51** (4.04-7.60)	**6.20** (4.25-8.73)	**7.20** (4.72-10.5)	**8.04** (5.13-12.0)
12-hr	**2.47** (2.04-2.99)	**2.97** (2.45-3.60)	**3.79** (3.11-4.61)	**4.47** (3.64-5.47)	**5.40** (4.23-6.95)	**6.10** (4.66-8.03)	**6.85** (5.05-9.39)	**7.71** (5.31-10.8)	**8.98** (5.91-13.0)	**10.0** (6.42-14.9)
24-hr	**2.88** (2.38-3.46)	**3.49** (2.89-4.20)	**4.50** (3.71-5.44)	**5.33** (4.37-6.48)	**6.48** (5.11-8.29)	**7.34** (5.64-9.61)	**8.26** (6.13-11.3)	**9.34** (6.46-13.0)	**11.0** (7.23-15.8)	**12.3** (7.90-18.1)
2-day	**3.13** (2.61-3.74)	**3.88** (3.24-4.64)	**5.11** (4.25-6.14)	**6.14** (5.06-7.41)	**7.54** (5.98-9.60)	**8.58** (6.64-11.2)	**9.71** (7.27-13.2)	**11.1** (7.68-15.3)	**13.1** (8.69-18.8)	**14.9** (9.59-21.8)
3-day	**3.33** (2.79-3.96)	**4.16** (3.48-4.95)	**5.51** (4.59-6.58)	**6.62** (5.48-7.97)	**8.17** (6.50-10.4)	**9.31** (7.23-12.1)	**10.5** (7.92-14.3)	**12.0** (8.37-16.6)	**14.3** (9.50-20.5)	**16.3** (10.5-23.7)
4-day	**3.54** (2.98-4.20)	**4.41** (3.70-5.24)	**5.83** (4.87-6.95)	**7.01** (5.82-8.40)	**8.63** (6.88-10.9)	**9.83** (7.65-12.7)	**11.1** (8.38-15.1)	**12.7** (8.85-17.4)	**15.1** (10.0-21.5)	**17.1** (11.0-24.9)
7-day	**4.18** (3.53-4.92)	**5.11** (4.32-6.04)	**6.65** (5.59-7.88)	**7.92** (6.61-9.45)	**9.68** (7.75-12.1)	**11.0** (8.57-14.1)	**12.4** (9.32-16.6)	**14.0** (9.81-19.1)	**16.5** (11.0-23.3)	**18.5** (12.0-26.8)
10-day	**4.81** (4.08-5.66)	**5.80** (4.91-6.82)	**7.41** (6.24-8.75)	**8.74** (7.32-10.4)	**10.6** (8.49-13.2)	**12.0** (9.34-15.3)	**13.4** (10.1-17.8)	**15.1** (10.6-20.5)	**17.5** (11.7-24.7)	**19.5** (12.7-28.1)
20-day	**6.76** (5.77-7.89)	**7.86** (6.70-9.19)	**9.66** (8.20-11.3)	**11.2** (9.40-13.2)	**13.2** (10.6-16.3)	**14.8** (11.6-18.6)	**16.4** (12.3-21.4)	**18.1** (12.8-24.4)	**20.4** (13.7-28.6)	**22.3** (14.5-31.9)
30-day	**8.40** (7.20-9.76)	**9.59** (8.21-11.2)	**11.5** (9.83-13.5)	**13.1** (11.1-15.4)	**15.4** (12.4-18.8)	**17.1** (13.4-21.3)	**18.8** (14.1-24.3)	**20.5** (14.5-27.5)	**22.8** (15.4-31.8)	**24.6** (16.0-35.0)
45-day	**10.5** (9.00-12.1)	**11.7** (10.1-13.6)	**13.8** (11.8-16.1)	**15.6** (13.2-18.2)	**18.0** (14.6-21.9)	**19.9** (15.6-24.6)	**21.7** (16.3-27.8)	**23.5** (16.7-31.3)	**25.8** (17.4-35.7)	**27.4** (17.9-38.9)
60-day	**12.2** (10.5-14.1)	**13.5** (11.7-15.7)	**15.8** (13.5-18.3)	**17.6** (15.0-20.6)	**20.2** (16.4-24.4)	**22.2** (17.5-27.4)	**24.1** (18.1-30.7)	**25.9** (18.5-34.5)	**28.2** (19.1-39.0)	**29.8** (19.5-42.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

Table B-1. Requirements for Determining Field Infiltration Rates

Infiltration Design Method	NRCS Hydrologic Soil Groups			
	A	B	C	D
Static Method	Soil Textural Analysis	Soil Textural Analysis	Saturated Hydraulic Conductivity Testing	Infiltration Not Allowed
Simple Dynamic Method	Soil Textural Analysis	Soil Textural Analysis	Saturated Hydraulic Conductivity Testing	Infiltration Not Allowed
Dynamic Field Method	Saturated Hydraulic Conductivity Testing	Saturated Hydraulic Conductivity Testing	Saturated Hydraulic Conductivity Testing	Infiltration Not Allowed

Table B-2. Default (Rawls) Infiltration Rates

Texture Class	NRCS Hydrologic Soil Group (HSG)	Infiltration Rate Inches/Hour
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	B	1.02
Loam	B	0.52
Silt Loam	C	0.27
Sandy Clay Loam	C	0.17
Clay Loam	D	0.09
Silty Clay Loam	D	0.06
Sandy Clay	D	0.05
Silty Clay	D	0.04
Clay	D	0.02

Source: Rawls, Brakensiek and Saxton, 1982.

- The slowest of the Hydrologic Soil Groups determined to exist at the point where infiltration is proposed shall be used.
    - *Example:* Two samples are taken at a proposed infiltration bioretention system in the actual soil layer where recharge is proposed. One sample indicates sandy soils. The second sample indicates a sandy loam soil. The default infiltration rate used for the design analysis must use the sandy loam rate and not the sandy soil rate. Soils must not be composited for purposes of the soil textural analysis.

- When the "Dynamic Field" method is used to size the infiltration system (regardless of Hydrologic Soil Group) or infiltration is proposed within Hydrologic Soil Group C soils

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

VEGETATED ROOFS
ADJUSTED CN VALUES

DRAFT

Soil Depth (inches)	Storage Volume[1] (inches)	Storm Event ----->	WQV	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
		24-Hour Rainfall Depth (inches)[2]	1.0	2.9	3.4	4.3	5.1	6.4	7.6	9.1
		Runoff Depth (inches)[3]	0.79	2.67	3.17	4.06	4.86	6.16	7.36	8.86
		Unadjusted CN Value[3]	98	98	98	98	98	98	98	98
2	0.4	Reduced Runoff Depth (inches)[4]	0.39	2.27	2.77	3.66	4.46	5.76	6.96	8.46
		Adjusted CN Value[4]	91	94	94	94	94	95	95	95
3	0.6	Reduced Runoff Depth (inches)[4]	0.19	2.07	2.57	3.46	4.26	5.56	6.76	8.26
		Adjusted CN Value[4]	86	92	92	92	93	93	93	93
4	0.8	Reduced Runoff Depth (inches)[4]	0.00	1.87	2.37	3.26	4.06	5.36	6.56	8.06
		Adjusted CN Value[4]	61	90	90	90	91	91	91	91
5	1.0	Reduced Runoff Depth (inches)[4]	0.00	1.67	2.17	3.06	3.86	5.16	6.36	7.86
		Adjusted CN Value[4]	61	87	88	88	89	89	90	90
6	1.2	Reduced Runoff Depth (inches)[4]	0.00	1.47	1.97	2.86	3.66	4.96	6.16	7.66
		Adjusted CN Value[4]	61	84	85	86	87	88	88	88
7	1.4	Reduced Runoff Depth (inches)[4]	0.00	1.27	1.77	2.66	3.46	4.76	5.96	7.46
		Adjusted CN Value[4]	61	81	83	84	85	86	86	86
8	1.6	Reduced Runoff Depth (inches)[4]	0.00	1.07	1.57	2.46	3.26	4.56	5.76	7.26
		Adjusted CN Value[4]	61	78	80	82	83	84	84	85
9	1.8	Reduced Runoff Depth (inches)[4]	0.00	0.87	1.37	2.26	3.06	4.36	5.56	7.06
		Adjusted CN Value[4]	61	74	77	80	81	82	83	83
10	2.0	Reduced Runoff Depth (inches)[4]	0.00	0.67	1.17	2.06	2.86	4.16	5.36	6.86
		Adjusted CN Value[4]	61	70	74	77	79	80	81	82
12	2.4	Reduced Runoff Depth (inches)[4]	0.00	0.27	0.77	1.66	2.46	3.76	4.96	6.46
		Adjusted CN Value[4]	61	61	66	72	74	76	77	78
15	3.0	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.17	1.06	1.86	3.16	4.36	5.86
		Adjusted CN Value[4]	61	61	61	62	67	70	72	74
18	3.6	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.00	0.46	1.26	2.56	3.76	5.26
		Adjusted CN Value[4]	61	61	61	61	61	64	67	69
24	4.8	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.00	0.00	0.06	1.36	2.56	4.06
		Adjusted CN Value[4]	61	61	61	61	61	61	61	61
30	6.0	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.00	0.00	0.00	0.16	1.36	2.86
		Adjusted CN Value[4]	61	61	61	61	61	61	61	61
36	7.2	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.00	0.00	0.00	0.00	0.16	1.66
		Adjusted CN Value[4]	61	61	61	61	61	61	61	61
42	8.4	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
		Adjusted CN Value[4]	61	61	61	61	61	61	61	61
48	9.6	Reduced Runoff Depth (inches)[4]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Adjusted CN Value[4]	61	61	61	61	61	61	61	61

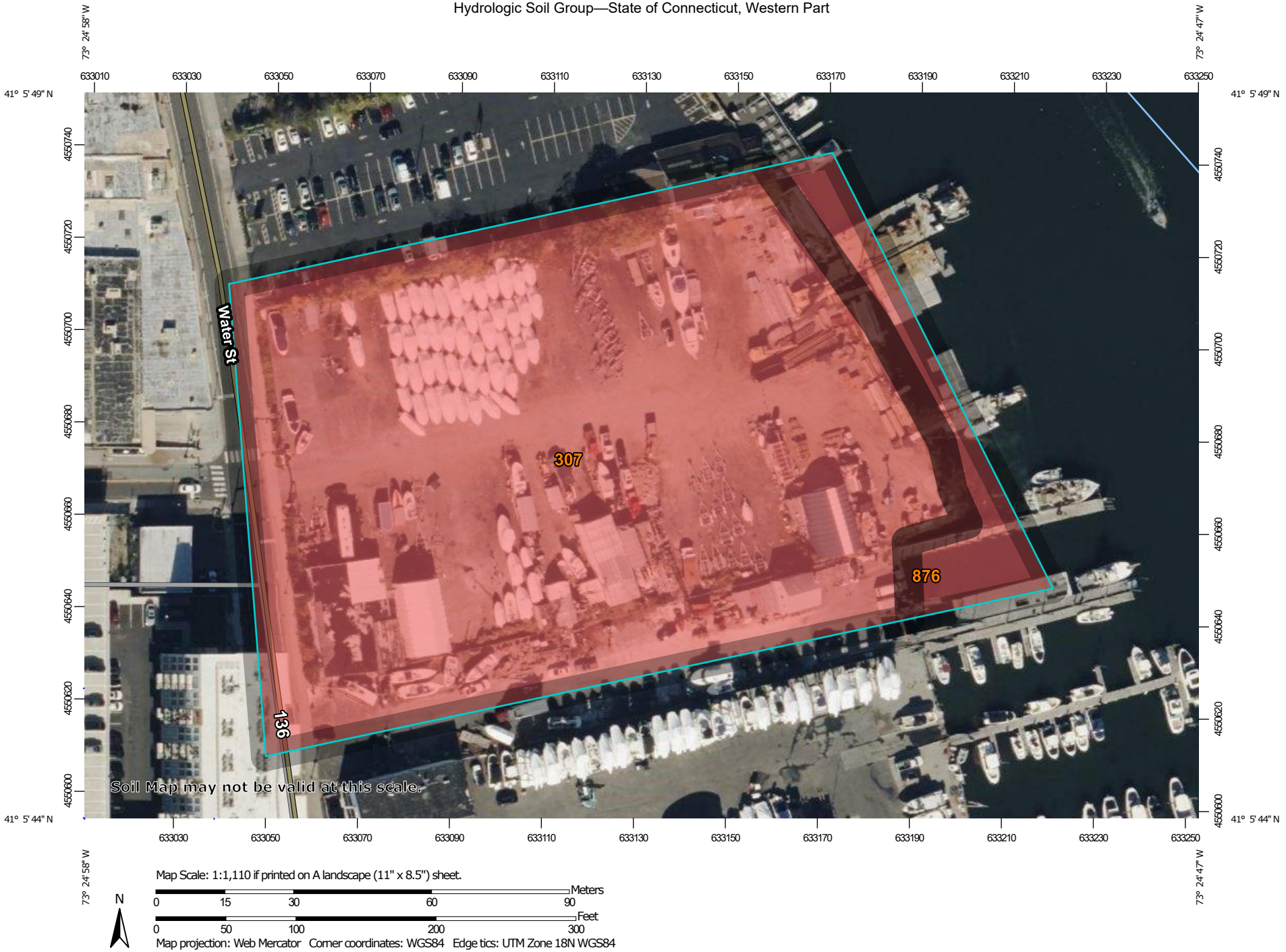
[1] It has been reported (Hunt, 2007) that green roofs can provide 0.20 inches of storage volume per inch of soil depth (E5DM, 2007).

[2] Town of Greenwich Drainange Manual February 2012 - Addendum 1 February 2014, Appendix L - 24-Hour Design 5torm Rainfall Amounts.

[3] Interpolated from Table 2.1 of TR-55 - Urban Hydrology for 5mall Watersheds (NRC5, 1986).

[4] The adjusted CN values are computed by subtracting the storage volume from the TR-55 runoff depth provided at the top of this table and interpolating a new CN value using Table 2.1 of TR-55 based on 24-Hour Rainfall Depth and Reduced Runoff Depth (E5DM, 2007).

[5] Please note that minimum CN value used is 61 for all Reduced Runoff Depths equal to 0 and in the range where the calculated CN would be less than 61. CN value of 61 from Table 2-2a of TR-55 is for open space in good condition within hydrologic soil group B.



Map Scale: 1:1,110 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 2, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
307	Urban land	D	3.6	91.6%
876	Pishagqua mucky silt loam, subtidal	D	0.3	8.4%
Totals for Area of Interest			**3.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

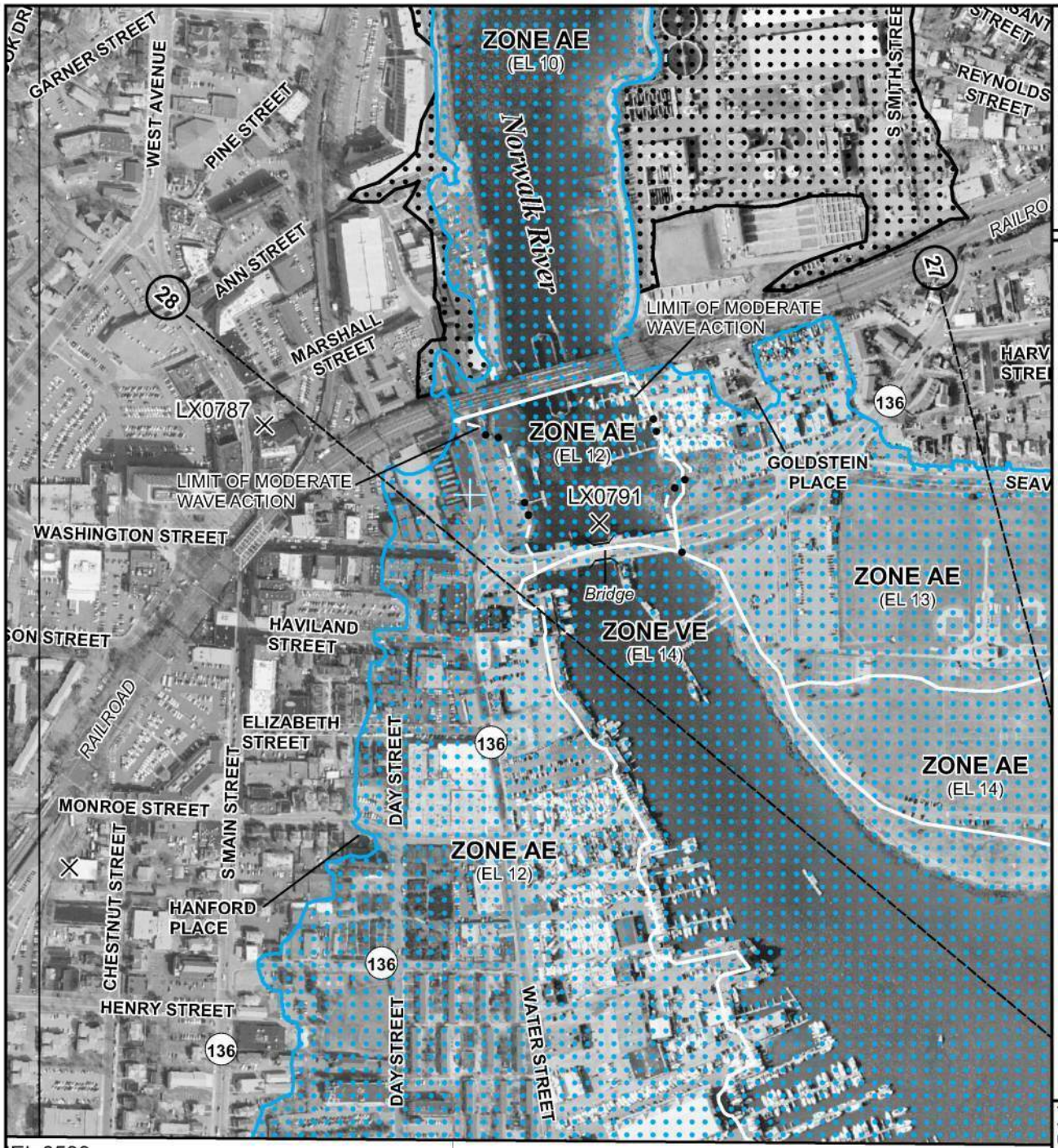
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix 5



EL 0533

MAP SCALE 1" = 500'

250 0 500 1000 FE

150 0 150 30

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0531G

FIRM

FLOOD INSURANCE RATE MAP

FAIRFIELD COUNTY, CONNECTICUT
(ALL JURISDICTIONS)

PANEL 531 OF 626

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NORWALK, CITY OF	090012	0531	G

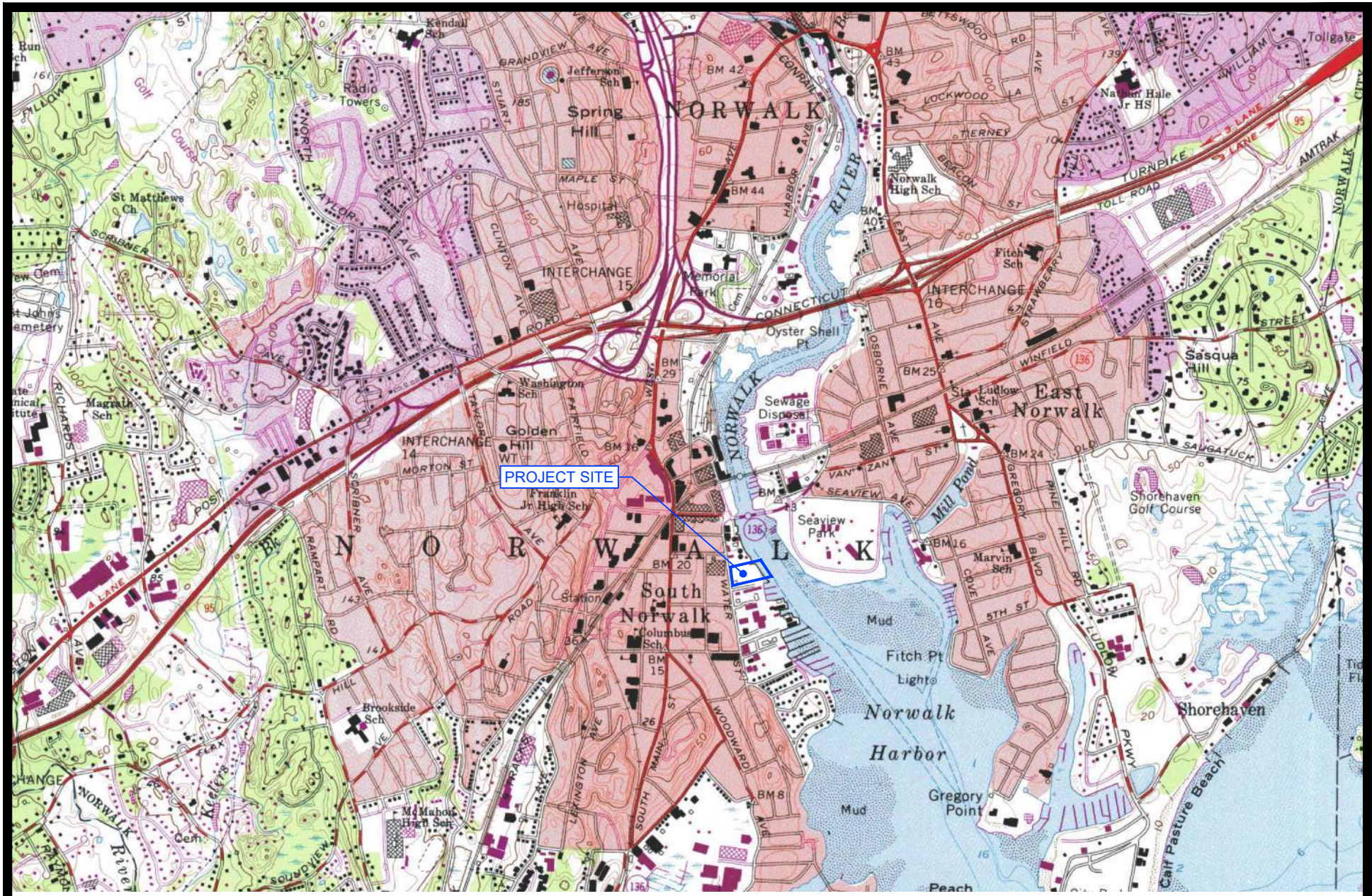
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
09001C0531G

MAP REVISED
JULY 8, 2013

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.



MAP NAME: NORWALK SOUTH
MAP NUMBER: 114

USGS TOPOGRAPHIC QUAD MAP

108 WATER STREET
NORWALK, CT

REDNISS & MEAD

COMM. NO.: 10909 DATE: 06/13/2025 SCALE: 1"=2000'

6/2/2025 3:39 PM H:\Jobfiles2\10000\10900\10909\dwg\Engineering\10909 Quad Map.dwg

Appendix 6

STORMWATER OPERATIONS AND MAINTENANCE PLAN
108 Water Street, Norwalk CT
June 13, 2025

The purpose of this Operations and Maintenance plan is to ensure that the drainage facilities proposed on site at 108 Water Street (the "Property") shall be maintained in operational condition. While some normal wear is expected over time, the facilities must be properly maintained in order to function as designed. Please refer to the Site Utility Plan for the location of proposed drainage facilities.

108 Water Street LLC and its successors or assigns agree to maintain the drainage facilities in a functioning condition by following the maintenance plan described below.

Storm Drainage Maintenance and Inspection Requirements: The storm drainage system shall be inspected on a semi-annual basis for the first year to ensure that the system is functioning properly. If these inspections show that debris and sediment have accumulated, then more frequent inspections will be scheduled. Inspections should be scheduled following major storm events. If after one year there is little sediment accumulation, then inspections shall be performed on an annual basis.

Catch Basins and Area Drains: Structures with an open grate top intended to collect rain water and direct it into the underground drainage pipes. Note that if sediment is allowed to build up it can greatly reduce the performance of the structure.

- Inspect yearly and remove accumulated debris, trash, and sediment with a vacuum truck as needed to insure proper working order.

Storm Drainage Piping and Junction Boxes: Pipes are located beneath the surface and are used for piping stormwater out of the site. Junction boxes are square structures that are used as junctions for pipe intersections. There are two junction boxes located on site.

- All piping shall be completely cleaned of debris and accumulated sediment at the completion of constriction.
- Junction Boxes shall be inspected on an annual basis. Accumulated debris shall be removed and repairs shall be conducted as necessary.
- Video inspection of the storm drainage piping shall occur once every 10 years, unless the system performance indicates an issue.

DRAFT

Infiltration Systems: The infiltration systems are designed to store water and let it infiltrate back into the ground. There are two infiltration systems proposed on site.

- The infiltration system shall be completely cleaned of accumulated debris at the completion of construction.
- Infiltration systems shall be inspected annually.
- Accumulated debris, trash and sediment shall be removed and repairs made as necessary.

Vegetative Roof:

- Vegetative roof shall be cleaned of debris and sediments upon the completion of construction. Any filter media impacted by the construction activities shall be removed and replaced at this time.
- The roof shall be visually inspected monthly for the first 6 months. Any erosion or displacement of the filter media shall be promptly repaired, and the cause of the problem shall be identified and corrected. During these inspections weeds shall be pulled and removed. Monthly inspections shall continue until successful operation of the system is confirmed.
- The surface of these structures shall be inspected on a quarterly basis after the first six months of successful operation and after heavy runoff events (e.g. > 2.0" in a 24-hour period). One inspection shall occur immediately following the winter months after snow has melted. Any accumulated debris and sediments shall be removed.
- Check draining time of vegetative roof annually. Check within 72 hours after a minimum one-inch rain event. If there is no standing water, infiltration is acceptable. If draining time is excessive, quantitatively determine infiltration rate. If infiltration rate < 0.5 in. /hour, remedial action shall be taken.
- Perform a soil test for nutrients and ph every spring and amend the growing media as recommend by the testing agency.
- During the spring and summer months, once per month, weeding shall be performed and weeds shall be removed.
- During extreme durations of heat and drought watering may be necessary.
- Any additional maintenance required per the manufacturer's specifications shall also be completed.

DRAFT

Disposal of Debris and Sediment: All debris and sediment removed from the storm water structures shall be disposed of legally. There shall be no dumping of silt or debris into or in proximity to any inland or tidal wetlands or the abutting river.

Maintenance Arrangements: The names of the person or party responsible for completing routine inspection and maintenance activities, pet waste management, and proper management of de-icing chemicals and snow shall be filed with the Norwalk Department of Public Works annually.

Good Housekeeping:

1. Most domestic waste will be stored inside the trash room
2. No fertilizers, pesticides, or herbicides will be stored on site
3. No vehicle washing will be permitted on site
4. Lawn and garden areas will be kept in satisfactory condition maintaining ground stabilization and the pervious nature of landscaped areas.
5. In accordance with Sec. 2a-450 of CT General Statues spills of petroleum or chemicals will be reported to the CT DEEP's Oil & Chemical Response Division at (860) 424-3338, be contained as quickly as practical, and cleaned by a licensed contractor.

DRAFT

Declaration: The Owner(s) listed below agrees to the following statements. The statements are intended to ensure that the owner agrees to install and maintain stormwater management practices on the subject property in accordance with approved plans and conditions, and to further ensure that the management practices serve the intended function in perpetuity.

1. The Owner(s) shall be solely responsible for the inspection, maintenance, and repair of the postconstruction storm water management system identified in the above sections.

2. The Owner(s) agrees in the event that the Property is sold, transferred, or leased to provide information to the new owner, operator, or lessee regarding proper inspection, maintenance and repair of the storm water management practice(s). The information shall accompany the first deed transfer and include this "Drainage Facilities Operations and Maintenance Plan" and "Operations & Maintenance Exhibit A". The transfer of this information shall also be required with any subsequent sale, transfer or lease of the Property.

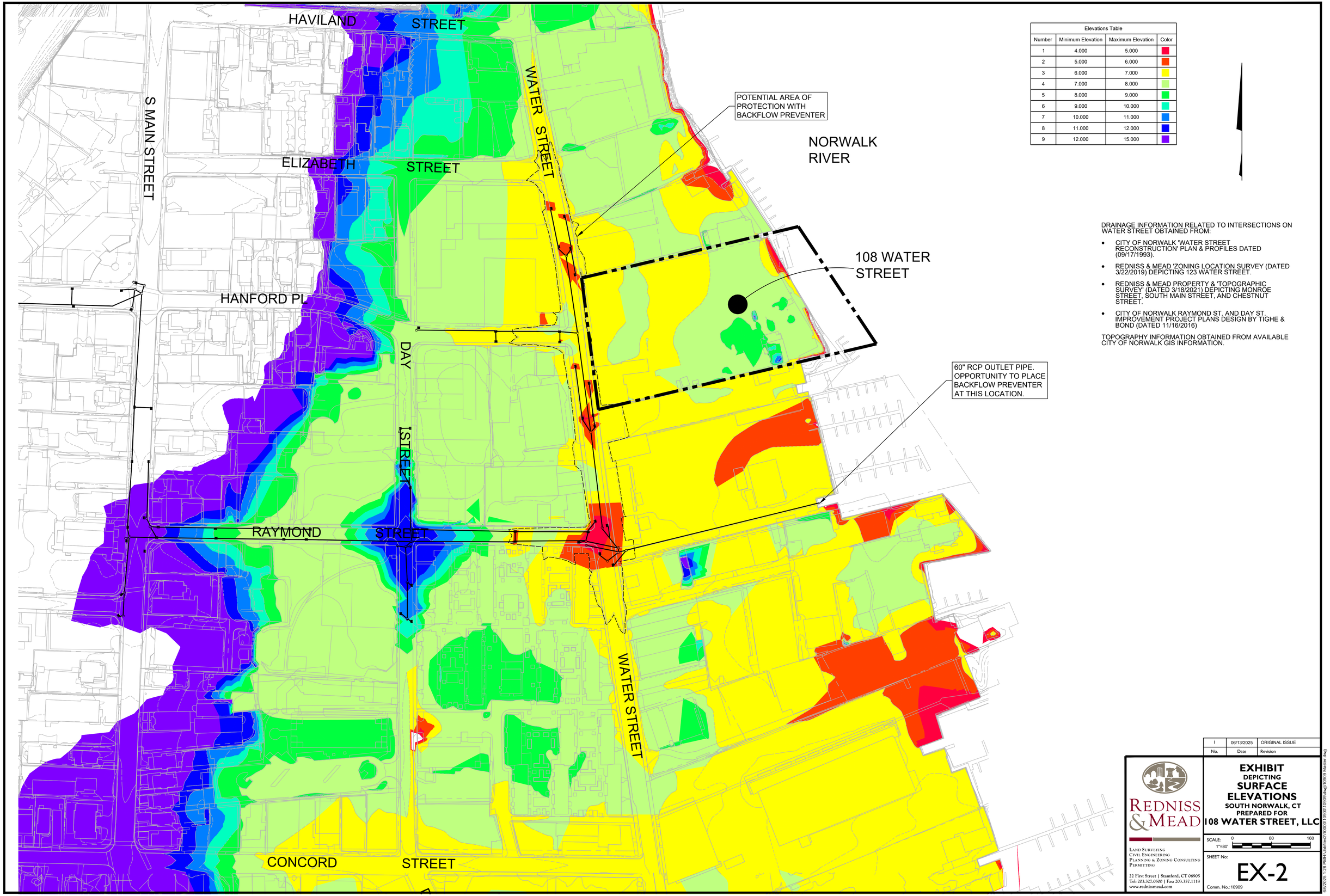
3. The City of Norwalk or its designee is authorized to access the property as necessary to conduct inspections of the storm water management practices to ascertain compliance with the intent of this Operations and Maintenance Plan. Upon written notification by the City of Norwalk or their designee of required maintenance or repairs, the Owner(s) shall complete the specified maintenance or repairs within a reasonable time frame determined by the City of Norwalk. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs so that the public health, safety, general welfare or the environment shall not be endangered.

By: _____ _____
[Owner(s)] [Date]

By: _____ _____
[Owner(s)] [Date]

DRAFT

Appendix 7



Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	4.000	5.000	
2	5.000	6.000	
3	6.000	7.000	
4	7.000	8.000	
5	8.000	9.000	
6	9.000	10.000	
7	10.000	11.000	
8	11.000	12.000	
9	12.000	15.000	

DRAINAGE INFORMATION RELATED TO INTERSECTIONS ON WATER STREET OBTAINED FROM:

- CITY OF NORWALK 'WATER STREET RECONSTRUCTION' PLAN & PROFILES DATED (09/17/1993).
- REDNISS & MEAD 'ZONING LOCATION SURVEY (DATED 3/22/2019) DEPICTING 123 WATER STREET.
- REDNISS & MEAD PROPERTY & 'TOPOGRAPHIC SURVEY' (DATED 3/18/2021) DEPICTING MONROE STREET, SOUTH MAIN STREET, AND CHESTNUT STREET.
- CITY OF NORWALK RAYMOND ST. AND DAY ST. IMPROVEMENT PROJECT PLANS DESIGN BY TIGHE & BOND (DATED 11/16/2016)

TOPOGRAPHY INFORMATION OBTAINED FROM AVAILABLE CITY OF NORWALK GIS INFORMATION.

No.	Date	Revision
1	06/13/2025	ORIGINAL ISSUE

REDNISS & MEAD

LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING

22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax: 203.357.1118
www.rednissmead.com

EXHIBIT
DEPICTING
SURFACE ELEVATIONS
SOUTH NORWALK, CT
PREPARED FOR
108 WATER STREET, LLC

SCALE: 1"=80' (0, 80, 160)

SHEET No:
EX-2

Comm. No.: 10909

6/6/2025 1:28 PM\\Jobfiles2\10000\10909\dwg\10909 Master.dwg

DRAINAGE INFORMATION RELATED TO INTERSECTIONS ON WATER STREET OBTAINED FROM:

- CITY OF NORWALK 'WATER STREET RECONSTRUCTION' PLAN & PROFILES DATED (09/17/1993).
- REDNISS & MEAD 'ZONING LOCATION SURVEY (DATED 3/22/2019) DEPICTING 123 WATER STREET.
- REDNISS & MEAD PROPERTY & 'TOPOGRAPHIC SURVEY' (DATED 3/18/2021) DEPICTING MONROE STREET, SOUTH MAIN STREET, AND CHESTNUT STREET.
- CITY OF NORWALK RAYMOND ST. AND DAY ST. IMPROVEMENT PROJECT PLANS DESIGN BY TIGHE & BOND (DATED 11/16/2016)

HAVILAND STREET
ELIZABETH STREET
RAYMOND STREET
CONCORD STREET
HANFORD PL
S MAIN STREET
WATER STREET
DAY STREET
NORWALK RIVER
108 WATER STREET
POTENTIAL AREA OF PROTECTION WITH BACKFLOW PREVENTER
60" RCP OUTLET PIPE. OPPORTUNITY TO PLACE BACKFLOW PREVENTER AT THIS LOCATION.

CB GR=4.90 (APPROXIMATE)
CB GR=4.95 (APPROXIMATE)
CB GR=5.15 INV=2.05 INV=1.45
CB GR=5.06 INV=2.06 INV=1.85
MH RIM=5.39 INV=0.72 INV=-0.16 INV=1.74
CB GR=5.40 INV=
CB GR=6.67 INV=3.67 (S) INV=3.12 (W) INV=2.73 (E)
CB GR=5.52 INV=2.62 (S) INV=2.22 (E) INV=2.22 (W)
STORM MH RIM=6.00 INV=0.00 (N) INV=-0.20 (S)
STORM MH RIM=7.85
CB GR=6.58 OUT=4.50 (N)
CB GR=5.65 WL=3.55
CB GR=4.92 OUT=1.67 (S)
CB GR=4.68 INV=1.48 (N) INV=1.47 (S)
CB GR=5.50 OUT=2.15 (S)
CB GR=4.96 INV=1.89 (N) INV=1.76 (SW)
CB GR=4.64 INV=1.22 (N) INV=1.19 (SE)
STORM MH RIM=5.07 INV=2.17 (NE) INV=-1.23 (S) INV=-1.17 (N) (NW PIPE NOT VIS.)
CB GR=4.55 12" RCP OUT=1.73
CB GR=4.62 INV=0.92 (S)
CB GR=4.87 WL=2.17 INV=2.02 (NE)
STORM MH RIM=4.90 INV=-2.05 (S) INV=-1.65 (N)
CB GR=8.81± INV IN=3.15 N INV IN=3.35 E INV IN=3.85 W INV OUT=2.98 S
CB GR=8.78 INV OUT=4.32 W
CB GR=10.43± INV IN=2.78 N INV OUT=2.78 SE
CB GR=11.10 INV IN=2.00 NW INV OUT=1.86 S
CB GR=14.72 INV. NOT VISIBLE
CB GR=13.94
CB GR=14.72 FL=4.92
CB GR=14.00 INV=10.70 (N) INV=2.78 (N) OUT=2.55 (S)
STORM MH RIM=14.50 INV=9.60 (N) OUT=8.22 (S)
STORM MH RIM=13.74 INV=7.97 (N) OUT=7.84 (S)
CB GR=9.0 (APPROXIMATE)
CB GR=7.90 INV OUT=4.40 W
MH RIM=12.05 INV IN=1.31 N INV OUT=0.51 S INV OUT=0.48 W
CB GR=±5.75 INV IN=2.96 S INV IN=2.32 W INV OUT=2.32 E
CB GR=4.86 (NO ACCESS)
STORM MH RIM=5.60 WEIR=1.37 INV=-2.85 (W) 72" RCP
STORM MH RIM=5.69
STORM MH RIM=5.45 INV=-4.40 (E)
STORM MH RIM=5.02 WEIR=0.52 INV=0.24 (N) INV=-3.68 (E)
STORM MH RIM=5.71
CB GR=4.90 OUT=1.80
MH RIM=12.05
SHALLOW CB GR=±5.75 INV OUT=3.17
MH RIM=12.05 INV IN=3.50 SE INV OUT=0.40 W
CB GR=9.50 INV OUT=1.82 W
MH RIM=9.71 INV IN=1.55 S INV IN=1.24 E INV IN=3.24 NW INV OUT=1.31 N
MH RIM=12.00 INV IN=3.10 W INV OUT=1.33 E
MH RIM= 12.10
MH RIM=11.05
CB GR=9.80
CB GR=7.90 INV OUT=4.40 W
CB GR=9.1 (APPROXIMATE)
CB GR=12.81
CB GR=13.87 OUT=6.72 (E)
CB GR=13.95 OUT=9.02 (E)
CB GR=14.09 OUT=9.09 (E)
CB GR=14.17 OUT=10.67 (E)
STORM MH RIM=14.35 INV=9.17 (W) INV=9.13 (S) OUT=8.60 (N)
STORM MH RIM=14.59 INV=10.79 (W) OUT=10.49 (N)
STORM MH RIM=16.74 INV=12.24 (NE) INV=12.04 (N) INV=11.59 (W) OUT=10.99 (SE)
CB GR=15.87 INV=13.17 (E) INV=12.37 (N) OUT=12.27 (SW)
CB GR=16.34 INV=11.79 (N) OUT=11.64 (S)
CB GR=16.69 INV=13.31 (N-15") INV=13.09 (W) INV=11.99 (N-6") OUT=11.54 (S)
CB GR=17.25 OUT=13.96
CB GR=18.12 INV=14.04 (W) OUT=14.04 (N)
CB GR=16.66 OUT=11.66 (N)
CB GR=16.75 OUT=12.25 (S)
CB GR=17.29 OUT=13.84 (E)
CB GR=17.33
CB GR=17.18 OUT=13.78 (N)
CB GR=15.37
CB GR=15.41 OUT=8.23 (W)
STORM MH RIM=17.61 INV=13.76 (S) INV=13.51 (W) INV=13.11 (NW) OUT=11.51 (SE)
STORM MH RIM=18.21 INV=15.26 (E) INV=13.46 (NW) OUT=10.94 (N)
STORM MH RIM=17.97
STORM MH RIM=17.85 INV=8.65 (W) INV=8.46 (E) OUT=8.20 (S)
STORM MH RIM=17.85 INV=11.95 (W) INV=8.33 (N) INV=8.28 (SW) OUT=7.52 (S)
STORM MH RIM=17.48 INV=14.13 (S) OUT=13.78 (N)

REDNISS & MEAD
LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING
22 First Street | Stamford, CT 06905
Tel: 203.327.2500 | Fax 203.357.1118
www.rednissmead.com

No.	Date	Revision
1	06/13/2025	ORIGINAL ISSUE

EXHIBIT
DEPICTING
DRAINAGE INFRASTRUCTURE
SOUTH NORWALK, CT
PREPARED FOR
108 WATER STREET, LLC

SCALE: 1"=80' (0, 80, 160)

SHEET No:
EX-1
Comm. No.: 10909

6/9/2025 1:29 PM P:\Jobfiles\2010\00\10909\dwg\10909 Master.dwg

Appendix 8

Onsite Sanitary Sewer Flow Estimates from Site

Project: *108 Water Street*	**Project #:** *10909*	**Date:** *6/13/2025*
Location: *Norwalk, CT*	**By:** *VJH*	**Checked:** *CJF*

Note: The flows listed below represent sanitary sewer flows from 108 Water Street contemplated under the proposal.

Existing On-Site Flow

Location	Building Use	Floor Area (SF)**	Design Flow (GPD/SF)*	Total Flow (GPD)
108 Water Street	Commerical	4,104	0.1	410

Existing Sanitary Flow (GPD)	410
Peak Rate (CFS)	0.001
Peaking Factor	4
Total Existing Peak Flow (CFS)	**0.003**

Proposed On-Site Flow

Location	Building Use	Floor Area (SF)**	Design Flow (GPD/SF)*	Total Flow (GPD)
108 Water Street	Office	110,899	0.1	11,090
108 Water Street	Restaurant	3,823	1.5	5,735
108 Water Street	Personal Service	3,444	0.1	345
108 Water Street	Marine Supply	2,254	0.1	226

Location	Building Use	# of Bedrooms ***	Design Flow (GPD / Rm.)*	Total Flow (GPD)
108 Water Street	Residential	114	150	17,100

	Existing	Proposed	Net Inc.
Sanitary Flow (GPD)	410	34,496	34,086
Peak Rate (CFS)	0.001	0.053	0.053
Peaking Factor	4	4	4
Total Proposed Peak Flow (CFS)	**0.003**	**0.214**	**0.211**

*Per State of CT Public Health Code

** Data taken from tax card.

***Proposed Residential Unit Count = 59 units (25-1BR, 17-2BR, 13-3BR, 4-4BR)

Mannings Equation - Circular Pipe

Project:	*108 Water Street*	**Project #:**	*10909*	**Date:**	*6/13/25*
Location:	*Norwalk, CT*	**By:**	*VJH*	**Checked:**	*CJF*

48" Sanitary Pipe - Pipe #1

Calculate the maximum flow capacity using Manning's equation.

Pipe material	einforced Concrete Pipe (RC		
Manning's n	0.013		
Pipe diameter, D	4 ft		
Area, A	12.57 ft^2	$A = \frac{\pi}{4} D^2$	
Wetted perimeter, P	12.57 ft	$P = \pi D$	
Hydraulic radius, R_h	1.00 ft	$R_h = \frac{A}{P}$	
Slope, S	0.0013 ft/ft		
Flow, Q_{full}	**51.79 cfs**	$Q = \frac{1.486}{n} A R_h^{2/3} S^{1/2}$	

Existing Conditions Flow

Flow, Q	27.470 cfs[1]		
Flow to Flow Full, Q/Q_{fu}	**0.530**	**53.0%**	

Proposed Conditions Flow Conditions Flow

Flow, Q	27.681 cfs[2]		
Flow to Flow Full, Q/Q_{fu}	**0.534**	**53.4%**	46.6% Reserve Capacity

[1] Flow tributary to WPCA Manhole #15-1 (on North Water St) as provided by WPCA via 2021 flow monitoring data. Flow = 14.784 MGD during rainfall of 7/2/2021.

[2] Existing Flow + Pr. Net Site Flow (Refer to Proposed Sanitary Sewer Flow Estimates for further information)

Mannings Equation - Circular Pipe

Project:	*108 Water Street*	**Project #:**	*10909*	**Date:**	*6/13/25*
Location:	*Norwalk, CT*	**By:**	*VJH*	**Checked:**	*CJF*

48" Sanitary Pipe - Pipe #2

Calculate the maximum flow capacity using Manning's equation.

Pipe material	einforced Concrete Pipe (RC		
Manning's n	0.013		
Pipe diameter, D	4 ft		
Area, A	12.57 ft^2	$A = \frac{\pi}{4} D^2$	
Wetted perimeter, P	12.57 ft	$P = \pi D$	
Hydraulic radius, R_h	1.00 ft	$R_h = \frac{A}{P}$	
Slope, S	0.0013 ft/ft	Assumed to match Pipe #1	
Flow, Q_{full}	**51.79 cfs**	$Q = \frac{1.486}{n} A R_h^{2/3} S^{1/2}$	

Existing Conditions Flow

Flow, Q	27.470 cfs[1]		
Flow to Flow Full, Q/Q_{fu}	**0.530**	**53.0%**	

Proposed Conditions Flow Conditions Flow

Flow, Q	27.681 cfs[2]		
Flow to Flow Full, Q/Q_{fu}	**0.534**	**53.4%**	46.6% Reserve Capacity

[1] Flow tributary to WPCA Manhole #15-1 (on North Water St) as provided by WPCA via 2021 flow monitoring data. Flow = 14.784 MGD during rainfall of 7/2/2021.

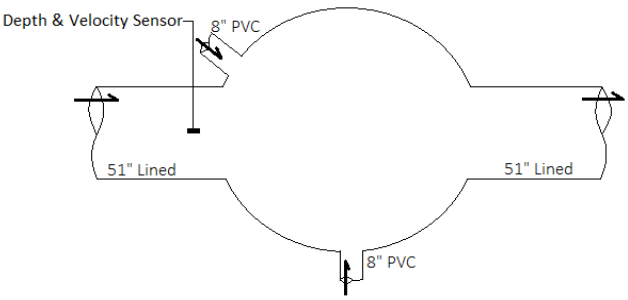
[2] Existing Flow + Pr. Net Site Flow (Refer to Proposed Sanitary Sewer Flow Estimates for further information)

Appendix 9

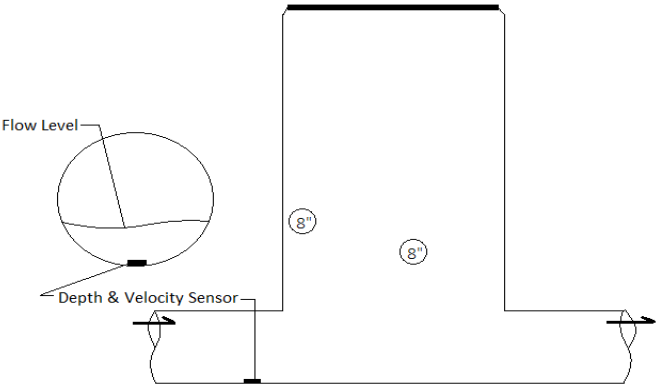
METER SITE INFORMATION FIELD LOG

PROJECT: Norwalk, CT	**DATE:** March 10, 2021	**JOB#:** 21026
LOCATION: 10 North Water Street	**MH#:**	**METER SITE:** 15
GPS/COMMENTS: 41.100361, -73.416479		

	Size (")	Material	Flow Depth (")	Debris	Shape	MH Depth
Incoming	51	Lined	12	0	Circular	13' 10"
Incoming	8	PVC	0.25	0	Circular	07' 01"
Incoming	8	PVC	0	0.5	Circular	06' 07"
Outgoing	51	Lined	12	0	Circular	13' 11"



SURCHARGE INFORMATION	WEIR INFORMATION	
SURCHARGE NONE EVIDENT:	**LENGTH:**	**HEIGHT ABOVE WEIR:**
SURCHARGED MARKS TO: 8'	**BREADTH:**	**OVERFLOW OCCURS AT:**
SURCHARGE CURRENTLY TO:	**LEVEL:**	



DT 121, LLC
96 WATER STREET
ASSESSORS LOT 47A
VOL. 8918, PG. 70 N.L.R.
PARCEL "B", MAP 7107 N.L.R.

JOSEPH RICHICHI (TRUSTEE)
100 WATER STREET
ASSESSORS LOT 47
VOL. 5599, PG. 175 N.L.R.
MAP 6166 N.L.R.

VEHICULAR BRICK PAVERS
BONDED AGGREGATE PAVING (TYP.)
CITY STANDARD CONCRETE SIDEWALK WITH PRECAST CONCRETE PAVER BAND (TYP.)
CITY STANDARD STREET TREE PLANTING IN FLEXI-PAVE TREE SURROUND (TYP.)
EXISTING TRAFFIC POLE ARM AND LIGHTS TO REMAIN
EXISTING UTILITY BOXES TO REMAIN (TYP.)
CITY STANDARD LIGHT POLE (TYP.)
STACKED STONE WALL / SEATING (TYP.)
BONDED AGGREGATE PAVING (TYP.)
VEHICULAR BRICK PAVERS
CONCRETE SIDEWALK (TYP.)
BRICK PAVERS (TYP.)
WOOD DECKING TO MATCH BOARDWALK (TYP.)
GREEN ROOF TRAY SYSTEM ON ROOF (REFER TO PLANTING PLAN)
BONDED AGGREGATE PAVING (TYP.)
STACKED STONE SEATING (TYP.)
BRICK PAVERS (TYP.)
SHADE STRUCTURE
BONDED AGGREGATE PAVING (TYP.)
BRICK PAVERS (TYP.)
BONDED AGGREGATE WALKWAY (TYP.)
STACKED STONE SEATING (TYP.)
STACKED STONE SEATING (TYP.)
NATURAL BOULDERS (TYP.)
SOLID STONE STEPS WITH ILLUMINATED HANDRAIL (TYP.)
WOODEN BOARDWALK AND DOCK (TYP.)
STACKED STONE SEATING (TYP.)
NATURAL BOULDERS (TYP.)
SOLID STONE STEPS WITH ILLUMINATED HANDRAIL (TYP.)
STACKED STONE SEATING (TYP.)
BONDED AGGREGATE PAVING (TYP.)

PROPOSED BUILDING
PROPOSED BUILDING
PROPOSED BUILDING
PROPOSED BUILDING
PROPOSED BUILDING

WATER STREET
NORWALK RIVER
CONCRETE WALK
WOOD DECK
PILE (TYP.)
CONCRETE PIER
RAMP
WOOD

N / F
NEW NRB#3 CORPORATION
ROBERT BLOOM (TRUSTEE)
JOHN GARDELLA (TRUSTEE)
120 WATER STREET
ASSESSORS LOT 15

GRAPHIC SCALE
20 0 10 20 40 80
SCALE: 1" = 20'-0"

eric raines landscape architecture, llc
11a N Main Street SoNo, CT 203.354.6500 www.ericraines.com

NO.	ISSUE	DATE
7		
6		
5		
4	MUNICIPAL REVIEW - REVISED	26.01.09
3	MUNICIPAL REVIEW - REVISED	25.08.15
2	MUNICIPAL REVIEW	25.06.13
1		

108 WATER STREET
WATER STREET
NORWALK, CT

PROJECT

DWG TITLE
OVERALL SITE MATERIALS PLAN

JOB NO.

DATE
2025.06.13

SCALE
1"=20'-0"

SPL-1.0

DT 121, LLC
96 WATER STREET
ASSESSORS LOT 47A
VOL. 8918, PG. 70 N.L.R.
PARCEL "B", MAP 7107 N.L.R.

JOSEPH RICHICHI (TRUSTEE)
100 WATER STREET
ASSESSORS LOT 47
VOL. 5599, PG. 175 N.L.R.
MAP 6166 N.L.R.

(2) BN

4" DEPTH EXTENSIVE GREEN ROOF TRAY SYSTEM (ON ROOF)

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

WOOD DECK

GRANITE CURB

CONCRETE WALK

CB GR=5.31

(5) GB

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

PROPOSED BUILDING

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

PROPOSED BUILDING

PILE (TYP.)

(3) AR

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

CLOVER LAWN

WATER ST

4" DEPTH EXTENSIVE GREEN ROOF TRAY SYSTEM (ON ROOF)

POOL

CLOVER LAWN

CLOVER LAWN

NORWALK RIVER

CONCRETE PIER

(3) AR

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

PROPOSED BUILDING

PROPOSED BUILDING

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

PROPOSED BUILDING

ASSORTED ORNAMENTAL SHRUB AND PERENNIAL PLANTINGS (TYP. - SEE PLANTING SCHEDULE)

CLOVER LAWN

(54) IG

(2) BN

(45) IG

WOOD RAMP

N / F
NEW NRB#3 CORPORATION
ROBERT BLOOM (TRUSTEE)
JOHN GARDELLA (TRUSTEE)
120 WATER STREET
ASSESSORS LOT 48

GRAPHIC SCALE
20 0 10 20 40 80
SCALE: 1" = 20'-0"

eric raines landscape architecture, llc
11a N Main Street SoNo, CT 203.354.6500 www.ericraines.com

NO.	ISSUE	DATE
7		
6		
5		
4	MUNICIPAL REVIEW - REVISED	26.01.09
3	MUNICIPAL REVIEW - REVISED	25.08.15
2	MUNICIPAL REVIEW	25.06.13
1		

PROJECT
108 WATER STREET
WATER STREET
NORWALK, CT

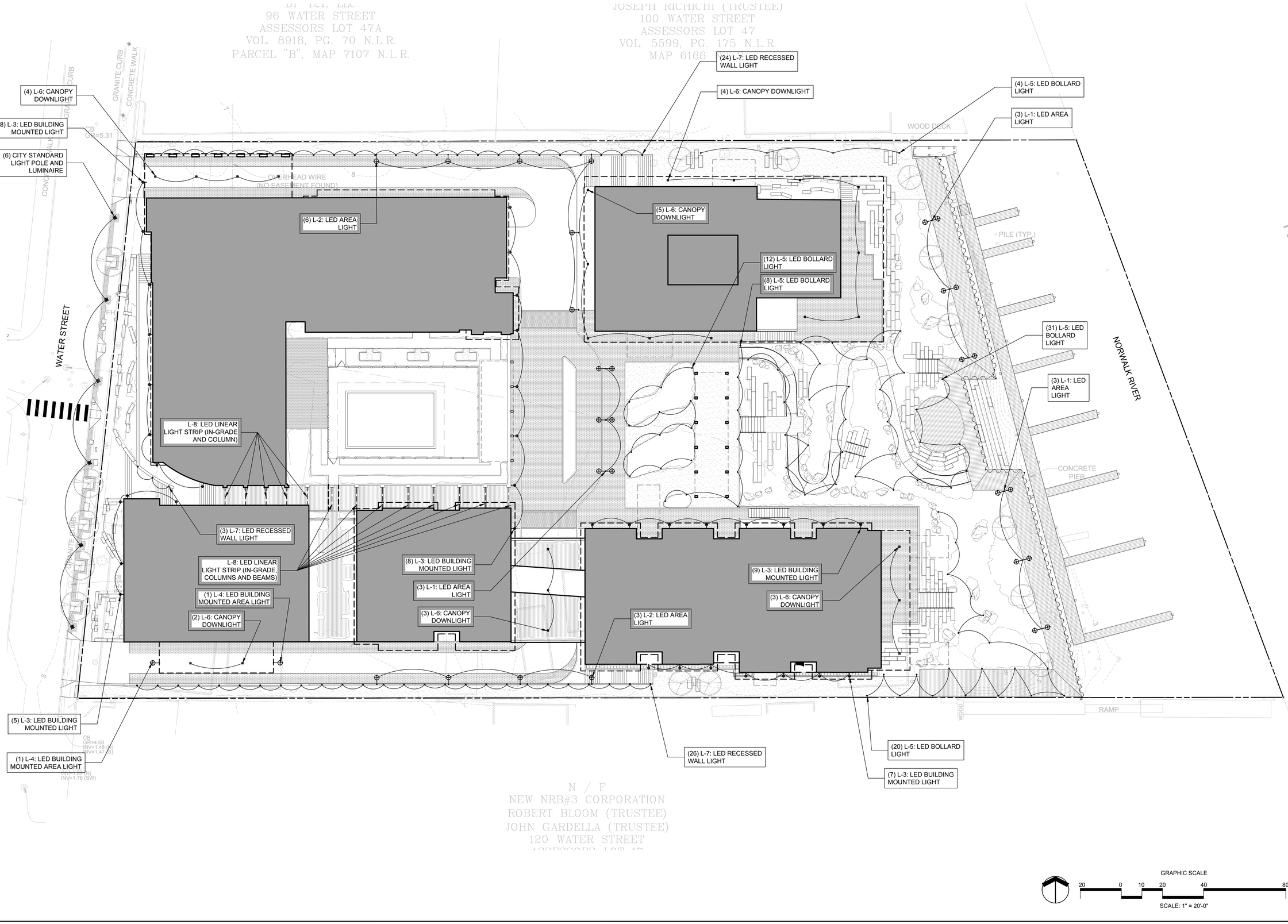
DWG TITLE
OVERALL PLANTING PLAN

JOB NO.

DATE
2025.06.13

SCALE
1"=20'-0"

SPL-2.0



GRAPHIC SCALE
20 0 10 20 40 80
SCALE: 1" = 20'-0"

eric raims landscape architecture, llc
11a N Main Street SoNo, CT 203.354.6500 www.ericraims.com

NO.	ISSUE	DATE
7		
6		
5		
4	MUNICIPAL REVIEW - REVISED	26.01.09
3	MUNICIPAL REVIEW - REVISED	25.08.15
2	MUNICIPAL REVIEW	25.06.13
1		

PROJECT
108 WATER STREET
WATER STREET
NORWALK, CT

DWG TITLE
OVERALL SITE LIGHTING PLAN

JOB NO.

DATE
2025.06.13

SCALE
1"=20'-0"

SPL-3.0

SITE PLANTING SCHEDULE

SYM	QTY	BOTANICAL NAME	COMMON NAME	ROOT	MIN. SIZE	COMMENTS
TREES						
AR	6	Acer rubrum 'October Glory'	October Glory Red Maple	B&B	4 - 4.5" CAL.	Full, Branching at 6'-0" Min.
BN	4	Betula nigra 'Heritage'	Heritage River Birch	B&B	3.5 - 4" CAL.	Single Trunk, Branching at 6'-0" Min.
GB	5	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	B&B	4 - 4.5" CAL.	Full, Branching at 6'-0" Min.
FOUNDATION SHRUBS						
IG	99	Ilex glabra 'Gem Box'	Gem Box Inkberry	Cont.	#5	Full, Heavy
ASSORTED NATIVE SHRUBS, GRASSES AND PERENNIALS						
SHRUBS						
--	--	Amelanchier canadensis	Serviceberry	CONT.	#5	Final locations and quantities TBD
--	--	Clethra alnifolia	Sweet Pepperbush	CONT.	#5	Final locations and quantities TBD
--	--	Cornus sericea	Redosier Dogwood	CONT.	#5	Final locations and quantities TBD
--	--	Ilex glabra spp.	Inkberry	CONT.	#5	Final locations and quantities TBD
--	--	Myrica pennsylvanica spp.	Northern Bayberry	CONT.	#5	Final locations and quantities TBD
--	--	Rosa caroliniana spp.	Carolina Rose	CONT.	#5	Final locations and quantities TBD
--	--	Rosa virginiana spp.	Virginia Rose	CONT.	#5	Final locations and quantities TBD
GRASSES						
--	--	Andropogon gerardii	Big Bluestem	CONT.	#1	Final locations and quantities TBD
--	--	Carex pennsylvanica	Pennsylvania sedge	CONT.	#1	Final locations and quantities TBD
--	--	Deschampsia cespitosa	Tufted Hairgrass	CONT.	#1	Final locations and quantities TBD
--	--	Panicum virgatum	Switchgrass	CONT.	#1	Final locations and quantities TBD
--	--	Schizachyrium scoparium	Little Bluestem	CONT.	#1	Final locations and quantities TBD
PERENNIALS						
--	--	Baptista spp.	False Indigo	CONT.	#1	Final locations and quantities TBD
--	--	Eupatorium purpurea	Joe Pye-Weed	CONT.	#1	Final locations and quantities TBD
--	--	Eurybia spectabilis	Eastern Showy Aster	CONT.	#1	Final locations and quantities TBD
--	--	Iris versicolor	Norther Blue Flag	CONT.	#1	Final locations and quantities TBD
--	--	Echinacea purpurea	Coneflower	CONT.	#1	Final locations and quantities TBD
--	--	Gaura lindheimeri	Bee Blossom	CONT.	#1	Final locations and quantities TBD
--	--	Rudbeckia hirta	Black-Eyed Susan	CONT.	#1	Final locations and quantities TBD
--	--	Solidago Sempervirens	Goldenrod	CONT.	#1	Final locations and quantities TBD

PLANTING NOTES:

1. THE CONTRACTOR SHALL PROVIDE A SOIL TEST RESULT FOR ALL PLANTING AND LAWN AREAS THAT MINIMALLY INDICATE PH, SOIL TYPE AND NUTRIENT LEVELS. THE CONTRACTOR SHALL AMEND SOILS AS REQUIRED TO PROVIDE APPROPRIATE CONDITIONS FOR THE PLANTS AND OR SEED INDICATED ON THE PLANS

2. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE REPRESENTATIVE SAMPLE OF EACH PLANT VARIETY WITH AN ATTACHED LABEL INDICATING THE NAME, SIZE, AND ORIGIN, OF ALL PLANT MATERIALS

3. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIALS AT ANY POINT PRIOR TO INSTALLATION. ALL MATERIALS SHALL CONFORM TO THE AMERICAN STANDARDS FOR NURSERY STOCK" ANSI Z60.1-2014 (AVAILABLE AT AMERIHORT.ORG)

4. THE LAYOUT OF ALL BED LINES AND LOCATION OF ALL PLANT MATERIAL SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.

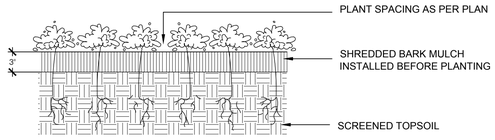
5. ALL PLANT MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH DETAILS ON THE DRAWINGS

6. PLANTING BEDS SHALL BE MULCHED WITH A 2" (TWO-INCH) MINIMUM OF SHREDDED AGED HARDWOOD BARK UNLESS OTHERWISE NOTED

7. ALL VEGETATION SHOWN ON THE DRAWINGS SHALL BE MAINTAINED IN A HEALTHY CONDITION THROUGHOUT THE DURATION OF THE PROJECT OR PROJECT PHASE

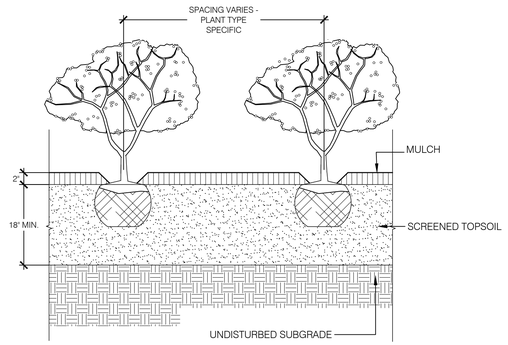
8. ALL PLANT MATERIAL SHALL BE COVERED BY A ONE-YEAR FULL REPLACEMENT WARRANTEE THAT SHALL INCLUDE ALL MATERIALS AND LABOR. THE CONTRACTOR SHALL REPLACE PLANTS AS SOON AS WEATHER AND SEASONAL CONDITIONS PERMIT

9. IF THERE IS A DIFFERENCE IN COUNT OR SIZE OF PLANT MATERIALS BETWEEN THE PLAN AND THE LIST THE HIGHER NUMBER AND OR SIZE SHALL PREVAIL



1 GROUNDCOVER DETAIL

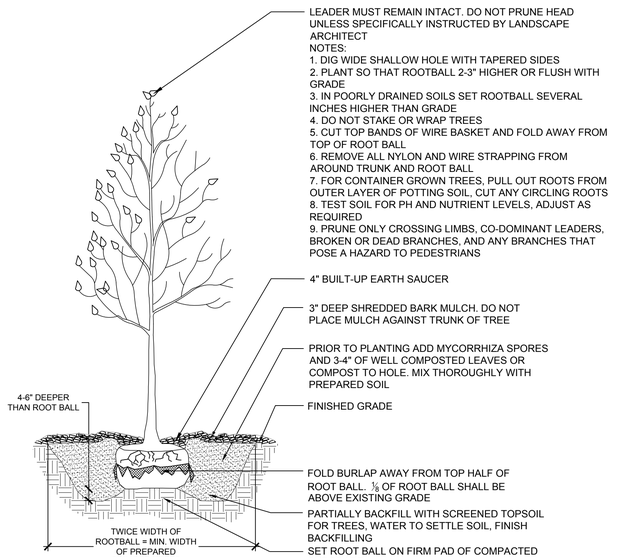
SCALE: NTS



NOTE: PLANTS ARE TO BE SPACED AS REQUIRED BY PLANTING SCHEDULE

2 SHRUB PLANTING DETAIL

SCALE: NTS



3 TREE PLANTING DETAIL

SCALE: NTS

COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

Pre-Grown Tray System

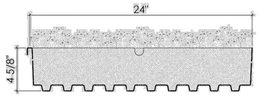
(Patented: 7,603,808)

Product Number: PL4300

Description:

The pre-grown tray provides a turnkey solution that meets or exceeds all guidelines for Green Roofs. The trays are easy to install and feature interlocking edges which prevent shifting or migration of growing media onto the roof membrane. At 24" x 24" x 4.625" deep, the pre-grown tray is appropriate for extensive and semi-intensive vegetative roof profiles. The modules are pre-grown with plants (most commonly sedum) selected by the project designer and shipped to the job site with approximately 90%+ vegetation coverage.

Comprised of a heavy duty recycled polypropylene, the Columbia Green Technologies' Tray system is designed with a channelized bottom to maximize stormwater retention. It can reduce both the amount and rate of stormwater run-off and is capable of retaining up to 70% of annual precipitation. Detailed stormwater retention calculations and hydrographs are available upon request.



Planting Options:

- Plants are grown per the project specifications, provided they are appropriate for the local climate zone and sufficient lead time has been provided. Please contact Columbia Green Technologies for more information.

LEED Information:

- Post-Consumer Recycled Content: 88%
- Manufacturing Location: Washougal, WA 98671

Declare Label for Materials Transparency:

Declare. The Declare Label is a voluntary disclosure of building material ingredients which offers Living Building Challenge and other project teams concerned about building product ingredients a guide for product specification. We are pleased to announce that our tray system is 'Red List Free' which means it doesn't contain "worst in class" materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.
www.declareproducts.com

Wind Uplift:

- *ANSI/SPRI RP-14 Wind Design Standard for Vegetative Roof Systems* is the only Wind Uplift standard for the United States.
- Due to the interlocking design, The Planted-In-Place Tray is considered a #2 Ballast system (Increased wind uplift resistance).
- Please request a copy of the ANSI/SPRI RP-14 User Guide.

4 PRE-GROWN EXTENSIVE GREEN ROOF TRAY SYSTEM

SCALE: NTS

eric raines landscape architecture, llc
11a N Main Street SoNo, CT 203.354.6500 www.ericraines.com

NO.	ISSUE	DATE
7		
6		
5		
4	MUNICIPAL REVIEW - REVISED	26.01.09
3	MUNICIPAL REVIEW - REVISED	25.08.15
2	MUNICIPAL REVIEW	25.06.13
1		

PROJECT
108 WATER STREET
WATER STREET
NORWALK, CT

DWG TITLE
SITE PLANTING DETAILS

JOB NO:

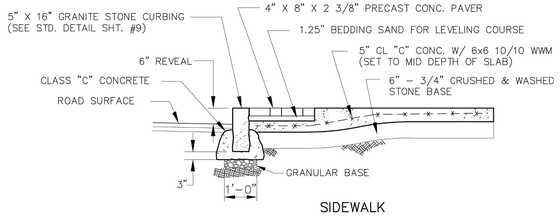
DATE
2025.06.13

SCALE
AS NOTED

SPL-4.1

SITE MATERIALS SCHEDULE

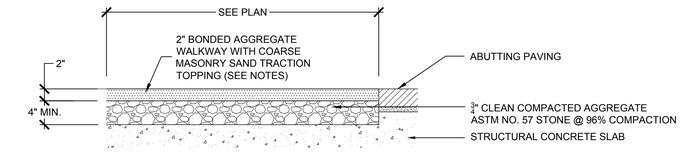
SYM	DESCRIPTION
A	CONCRETE SIDEWALK: 4000 PSI
B	CITY STANDARD BRICK PAVER - TYPE: HOLLAND STONE, SIZE: 4" x 8" (NOM.). COLORS: RED AND CHARCOAL. DISTRIBUTED BY O&G INDUSTRIES, CONTACT ANDREW AMATURO, PHONE: 860-559-3400.
C	BONDED AGGREGATE WALKWAY - STONE BLEND: RI BEIGE. BINDER: Profi DEKO. CONTACT HENRI HILLMANN - PHONE: (860) 840-4637.
D	BRICK PAVERS - TYPE: CLAY. COLOR: RED / RED BLEND AND GREY. SIZE: 4" x 8" NOM. DISTRIBUTED BY O&G INDUSTRIES, CONTACT ANDREW AMATURO, PHONE: 860-559-3400.
E	STONE STEPS - TYPE: GRANITE. COLOR: NATURAL. FINISH: THERMAL (ALL EXPOSED SIDES). DISTRIBUTED BY O&G INDUSTRIES, CONTACT ANDREW AMATURO, PHONE: 860-559-3400.
F	STACKED STONE - TYPE: GRANITE. COLOR: NATURAL. FINISH: SPLIT. DISTRIBUTED BY O&G INDUSTRIES, CONTACT ANDREW AMATURO, PHONE: 860-559-3400.



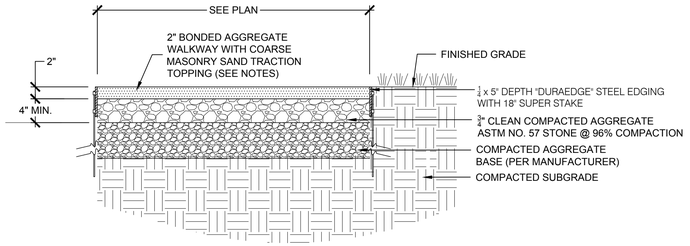
SIDEWALK
SECTION A–A

1 SIDEWALK SECTION (CITY STANDARD)

SCALE: NTS



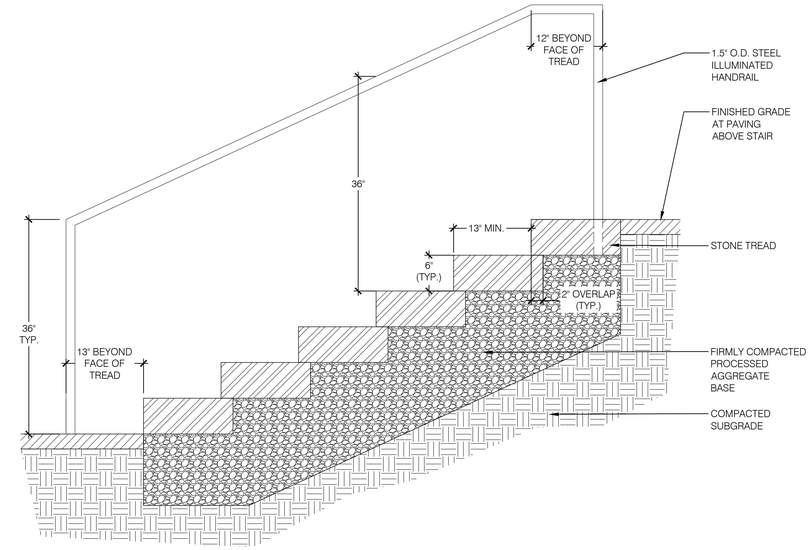
ON STRUCTURE



ON - GRADE

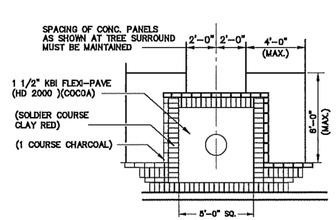
4 BONDED AGGREGATE PAVING

SCALE: NTS



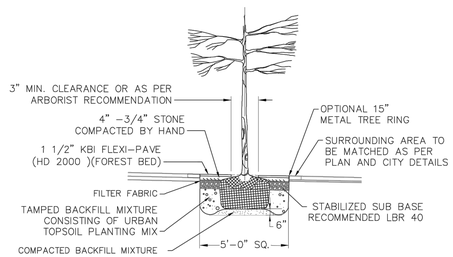
5 SOLID STONE STEPS

SCALE: NTS



2 TREE PIT FLEXI-PAVE DETAIL (CITY STANDARD)

SCALE: NTS

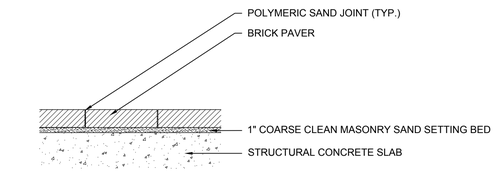


NOTE:
1. DO NOT CUT OR LOOSEN BURLAP BALL.
2. REMOVE PLASTIC WRAP, TAGS AND WIRE.

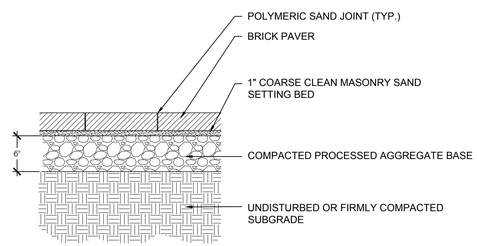
KBI FLEXI–PAVE
TREE SURROUND DETAIL

3 TREE PIT DETAIL (CITY STANDARD)

SCALE: NTS



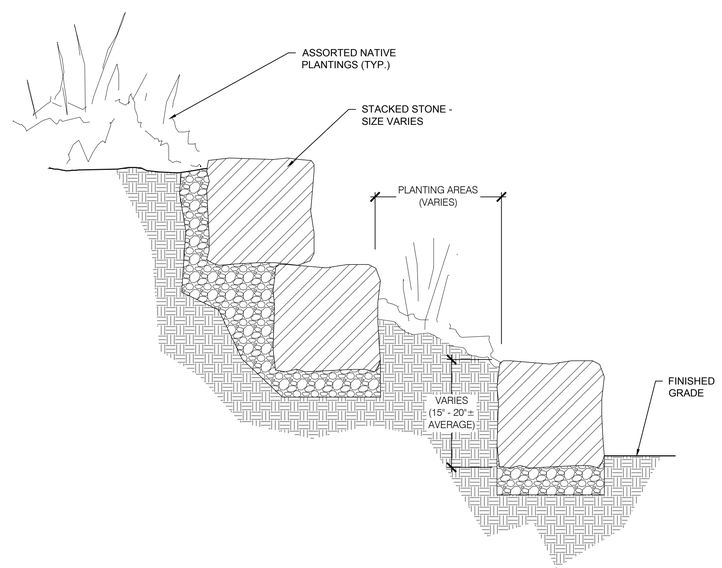
ON STRUCTURE



ON - GRADE

6 BRICK PAVING

SCALE: NTS



7 STACKED STONE - SCHEMATIC SECTION / DETAIL

SCALE: NTS

eric rains landscape architecture, llc
11a N Main Street SoNo, CT 203.354.6500 www.ericrains.com

NO.	ISSUE	DATE
7		
6		
5		
4	MUNICIPAL REVIEW - REVISED	26.01.09
3	MUNICIPAL REVIEW - REVISED	25.08.15
2	MUNICIPAL REVIEW	25.06.13
1		

PROJECT: 108 WATER STREET
WATER STREET NORWALK, CT

DWG TITLE: DETAILS

JOB NO:

DATE: 2025.06.13

SCALE: 1"=20'-0"

SPL-4.0

SITE LIGHTING SCHEDULE

SYM	QTY.	DESCRIPTION
L-1	9	LED AREA LIGHT (DUAL) - MODEL: LBW-2-SD27-LED-x34-BW-BLP-A-TR5-12-010-MT. TEMP: 2700K LED. HEIGHT: 12'-0" POLE. COLOR: BLACK. BY TEKA LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-2	10	LED AREA LIGHT (SINGLE) - MODEL: LBW-1-SD27-LED-x34-BW-BLP-A-TR5-12-010-MT. TEMP: 2700K LED. HEIGHT: 12'-0" POLE. COLOR: BLACK. BY TEKA LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-3	35	LED BUILDING MOUNT LIGHT - MODEL: BWM-SD12-LED-L13-BLP-A-DT-CTW. TEMP: 2700K LED. BY TEKA LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-4	2	LED BUILDING MOUNT AREA LIGHT - MODEL: LBW-SD27-LED-x43-BLP-A-CTW. TEMP: 2700K LED. BY TEKA LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-5	75	LED BOLLARD LIGHT - MODEL: APB-36-LED-x52-BLP-A-CF1-MSH-D10-MT. TEMP: 2700K LED. BY TEKA LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-6	24	RECESSED CANOPY LIGHT - MODEL: F3SS-2-F-TM-WH-90W-11A-27-60-04-IC-PH1. TEMP: 2700K LED. BY LUCIFER LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-7	52	RECESSED WALL LIGHT - MODEL: B24210-ADA. TEMP: 2700K LED. BY BEGA LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814
L-8	LF	LED LINEAR IN-GRADE LIGHT - MODEL: ZNLT-SH-xx-ZGBL-24V-95C-27T-MG. TEMP: 2700K LED. BY PRECISE LED. CONTACT: CLIFF GILBERT. (203) 788-0814
L-9	LF	LED ILLUMINATED HANDRAIL - MODEL: LR6P-LED-SS-INT-ME-ES-ASYM-DIM. TEMP: 3000K LED. BY COLE LIGHTING. CONTACT: CLIFF GILBERT. (203) 788-0814

LBW POLE MOUNT - TR5 (LBW-TR5) — IP65 RATED

DATE: | PROJECT: | TYPE:

CATALOG NUMBER LOGIC:

*Finish to match fixture.
**Eliminates glow in window above shade. Finish to match fixture.

CATALOG NUMBER LOGIC
Example: LBW - 1 - SD27 - LED - x44 - BW - BZP - A - DT - TR5 - 12 - 010 - MT
MATERIAL
Aluminum
SERIES
LBW - LBW Pole Mount
MOUNTING
1 - Single LBW
2 - Dual LBW
STYLE
SD27 - 27 Inch Shade
SOURCE
LED - Chip on Board (COB) Technology
LED TYPE
x43 - 34W LED/2700K x46 - 42W LED/2700K x49 - 57W LED/2700K
x44 - 34W LED/3000K x47 - 42W LED/3000K x50 - 57W LED/3000K
x45 - 34W LED/4000K x48 - 42W LED/4000K x51 - 57W LED/4000K
OPTIC
BW - Batwing
FIXTURE FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
(Also available in RAL Finishes. See submittal SUB-1439-00)
RINGS
A - Aluminum*
ACCESSORIES (Select one)
DT - Dark Top **
HS - House Side Shield*
MSH - Mesh Screen*
POLE
TR5 - 5" Tapered Round Pole
HEIGHT
12 - 12 Foot
14 - 14 Foot
16 - 16 Foot
18 - 18 Foot
20 - 20 Foot
CONTROL TYPE
010 - 0-10V Dimming Driver
INPUT VOLTAGE
MT - 120-277 VAC Input

LARGE BEACON WALL MOUNT — IP65 RATED

DATE: | PROJECT: | TYPE:

CATALOG NUMBER LOGIC:

Driver Housing Required. Configure and Price Separately.

*Stainless rings are provided in Natural (NAT) regardless of finish choice.
**Eliminates glow in supper window. Material and finish to match fixture.
***Material and finish to match fixture.
****Only available for Copper Material.

CATALOG NUMBER LOGIC
Example: LBW - SD27 - LED - x44 - BW - A - WHP - MSH
MATERIAL
(Blank) - Aluminum C - Copper
SERIES
LBW - Large Beacon Wall Mount
STYLE
SD27 - 27" Shade
SOURCE
LED - Chip on Board Technology
LED TYPE
x43 - 34W LED/2700K x46 - 42W LED/2700K x49 - 57W LED/2700K
x44 - 34W LED/3000K x47 - 42W LED/3000K x50 - 57W LED/3000K
x45 - 34W LED/4000K x48 - 42W LED/4000K x51 - 57W LED/4000K
OPTIC
BW - Batwing
FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
Also available in RAL Finishes
Copper Finishes (NAT, BP, GP)
RINGS
A - Aluminum
B - Brass
S - Stainless Steel*
ACCESSORIES
DT - Dark Top Shield**
MSH - Mesh Screen**
OPTION**
CLR - Clear Coat Protection (Available on NAT finish only)

1 L-1/ L-2: LED AREA LIGHT — SCALE: NTS

3 L-4: LED BUILDING MOUNTED SCONCE — SCALE: NTS

BEACON WALL MOUNT — IP65 RATED

DATE: | PROJECT: | TYPE:

CATALOG NUMBER LOGIC:

*120V only.
**Finish to match fixture.
***Stainless rings are provided in Natural (NAT) finish regardless of finish choice.
****Eliminates glow in supper window. Material and finish to match fixture.
*****Material and finish to match fixture.
******Only available for Copper Material.

CATALOG NUMBER LOGIC
Example: BWM - SD12 - LED - L11 - BZW - A - MSH - CTW
MATERIAL
(Blank) - Aluminum C - Copper
SERIES
BWM - Beacon Wall Mount
STYLE
SD10 - 10" Disk
SD12 - 12" Shade
SD15 - 15" Shade
SOURCE
LED - Line Voltage*
LED TYPE
L10 - 10W LED/2700K
L11 - 10W LED/3000K
L12 - 10W LED/4000K
L13 - 10W LED 2200K-3500K (Warm Dimming)
L15 - 20W LED/2700K
L16 - 20W LED/3000K
L17 - 20W LED/4000K
L18 - 20W LED/2200-3500K (Warm Dimming)
FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
Also available in RAL Finishes
Copper Finishes (NAT, BP, GP)
RINGS
A - Aluminum**
B - Brass**
S - Stainless Steel***
ACCESSORIES (select one)
DT - Dark Top Shield*****
MSH - Mesh Screen******
OPTION*****
CLR - Clear Coat Protection (Available on NAT finish only)
CANOPY
CRW - Round Canopy
CQW - Square Canopy
CTW - Rectangular Canopy

2 L-3: LED BUILDING MOUNTED LIGHT — SCALE: NTS

APOLLO BOLLARD — IP66 RATED

DATE: | PROJECT: | TYPE:

CATALOG NUMBER LOGIC:

*Stainless steel rings are provided in Natural (NAT) finish regardless of finish choice.
**Material and finish to match fixture
***For use with 0-10 dimmer. Driver wattage must match fixture wattage.

CATALOG NUMBER LOGIC
Example: APB - 36 - LED - x52 - BZW - A - CD1 - MSH - D10 - MT - EMB
MATERIAL
(Blank) - Aluminum C - Copper
SERIES
APB - Apollo Bollard
BASE HEIGHT (specify inches)
32" (Standard), 36", 40", 44" or 48"
SOURCE
LED - Chip on Board Technology
LED TYPE
x52 - 10W LED/2700K x92 - 16W LED/2700K
x53 - 10W LED/3000K x93 - 16W LED/3000K
x54 - 10W LED/4000K x94 - 16W LED/4000K
FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
Also available in RAL Finishes
Copper Finishes (NAT, BP, GP)
RINGS
A - Aluminum
B- Brass
S - Stainless Steel*
CAP STYLE
CC1 - Cone Cap**
CD1 - Dome Cap**
CF1 - Flat Cap**
ACCESSORIES
HS - House Side Shield**
MSH - Mesh Screen**
DRIVER TYPE* **
D10 - 10W Dimming Driver
D16 - 16W Dimming Driver
INPUT VOLTAGE
MT - 120-277 Multi Tap
OPTIONS
CLR - Clear Coat Protection (Available on NAT finish only)
EMB - Emergency Backup
HLS - Hi/Low Switching-motion Sensor
SGP-120 - 120V Surge Protection
SGP-277 - 277V Surge Protection

4 L-5: LED BOLLARD LIGHT — SCALE: NTS

FRAXION®3 SLIM SHALLOW REGRESS

- Max output of 2882lm at 80+ CRI
- Baffle options in round and square featuring UGR as low as 4
- Integral drivers for tunable white with our 2 ranges, 1800K to 4000K and 2700K to 5000K
- Now available for remodel and concrete pour applications. See separate spec sheet.

PROJECT NAME: | TYPE:

ORDERING INFORMATION - FIXTURE

JA8-2022 INDICATED BY SHADING

SHAPE	RATING	TYPE	FINISH	BAFFLE FINISH	CRI	WATTAGE	CCT	OPTIC (UGR)	MEDIA	INSTALL TYPE	CEILING THICKNESS	DRIVER
F3SS	**2**	**F**	**WH**	**WH**	**90S**	**11A**	**30**	**60**	**04**	**IC**	**1**	**INTEGRAL / REMOTE**
F3RS Round Shallow Regress F3SS Square Shallow Regress F3TS Square Transitional Shallow Regress* *Not available in wallwash	1 IP20 Dry/Damp 2 IP44 Wet* *Available in JA8 2022 wallwash, dry or wet rated	A Adjustable F Fixed W Wallwash	POWDERCOAT MICROFLANGE WH White AB Architectural Bronze SG Satin Silver AU Cashmere Gold BB Burnt Bronze BK Black PR Primer CF Custom Finish* *Consult factory! TRIMLESS TS Trimless Square TR Trimless Round TW Trimless Wiberk	POWDERCOAT WH White AB Architectural Bronze SG Satin Silver AU Cashmere Gold BB Burnt Bronze BK Black PR Primer CF Custom Finish* *Consult Factory!	STATIC WHITE 80S 80+ 90S 90+ 95S 95+ WARM DIM 90W 90+	STATIC WHITE 9A 5,000K** 90 CRI No Warm Dim and HC only 11A 3,000K** 90 CRI No Warm Dim 13A 4,000K** 90 CRI No Warm Dim 15A 5,000K** 90 CRI No Warm Dim **Not available in 95 CRI WARM DIM 11A 90+ CRI, 10 Watts Incandescent Profile, 118 Lumens (Bwl - 70° 154 Lumens (Bwl - 134) Halogen Profile 154 Lumens (Bwl - 72° 154 Lumens (Bwl - 101) SEE PAGE 4 FOR DETAILED WARM DIM PROFILE COMPARISON. TUNABLE WHITE TUNABLE WHITE 11A TW Warm Profile: 4000K - 1800K 120 Lm Cool Profile: 5000K - 2700K 1285Lm LUMEN DELIVERED OUTPUTS REFLECT BU-CW / 3000K PAIRED WITH 20° OPTIC AND SOFT FOCUS LENS	2A 2,200K* 90 CRI No Warm Dim and HC only 27 2700K 30 3000K 35 3500K 40 4000K WL 2400K-2700K / 2700K-1800K WD 2700K-3700K / 3000K-1800K TR 4200K-5000K / 2700K-1800K * Requires 4T-WDL ** Required for wallwash	10 10" (+10) 12 12" (+12) 15 15" (+15) 20 20" (+20) 25 25" (+25) 40 40" (+40) 60 60" (+60) 80 80" (+80) * Requires 4T-WDL model WW Wallwash* 90 CRI No Warm Dim * Required for wallwash 20 20° (+20) 25 25° (+25) 40 40° (+40) 60 60° (+60) 80 80° (+80) * Requires 4T-WDL model WW Wallwash* 90 CRI No Warm Dim * Required for wallwash 15 15° (+15) 20 20° (+20) 25 25° (+25) 40 40° (+40) 60 60° (+60) 80 80° (+80) * Required for wallwash WW Wallwash* 90 CRI No Warm Dim * Required for wallwash	04 STANDARD MEDIA SL Soft Focus Lens* *Required for "S" Optic WW Wallwash Lens* ALTERNATIVE MEDIA HC Honeycomb Louver* * Not available for IP44, Requires 2TW, Fixture, or Warm Dim GL Clear Glass Lens* * Not available for Warm Dim FG Frosted Glass Lens FL Frosted Soft Focus Lens LL Frosted Linear Spread Lens WA Wide Distribution Lens* * Required and only available for 80° optic AQ Adjustable Honeycomb Louver and Soft Focus Lens * * Not available for IP44, Location, 2TW, Fixed Fixtures, or Warm Dim) NL No Lens *	INTEGRAL DRIVER IC IC NC NC AT IC Airtight CP CCEA Chicago Plenum REMOTE DRIVER IC IC Remote NC NC Remote AR IC Airtight Remote CR CCEA Chicago Plenum Remote	1 0.50" +.375" 2 1.375" -1.75" T 0.50" +.375" * Includes adjustable housing height bracket, recommended for 2" thick applications G 1.375" -2.125" * Includes adjustable housing height bracket, for 2" and 3" thick applications LP1 Lutron, Hi-Lume 1% 3-wire/EcoSystem D7N Matte Black, 120V or 277V* * Not available for 3.5W, Not available for 2TW in IC, AT, and CP model types!	DP Forward Throw or Phase, 2%, 120V* *Consult factory for 347V. SG3 eldoLED, ECOdrive 1%, 0-10V, LOG, 120V-277V SN3 eldoLED, ECOdrive 1%, 0-10V, LIN, 120V-277V SD1 eldoLED, SOLOdrive 0.1% 0-10V, LOG, 120V-277V SN1 eldoLED, SOLOdrive 0.1% 0-10V, LIN, 120V-277V SD1 eldoLED, SOLOdrive 0.1% DALI-2, LOG, 120V-277V LP1 Lutron, Hi-Lume 1% 3-wire/EcoSystem D7N Matte Black, 120V or 277V* * Not available for 3.5W, Not available for 2TW in IC, AT, and CP model types! AS1 / ASH Athena Control eldoLED, SOLOdrive 0.1%, 120V-277V* * Includes Athena Node. Extended lead time, consult factory. ASH includes DH Shield! CS1 / CSH Casambi Control eldoLED, SOLOdrive 0.1%, 120V-277V* * Includes Casambi Node. Extended lead time, consult factory. CSH includes DH Shield! TUNABLE WHITE INTEGRAL (120-277V) WD1 0.1%-0-10V, LOG WN1 0.1%-0-10V, LIN WS2 0.1% DALI-2 DT8, LOG CW1 / AWH* Athena Control 0.1% * Includes Athena Node. Extended lead time, consult factory. AWH includes DH Shield! CW1 / CWH* Casambi Control 0.1% * Includes Casambi Node. Extended lead time, consult factory. CWH includes DH Shield! SEE PAGE 4 FOR ELDOLED TUNABLE WHITE DRIVER OPTIONS.

5 L-6: RECESSED CANOPY LIGHT — SCALE: NTS

Application
Recessed wall luminaire with shielded light distribution for glare-free illumination of ground surfaces, building entrances, stairs and pathways.

Materials
BEGA Tricoat ®, a 3-layer finishing technology for increased corrosion protection

NRTL listed to North American Standards, suitable for wet locations Protection class IP 65

Weight: 3.3 lbs.

Electrical

Operating voltage	120-277 V AC
Minimum start temperature	-30° C
LED module wattage	7.7 W
System wattage	11.0 W
Controllability	0-10V dimmable
Color rendering index	Ra > 80
Luminaire lumens	565 lm
LED service life (L70)	60000 hrs

LED color temperature
☐ 4000K (K4)
☐ 3500K (K35)
☐ 3000K (K3)
☐ 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unicure® finish provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL, custom, and premium colors provided in polyester powder and/or liquid paint.

Available colors
☐ Black (BLK)
☐ Silver (SLV)
☐ Natural Bronze (NTB)
☐ CUS:
☐ Bronze (BRZ)
☐ White (WHT)
☐ RAL:

Type:
BEGA Product:
Project:
Modified:

Available options
☐ CUS Custom finish
☐ MOU Marine grade undercoat
☐ NTB Natural bronze (premium finish)
☐ RAL RAL finish

Included (available for pre-shipment)
☐ BB24012 Installation housing

Recessed wall luminaire : Shielded :					
		LED	A	B	C
B24162	BLK	7.7 W	7 9/16	5 1/16	1 1/4

G23

6 L-7: RECESSED WALL LIGHT — SCALE: NTS

ZENLITE® Tile

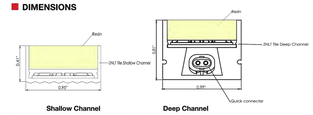
LED Lighting System for New Construction

preciseLED Precision Through Innovation

Project Name:
Fixture Type:

DESCRIPTION
ZENLITE® Tile is an LED Lighting System for 3/8" tile floors/walls/ceilings. This system is floor rated and waterproof, utilizing resin technology. It can be integrated with other ZENLITE products to achieve a seamless line of light across floors, walls and ceilings. The channel is installed between tiles and held down by thinset and uses a remote driver. The fixture has been tested using standard cleaning solvents and comes in two versions, shallow/deep. The shallow version has the thickness of standard 3/8" tile plus thinset; the deep version comes with a quick wire connector, allowing for running wiring inside the fixture that are longer than 8 feet.

DIMENSIONS



LUMEN OUTPUT PERFORMANCE

PRODUCT	Light Module	30K
ZNLT-TL-SH	ZGBL	125.64 lm/ft
ZNLT-TL-DP	ZGBL	123.45 lm/ft

Color Temp	27K	30K	35K	40K
Multiplier	0.82	1	1.13	1.22

* Estimated value

ORDERING CODE
Example: **ZNLT-TL-SH-XX14-ZGBL-24V-95C-27T-MG**

Product	Type	Length	Light Module (Cuttable Length | Watts Per Foot	Volt	CRI	Color Temperature	Driver
ZNLT-TL			ZGBL	24V	95C		
ZNLT-TL	SH Shallow* DP Deep *Shallow channel has a maximum length of 8ft.	XX Length in inches only. Lengths can be specified down to 1.2 inch. Minimum channel length is 6 inches.	ZGBL ZG Beam Low (1.2 in | 2 W/ft	24V- 24V	95C ≥ 95 CRI	27T 2700K 30T 3000K 35T 3500K 40T 4000K	MG (1% Magnetic Dimming) ZD (1% 0-10V Dimming) NN Non Dimming L3 Lutron Hi-lume 1% 3-wire/EcoSystem (40W Max) LP Lutron Hi-lume Premier 0.1% Fade To Black EcoSystem/3-wire

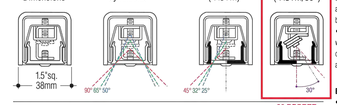
WIRING OPTIONS

First Run	Wire Length	BGFD Beginning Feed	BGSF Beginning Side Feed	BGBF Beginning Bottom Feed
Connection (within max run of tape light.) (Only for ZNLT-TL-DP)	Wire Length (Only for Jumper cable)	JPFD Jumper Feed (This will be hidden in the new track)	JPSF Jumper Side Feed	JPBF Jumper Bottom Feed

7 L-8: LED LINEAR LIGHT STRIP (IN-GRADE AND COLUMN) — SCALE: NTS

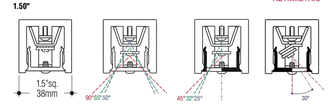
CATALOG NUMBER

Formed Stainless Steel
1.50"



Extruded Aluminum
1.50"

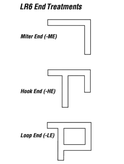
30 DEGREE ASYMMETRIC



Catalog Number	Stainless Steel (-SS)	Aluminum (-AL)
Post mounted, integral driver	☐ LR6P-LED-SS-INT	☐ LR6P-LED-AL-INT
Post mounted, remote driver	☐ LR6P-LED-SS-REM	☐ LR6P-LED-AL-REM
Wall mounted, integral driver	☐ LR6W-LED-SS-INT	☐ LR6W-LED-AL-INT
Wall mounted, remote driver	☐ LR6W-LED-SS-REM	☐ LR6W-LED-AL-REM

Options
Ends: Add suffix. Miter ☐ **-ME**. Loop ☐ **-LE**. Hook ☐ **-HE**.
Baseplate: Nominal 4" diameter or 4" square baseplate + four mounting holes. Add suffix ☐ **-BP**.
Escutcheon: Add suffix ☐ **-ES**.
Frosted lens: (clear diffuser std.). Add suffix ☐ **-FL**.
Emergency battery: Provides up to 90 min. operation (remote only). Add suffix ☐ **-EM**.
Asymmetric distribution: 50% opaque lens (not available on all models). Add suffix ☐ **-ASYM**.
4100°K Color temperature: (3000°K standard). Add suffix ☐ **-4K**.
Beam spread: (90° standard). 65°, Add suffix ☐ **-65**. 50°, Add suffix ☐ **-50**.
Dimming: Universal voltage 0 -10V driver.
Add suffix ☐ **-DIM**.
Color: FWC Turtle compliant, 590 nm, Amber. Add suffix ☐ **-AMB**.

LR6 End Treatments



Lightrail - LR6

Construction
• Available in formed stainless steel with welded and blended joints for a seamless appearance or extruded aluminum • The flat lens design minimizes visible brightness at sides and is available in clear or frosted • Each rail is tailored to fit existing stairs, ramps, and walkways • Aluminum rails supplied with a powder coat or anodized finish • Stainless steel rails supplied with a #4 satin finish, passivated.

Electrical
• LED modules are 24 VDC constant voltage at 2.5 watts and 205 source lumens per foot. Available in 3000°K or 4000°K color temperatures. Beam spreads in 50°, 65°, and 90° patterns • LEDs are configured to allow uninterrupted illumination • Electrical feed locations are pre-determined at time of submittal • Universal voltage LED drivers may be integral in the posts or railing (120V only), or may be remote if required •Dimmable drivers are available upon request

How to Specify
Every Lightrail is custom designed and fabricated to your specific project conditions. Drawings will be submitted on each project requesting specific dimensions to assure proper fit. Plans and elevation drawings are required for pricing and submittal drawing production.
1. Submit catalog number, options, and voltage; (example: LR6P-LED-SS/1.9-INT-277).
2. Add special features and requirements necessary to complete specification.

COLE Lighting

C.W. Cole & Company, Inc.
2560 Rosemead Boulevard
South El Monte, CA 91733-1593
Tel. (626) 443-2473
Fax (626) 443-9253
info@colelighting.com
www.colelighting.com

8 L-9: LED ILLUMINATE HANDRAIL — SCALE: NTS

eric raines landscape architecture, llc
11a N Main Street SoNo, CT 203.354.6500 www.ericraines.com

erla

NO.	ISSUE	DATE
7		
6		
5		
4		
3	MUNICIPAL REVIEW - REVISED	26.01.09
2	MUNICIPAL REVIEW - REVISED	25.08.15
1	MUNICIPAL REVIEW	25.06.13

108 WATER STREET
WATER STREET NORWALK, CT

PROJECT

DWG. TITLE
SITE LIGHTING DETAILS

JOB NO.

DATE
2025.06.13

SCALE
AS NOTED

SPL-4.2

AUTHORIZATION

To Whom It May Concern:

Please be advised that **108 Water Street South Norwalk, LLC** (hereinafter, the "Owner") is the owner of real property commonly known as 108 Water Street, Norwalk, Connecticut. Spinnaker Acquisitions LLC is the contract purchaser of said property. As such, Owner hereby grants Spinnaker Acquisitions LLC, as contract purchaser, authority to submit various land use applications (including but not limited to a Site Plan Application & CAM Application) and obtain any necessary approvals in connection with such applications, for said property located at 108 Water Street. A fax or copy of this Authorization shall be valid as an original.

108 Water Street South Norwalk, LLC

By: Eliot B. Gersten
Its: Manager

Dated: June 17, 2025

AUTHORIZATION

To Whom It May Concern:

Please be advised that Adam Blank, Esq. and his firm, Wofsey, Rosen, Kweskin & Kuriansky, LLP, have been retained by the undersigned to act on **Spinnaker Acquisitions LLC's** behalf in any and all land use applications and approvals concerning property located at 108 Water Street, Norwalk, Connecticut. Spinnaker Acquisitions LLC is the contract purchaser of said property. This authorization includes but is not limited to the preparation and filing of a Site Plan Application & CAM Application for the above-referenced property. A fax or copy of this Authorization shall be valid as an original.

Spinnaker Acquisitions LLC

By: Matthew Edvardsen
Its: Manager

Dated: June 20, 2025

108 Water Street
AFFORDABILITY PLAN

Spinnaker Acquisitions LLC ("Spinnaker Acquisitions") submits this Workforce Housing Affordability Plan in conjunction with its application to the City of Norwalk Planning & Zoning Commission for approval for development of 108 Water Street, a project in Norwalk, Connecticut, in accordance with the Zoning Regulations of the City of Norwalk.

This plan describes how affordability will be determined, administered and maintained pursuant to the Article 6 Section 6.12 of the Zoning Regulations.

Definitions.

"Commission." The Norwalk Planning and Zoning Commission, and its successors and assigns.

"Statewide Median Income ("SMI")." The annual income for the State of Connecticut determined using the statistics published and annually revised by the U.S. Department of Housing and Urban Development ("HUD").

"Workforce Household." A household with an annual income which does not exceed eighty percent (80%) or, where required, sixty percent (60%) or one hundred percent (100%) of the State of Connecticut median income, as adjusted for family size, as published by the United States Census Bureau and annually updated by the U.S. Department of Housing and Urban Development (HUD). Household eligibility determinations shall be made in accordance with the income criteria in §8-30g-8 of the regulations of Connecticut State Agencies.

"Workforce Housing Unit." A dwelling unit occupied by a workforce household where the maximum sales price or rent shall be restricted in perpetuity for the life of the unit in accordance with the maximum housing payment calculations as described in §8-30g-8 of the regulations of Connecticut State Agencies.

1. Project Description.

Spinnaker Acquisitions proposes to create a total of fifty-nine (59) units associated site improvements, at 108 Water Street in Norwalk, Connecticut. Spinnaker Acquisitions proposes to designate a total of ten percent (10 %) of the rental units as Workforce Housing Units which meet the criteria under the Zoning Regulations for households whose annual income does not exceed eighty (80%) percent of the SMI in accordance with Article 6 Section 6.12 "Workforce Housing" of the City of Norwalk Zoning Regulations. In total, three (3) units will be designated as Workforce Housing Units.[1] All units will be located on site.

[1] Pursuant to the current Zoning Regulations, two-bedroom Dwelling Units count as 1.5 Workforce Housing Units, and three-bedroom Dwelling Units count as 2 Workforce Housing Units. Thus, this plan provides for a total of 5 Workforce Housing Units, since one (1) one-bedroom and two (2) three-bedroom affordable units are proposed.

Spinnaker Acquisitions has designated the specific units that will be Workforce Housing Units on Appendix A. Designation of particular units may change over time, and updated schedules will be provided to the Commission, or its designee, should that occur. Those units so designated shall be subject to the terms set out in this Plan and in Section 6.12 of the Norwalk Zoning Regulations.

2. Unit Standards.

The Workforce Housing Units shall be comparable in size, fit and finish to market-rate units and will be consistent with construction standards for new housing. The bedroom mix has been provided in comparable percentages to those in the market rate units.

3. Duration of Restrictions.

The Workforce Housing Units shall be so designated in perpetuity, upon the issuance of a certificate of occupancy for the rental units on the Property and continuing for the life of each unit in accordance with the maximum housing payment calculations set out in Sec. 8-30g-8 of the regulations of Connecticut State Agencies. A deed restriction in substantially the form set forth in Appendix D attached or in such other form acceptable to the Commission, shall be recorded on the Norwalk Land Records contemporaneously with the issuance of the certificate of occupancy or at the time of the unit's designation as set forth above, whichever is earlier to ensure affordability. The deed restriction will outline the rental restrictions, including the maximum rental price unit, the affirmative marketing procedures, residency requirements, reporting requirements, as well as remedies for breach.

4. Pro Rata Construction.

The Workforce Housing Units shall be completed on a *pro rata basis* as construction proceeds. It is the intent of this Plan that the workforce housing units shall be developed simultaneously with or prior to the development of the market rate units.

5. Affirmative Fair Marketing.

Spinnaker Acquisitions or its agent will market the Workforce Housing Units through the Housing Development Fund, Mutual Housing or another similar agency ("HDF or other"), which will maintain a list of income/credit-qualified persons in accordance with Section 6.12.4.8 of the Norwalk Zoning Regulations. HDF or other will be retained to undertake all of the activities related to verifying the income/credit eligibility of applicants. HDF or other will perform income/credit verifications and coordinate the applicant pool. An Affirmative Marketing Plan is incorporated into this document outlining selection systems and marketing strategy.

6. Affordability Calculation.

The rental price of the Workforce Housing Units will be calculated based upon 80% of the SMI in accordance with the State of Connecticut's Affordable Housing Appeals Procedures

as defined in Section 8-30g of the Connecticut General Statutes. The maximum rental amounts will be adjusted annually in accordance with changes in the SMI and in accordance with the Connecticut Department of Economic and Community Development's Affordable Housing Appeals Procedure.

7. Administration and Compliance.

This Plan will be administered by HDF or other, or its successors and assigns ("Administrator"), who will be responsible for:

- Ensuring that households applying for Workforce Housing Units qualify within applicable maximum income limits;
- Assuring the accuracy of rental prices, and providing documentation where necessary to buyers, sellers and financing institutions;
- Reporting compliance to the municipality; and
- Executing the affirmative fair housing marketing plan.

The Administrator shall submit a written status report to the Commission or designee regarding compliance with this Plan and the above-referenced factors annually on or before January 31. The role of the Administrator may be transferred or assigned to another entity. In the event of any such transfer or assignment, Spinnaker Acquisitions or its agent will provide forty-five (45) days prior written notice to the Commission or designee. The Commission shall be given a reasonable opportunity to object, but will not do so unreasonably.

8. Affirmative Fair Housing Marketing Plan and Notice of Initial Sale of Workforce Housing Units.

The availability of Workforce Housing Units shall be publicized, using the provisions of Regulations of Connecticut State Agencies §8-37-ee-1 *et seq*. (particularly Sections 8-37-ee-301 and 302) for affirmative fair housing marketing programs as guidelines. The Administrator shall have the responsibility for compliance with this section. Notices of initial availability of the Workforce Housing Units shall be provided, at a minimum, by advertising at least two times in a newspaper of general circulation in the City of Norwalk. The Administrator shall also provide such notices to the Commission, the Norwalk Town Clerk, City of Norwalk, and the Norwalk Board of Education. Such notices shall include a description of the available Workforce Housing Units, the eligibility criteria for potential tenants and owners, the Maximum Rental Price (as hereinafter defined), and the availability of application forms and additional information.

Using the above-referenced State regulations as guidelines, dissemination of information about available Workforce Housing Units shall include, at a minimum:

- Analyzing census and other data to identify racial and ethnic groups least represented in the population;

- Announcements/advertisements in publications and other media that will reach minority populations;
- Announcements to social service agencies and other community contacts serving low-income minority families in the region (including churches, civil rights organizations, housing authorities, and legal services organization);

- Assistance to minority applicants in processing applications;

- Marketing efforts in geographic areas of high minority concentrations within the housing market area;

- Beginning marketing efforts prior to general marketing of units, and repeating during initial marketing, at 50% completion, and thereafter at reasonable intervals; and

- Collection of basic racial and ethnic information for all residents and persons on the wait list for the development.

All notices shall comply with the federal Fair Housing Act, 42 U.S.C. §§3601 et seq. and Connecticut General Statutes §§46a-64b and 64c.

9. Tenant Eligibility.

Eligibility of families or households to rent Workforce Housing Units shall be determined by the Administrator in accordance with this Plan and the Regulations, as amended.

10. Application Process.

A family or household seeking to rent a Workforce Housing Unit ("Applicant") must complete an application to determine eligibility. The application form and process shall comply with the Fair Housing Act.

a) Application Form.

The application form shall be provided by the Administrator and shall include an income certification form. In general, income for purposes of determining an Applicant's qualification shall include the Applicant family's total anticipated income from all sources for the twelve (12) month period following the date the application is submitted ("Application Date"). If the Applicant's financial disclosures indicate that the Applicant may experience a significant change in the Applicant's future income during the twelve (12) month period, the Administrator shall not consider this change unless there is a reasonable assurance that the change will in fact occur. In determining what is and is not to be included in the definition of family annual income, the Administrator shall use the criteria set forth by HUD and listed in Appendix B, attached hereto.[2]

[2] See 24 C.F.R. § 5.609. Federal regulations are subject to change, and it is the intent of this Plan to use as guidelines HUD regulations with respect to income certification, as such regulations may be amended from time to time.

b) Applicant Interview.

The Administrator shall interview an Applicant upon submission of the completed application. Specifically, the Administrator shall, during the interview, undertake the following:

1. Review with the Applicant all the information provided on the application.

2. Explain to the Applicant the requirements for eligibility, verification procedures, and the penalties for supplying false information.

3. Verify that all sources of family income and family assets have been listed in the application. Make clear that the term "family" includes all individuals who are to occupy the home, and that no relationship by blood or marriage is required.

4. Request the Applicant to sign the necessary release forms to be used in verifying income. Inform the Applicant of what verification and documentation must be provided before the application is deemed complete.

5. Inform the Applicant that a decision as to eligibility cannot be made until all items on the application have been verified.

C. Verification of Applicant's Income.

Where it is evident from the income certification form provided by the Applicant that the Applicant is not eligible, additional verification procedures shall not be necessary. However, if the Applicant appears to be eligible, the Administrator shall require verification of the Applicant's reported income. In accordance with § 6.12.4.7, the annual income of workforce households shall be reviewed and certified by the Commission or its designee, in accordance with the procedure established in advance and approved by the Commission.

If applicable, the Applicant shall provide to the Administrator the documentation listed in Appendix C attached hereto. This list is not exclusive, and the Administrator may require any other verification or documentation as the Administrator deems necessary.

11. <u>Prioritization of Applicants for Rental.</u>

If, after publication of the Notice of Initial Rental, the number of qualified Applicants exceeds the number of Workforce Housing Units, the Administrator shall establish priority categories of applicants, subject to the applicant's income pre-certification eligibility and the preferences as established below.

A separate priority list shall be maintained for the rental units. Each priority list shall be divided based upon the following priority categories: (1) Existing tenants

displaced by the proposed new development or the immediate past tenants that previously occupied any of the properties where existing housing units are to be removed (2) Employees of the City of Norwalk and the Norwalk Board of Education; (3) Residents of the City of Norwalk who have resided in the City of Norwalk a minimum of one (1) year prior to the issuance of a certificate of occupancy; (4) Persons employed in the City of Norwalk; and (5) all others. In the event that there are insufficient units available to satisfy the number of applicants in a particular priority category, the units shall be assigned by a lottery system approved in advance by the Commission. As specified in §6.12.4.8 & 9, all qualified applicants in a given category of priority shall be exhausted prior to proceeding to a lower category of priority.

These preference categories are set forth in the Zoning Regulations, but are subject to revision as may be required by the federal Office of Fair Housing and Equal Opportunity. Excluding initial priority given to those displace tenants, the priority categories shall be in effect for all subsequent Workforce Housing rentals in perpetuity.

12. <u>Maximum Monthly Rental Payment.</u>

Calculation of the Maximum Monthly Rental Payment shall be based upon the SMI. The Maximum Monthly Rental Payment shall be calculated using the following methodology, consistent with Zoning Regulations §6.12.4.12 (definition of Workforce Housing Unit) and Connecticut Agencies Regulations §8-30g-8.

Calculation steps for rental of units at maximum of 80 percent of SMI.

1. Determine the SMI.

2. Adjust median income identified in Step 1 by family size by assuming that 1.5 persons will occupy each bedroom of a Workforce Housing Unit, except in the case of a studio or zero-bedroom unit, in which case 1.0 person shall be assumed. Family size adjustment shall be made with reference to the following percentages:

- 1 Person in family: 70%
- 2 Persons in family: 80%
- 3 Persons in family: 90%
- 4 Persons in family: 100% (BASE)
- 5 Persons in family: 108%
- 6 Persons in family: 116%
- 7 Persons in family: 124%
- 8 Persons in family: 132%

The family size adjustment that involves a half person (such as 4.5 persons) shall be calculated by taking the midpoint between the relevant figures above and below the half. For example, the adjustment for a 4.5 person household is 104 percent.

3. Calculate eighty percent (80%) of Step 2.

4. Calculate thirty percent (30%) of Step 3, representing that portion of household income deemed to be used for housing costs.

5. Divide Step 4 by twelve (12) months to determine the maximum monthly housing payment.

6. Determine the fair market rent for a unit with the same number of bedrooms in the subject municipality as published by the U.S. Department of Housing and Urban Development.

7. The maximum monthly housing payment for occupants of the subject rental unit shall be the lesser of the calculations on Steps 5 and 6.

8. Determine by reasonable estimate monthly expenses for heat and utility costs for which the tenant is directly responsible, excluding television, telecommunications, and information technology services, but including any other periodic fees for which the tenant is directly responsible, such as common charges in the case of a common interest ownership community.

9. Deduct the estimate of tenant-paid utilities and fees determined in Step 8 from the maximum monthly housing payment in Step 7, which will result in the maximum amount that the developer/owner may charge for this rental unit as the monthly contract rent.

13. Principal Residence.

Workforce Housing Units shall be occupied only by the selected Workforce Household. Subleasing shall be prohibited.

14. Requirement To Maintain Condition.

All owners and tenants of the Workforce Housing Units are required to maintain their unit. The owners and tenants shall not destroy damage or impair the unit, allow the unit to deteriorate, or commit waste on the unit. When the Workforce Housing Unit is offered again for rental, the Administrator shall cause the unit to be inspected.

15. Standard Lease Provision.

Each lease for a Workforce Housing Unit will contain substantially the following provision:

"This apartment is being rented as a "workforce housing unit" as defined in the Norwalk Zoning Regulations. This development has been approved by the Planning and Zoning Commission of the City of Norwalk based in part on the condition that a defined percentage of units will be rented as workforce housing units. The Property Manager is required by law to strictly enforce the Norwalk Zoning Regulations set out in Article 6 Section 6.12 concerning Workforce Housing.

16. Change in Income or Qualifying Status.

In the event that a Workforce Household's income changes so as to exceed the qualifying maximum, or if the Workforce Household otherwise becomes disqualified, such tenant must provide notice to the Administrator within seven (7) days of the disqualification. Upon being disqualified, such tenant, following the procedures set forth below, shall have the option to vacate the unit within ninety (90) days, or to remain in the unit paying a market rate rent. Within fifteen (15) days of receiving notice of a Workforce Household's disqualification, the Administrator shall provide written notice to the tenant of the market rate rent for the unit. The tenant shall notify the Administrator within fifteen (15) days of receipt of such notice whether the tenant will accept the market rate rent or vacate. If the tenant elects to remain in the unit at the market rate, the Administrator shall offer the next available unit of the equivalent number of bedrooms as a Workforce Housing Unit, if necessary, in order for the development to comply with the minimum set aside for Workforce Housing Units. These procedures must be followed in order to ensure that the Project shall not be out of compliance with the ten percent (10%) minimum designated units.

17. Enforcement.

A violation of this Affordability Plan shall not result in a forfeiture of title, but the Norwalk Planning and Zoning Commission, or its designated agent, shall otherwise retain all enforcement powers granted by the General Statutes, including Section 8-12, which powers include, but are not limited to, the authority, at any reasonable time, to inspect the property and to examine the books and records of the Administrator to determine compliance of Workforce Housing Units with the Regulations.

18. Binding Effect.

This Plan shall be binding on Spinnaker Acquisitions LLC, successors, heirs and assigns.

APPENDIX A
(Unit to be provided prior to commencement of marketing)
(TO BE PROVIDED REFER TO ARCHITECTURAL PLAN SET FOR UNIT LOCATIONS)

APPENDIX B
DEFINITIONS AND ELEMENTS OF ANNUAL FAMILY INCOME

1. Annual income shall be calculated with reference to 24 C.F.R. § 5.609, and includes, but is not limited to, the following:

a. The full amount, before any payroll deductions, of wages and salaries, overtime pay, commissions, fees, tips, bonuses and other compensation for personal services;

b. The net income from operations of a business or profession, before any capital expenditures but including any allowance for depreciation expense;

c. Interest, dividends, and other net income of any kind from real or personal property;

d. The full amount of periodic payments received from social security, annuities, insurance policies, retirement funds, pensions, disability or death benefits, or other similar types of periodic payments;

e. Payments in lieu of earnings, such as unemployment and disability compensation, worker's compensation, and severance pay;

f. Welfare assistance. If the welfare assistance payments include an amount specifically designated for shelter and utilities that is subject to adjustment by the welfare assistance agency in accordance with the actual cost of shelter and utilities, the amount of welfare assistance to be included as income consists of the following:

(1) The amount of the allowance exclusive of the amounts designated for shelter or utilities, plus

(2) The maximum amount that the welfare assistance agency could in fact allow the family for shelter and utilities;

g. Periodic and determinable allowances, such as alimony and child support payments, and regular contributions or gifts received from persons not residing with the Applicant (e.g. periodic gifts from family members, churches, or other sponsored group, even if the gifts are designated as rental or other assistance);

h. All regular pay, special pay and allowances of a member of the armed forces;

i. Any assets not earning a verifiable income shall have an imputed interest income using a current average annual savings interest rate.

2. Excluded from the definition of family annual income are the following:

a. Income from employment of children under the age of 18;

b. Payments received for the care of foster children;

c. Lump-sum additions to family assets, such as inheritances, insurance payments, capital gains and settlement for personal or property losses;

d. Amounts received that are specifically for, or in reimbursement of, the cost of medical expense for any family member;

e. Amounts of educational scholarships paid directly to the student or to the educational institution, and amounts paid by the government to a veteran in connection with education costs;

f. Amounts received under training programs funded by HUD;

g. Food stamps; and

h. Temporary, nonrecurring or sporadic income (including gifts that are not regular or periodic).

3. Net family assets for purposes of imputing annual income include the following:

a. Cash held in savings and checking accounts, safety deposit boxes, etc.;

b. The current market value of a trust for which any household member has an interest;

c. The current market value, less any outstanding loan balances of any rental property or other capital investment;

d. The current market value of all stocks, bonds, treasury bills, certificates of deposit and money market funds;

e. The current value of any individual retirement, 401K or Keogh account;

f. The cash value of a retirement or pension fund which the family member can withdraw without terminating employment or retiring;

g. Any lump-sum receipts not otherwise included in income (i.e., inheritances, capital gains, one-time lottery winnings, and settlement on insurance claims);

h. The current market value of any personal property held for investment (i.e., gems, jewelry, coin collections); and

i. Assets disposed of within two (2) years before the Application Date, but only to the extent consideration received was less than the fair market value of the asset at the time it was sold.

4. Net family assets do not include the following:

a. Necessary personal property (clothing, furniture, cars, etc.);

b. Vehicles equipped for handicapped individuals;

c. Life insurance policies;

d. Assets which are part of an active business, not including rental properties; and

e. Assets that are not accessible to the Applicant and provide no income to the Applicant.

APPENDIX C
REQUIRED DOCUMENTATION OF INCOME

The following documents shall be provided, where applicable, to the Administrator to determine income eligibility:

1. Employment Income. Verification forms must request the employer to specify the frequency of pay, the effective date of the last pay increase, and the probability and effective date of any increase during the next twelve (12) months. Acceptable forms of verification (of which at least one must be included in the Applicant file) include:

a. An employment verification form completed by the employer.

b. Check stubs or earnings statement showing Applicant's gross pay per pay period and frequency of pay.

c. W-2 forms if the Applicant has had the same job for at least two years and pay increases can be accurately projected.

d. Notarized statements, affidavits or income tax returns signed by the Applicant describing self-employment and amount of income, or income from tips and other gratuities.

2. Social Security, Pensions, Supplementary Security Income, Disability Income.

a. Benefit verification form completed by agency providing the benefits.

b. Award or benefit notification letters prepared and signed by the authorizing agency. (Since checks or bank deposit slips show only net amounts remaining after deducting SSI or Medicare, they may be used only when award letter cannot be obtained.)

c. If a local Social Security Administration ("SSA") office refuses to provide written verification, the Administrator should meet with the SSA office supervisor. If the supervisor refuses to complete the verification forms in a timely manner, the Administrator may accept a check or automatic deposit slip as interim verification of Social Security or SSI benefits as long as any Medicare or state health insurance withholdings are included in the annual income.

3. Unemployment Compensation.

a. Verification form completed by the unemployment compensation agency.

b. Records from unemployment office stating payment dates and amounts.

4. Government Assistance.

a. All Government Assistance Programs. Agency's written statements as to type and amount of assistance Applicant is now receiving, and any changes in assistance expected during the next twelve (12) months.

b. Additional Information for "As-paid" Programs: Agency's written schedule or statement that describes how the "as-paid" system works, the maximum amount the Applicant may receive for shelter and utilities and, if applicable, any factors used to ratably reduce the Applicant's grant.

5. Alimony or Child Support Payments.

a. Copy of a separation or settlement agreement or a divorce decree stating amount and type of support and payment schedules.

b. A letter from the person paying the support.

c. Copy of latest check. The date, amount, and number of the check must be documented.

d. Applicant's notarized statement or affidavit of amount received or that support payments are not being received and the likelihood of support payments being received in the future.

6. Net Income from a Business. The following documents show income for the prior years. The Administrator must consult with Applicant and use this data to estimate income for the next twelve (12) months.

a. IRS Tax Return, Form 1040, including any:

(1) Schedule C (Small Business)

(2) Schedule E (Rental Property Income)

(3) Schedule F (Farm Income)

b. An accountant's calculation of depreciation expense, computed using straight-line depreciation rules. (Required when accelerated depreciation was used on the tax return or financial statement.)

c. Audited or unaudited financial statement(s) of the business.

d. A copy of a recent loan application listing income derived from the business during the previous twelve (12) months.

e. Applicant's notarized statement or affidavit as to net income realized from the business during previous years.

7. Recurring Gifts.

a. Notarized statement or affidavit signed by the person providing the assistance. Must give the purpose, dates and value of gifts.

b. Applicant's notarized statement or affidavit that provides the information above.

8. Scholarships, Grants, and Veterans Administration Benefits for Education.

a. Benefactor's written confirmation of amount of assistance, and educational institution's written confirmation of expected cost of the student's tuition, fees, books and equipment for the next twelve (12) months. To the extent the amount of assistance received is less than or equal to actual educational costs, the assistance payments will be excluded from the Applicant's gross income. Any excess will be included in income.

b. Copies of latest benefit checks, if benefits are paid directly to student. Copies of canceled checks or receipts for tuition, fees, books, and equipment, if such income and expenses are not expected to change for the next twelve (12) months.

c. Lease and receipts or bills for rent and utility costs paid by students living away from home.

9. Family Assets Currently Held. For non-liquid assets, collect enough information to determine the current cash value (i.e., the net amount the Applicant would receive if the asset were converted to cash).

a. Verification forms, letters, or documents from a financial institution, broker, etc.

b. Passbooks, checking account statements, certificates of deposit, bonds, or financial statements completed by a financial institution or broker.

c. Quotes from a stock broker or realty agent as to net amount Applicant would receive if Applicant liquidated securities or real estate.

d. Real estate tax statements if tax authority uses approximate market value.

e. Copies of closing documents showing the selling price, the distribution of the sales proceeds and the net amount to the borrower.

f. Appraisals of personal property held as an investment.

g. Applicant's notarized statements or signed affidavits describing assets or verifying the amount of cash held at the Applicant's home or in safe deposit boxes.

10. Assets Disposed of for Less Than Fair Market Value ("FMV") During Two Years Preceding Application Date.

a. Applicant's certification as to whether it has disposed of assets for less than FMV during the two (2) years preceding the Application Date.

b. If the Applicant states that it did dispose of assets for less than FMV, then a written statement by the Applicant must include the following:

(1) A list of all assets disposed of for less than FMV;

(2) The date Applicant disposed of the assets;

(3) The amount the Applicant received; and

(4) The market value to the asset(s) at the time of disposition.

11. Savings Account Interest Income and Dividends.

a. Account statements, passbooks, certificates of deposit, etc., if they show enough information and are signed by the financial institution.

b. Broker's quarterly statements showing value of stocks or bonds and the earnings credited the Applicant.

c. If an IRS Form 1099 is accepted from the financial institution for prior year earnings, the Affordable Housing Manager must adjust the information to project earnings expected for the next twelve (12) months.

12. Rental Income from Property Owned by Applicant. The following, adjusted for changes expected during the next twelve (12) months, may be used:

a. IRS Form 1040 with Schedule E (Rental Income).

b. Copies of latest rent checks, leases, or utility bills.

c. Documentation of Applicant's income and expenses in renting the property (tax statements, insurance premiums, receipts for reasonable maintenance and utilities, bank statements or amortization schedule showing monthly interest expense).

d. Lessee's written statement identifying monthly payments due the Applicant and Applicant's affidavit as to net income realized.

13. Full-Time Student Status.

a. Written verification from the registrar's office or appropriate school official.

b. School records indicating enrollment for sufficient number of credits to be considered a full-time student by the school.

DEED RESTRICTION

DECLARATION OF RESTRICTIONS

DECLARATION MADE this _____ day of _____, 2025 by **Spinnaker Acquisitions LLC**, a Connecticut limited liability company with an office located at 1 North Water Street, Suite 100 in Norwalk Connecticut 06854, (the "**Declarant**").

RECITALS:

A. Declarant is the owner of a certain property known as 108 Water Street, Norwalk, Connecticut (District 2, Block 84, Lot 18) and more particularly described in Schedule A attached hereto (the "**Property**").

B. Declarant obtained approval from the Norwalk Planning and Zoning Commission (the "**Commission**") on _____, effective _____ in File _____ (the "**Approval**"), which Approval permits, *inter alia*, construction and occupancy of _____(__) residential units on the Property.

C. Pursuant to the Approvals and to the Norwalk Zoning Regulations Article 6 Section 6.12, three (3) units of the fifty-nine (59) units are to be designated as "workforce housing units" as said term is defined in the Norwalk Zoning Regulations in effect on _____ 2025. All three (3) units will be located on-site. There will be one (1) one-bedroom and two (2) three-bedroom units within the structure.

D. Declarant executes this Declaration of Restrictions and a Workforce Housing Affordability Plan with the intent to satisfy Condition of the Approval and the Norwalk Zoning Regulations Article 6 Section 6.12.5.4.

NOW, THEREFORE, in consideration of $1.00, the aforementioned Approval and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged by Declarant, Declarant hereby declares as follows:

1. This development contains "workforce housing units" as that term is defined in City of Norwalk Code Article 6 Section 6.12 in effect on _____ 2025 and is therefore subject to limitations on the maximum annual income of the household that may rent the designated workforce housing units, and on the maximum rental that may be charged for such workforce housing units. These limitations shall be strictly enforced, and may be enforced by the zoning enforcement authority of the City of Norwalk against the record owner of the development or the person identified in the affordability plan as responsible for the administration of these limitations.

For the duration of this covenant or restriction, no less than ten (10%) percent of the dwelling units in this development, and no less than one (1) one-bedroom and two (2) three-bedroom units shall be rented to persons and families whose annual income is less than or equal

to eighty (80%) percent of the median income as defined in subsection 8-30g-1(10) of the Regulations of Connecticut State Agencies, and such units may be rented only at a rental equal to or less than the rental determined using the formula for maximum monthly rental amounted stated in §8-30g-8(d) of the Regulations of Connecticut State Agencies.

2. A violation of this Declaration of Restrictions or of the Workforce Housing Affordability Plan shall not result in a forfeiture of title, but the Commission or its designated agent shall otherwise retain all enforcement powers granted by the Connecticut General Statutes, including §8-12, which powers include, but are not limited to, the authority, at any reasonable time, to inspect the workforce housing units and to examine the books and records of the Administrator to determine compliance of the workforce housing unit with the applicable affordable housing statutes and regulations.

3. A copy of the Workforce Housing Affordability Plan of this development is on file and available for inspection in the office of the Planning and Zoning Department of the City of Norwalk, 125 East Avenue, Norwalk, Connecticut.

4. This Declaration of Restrictions is perpetual for the life of the residential development on the Property, and shall run with the land and be binding upon Declarant and its successors and assigns.

5. This Declaration of Restrictions shall not be modified or terminated without the express written permission of the Norwalk Planning and Zoning Commission, which shall be set out in an amendment to this Declaration, signed by authorized representatives of the parties hereto and filed on the Land Records, all in the same manner as this document.

IN WITNESS WHEREOF, Declarant has set its hand and seal as of the date first above written.

Spinnaker Acquisitions LLC

_____ By:_____

Name:

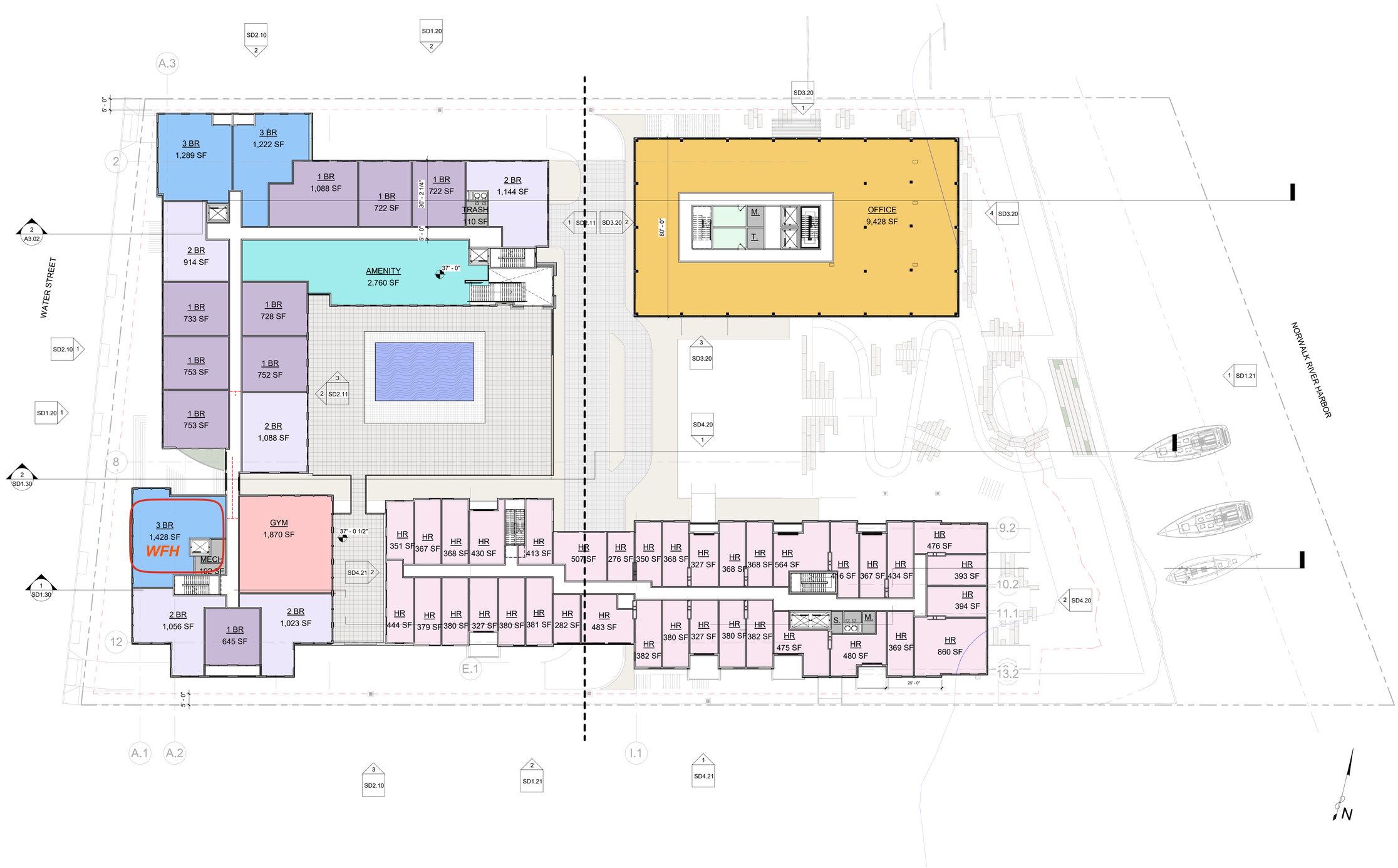
Title: Manager

_____

STATE OF CONNECTICUT:
: ss: Norwalk _____, 20
COUNTY OF FAIRFIELD :

Personally appeared _____, a Connecticut limited liability company, acting herein by _____, its _____, duly authorized, signer and sealer of the foregoing instrument, who acknowledged the same to be his and its free act and deed, before me.

_____
Commissioner of the Superior Court
Notary Public



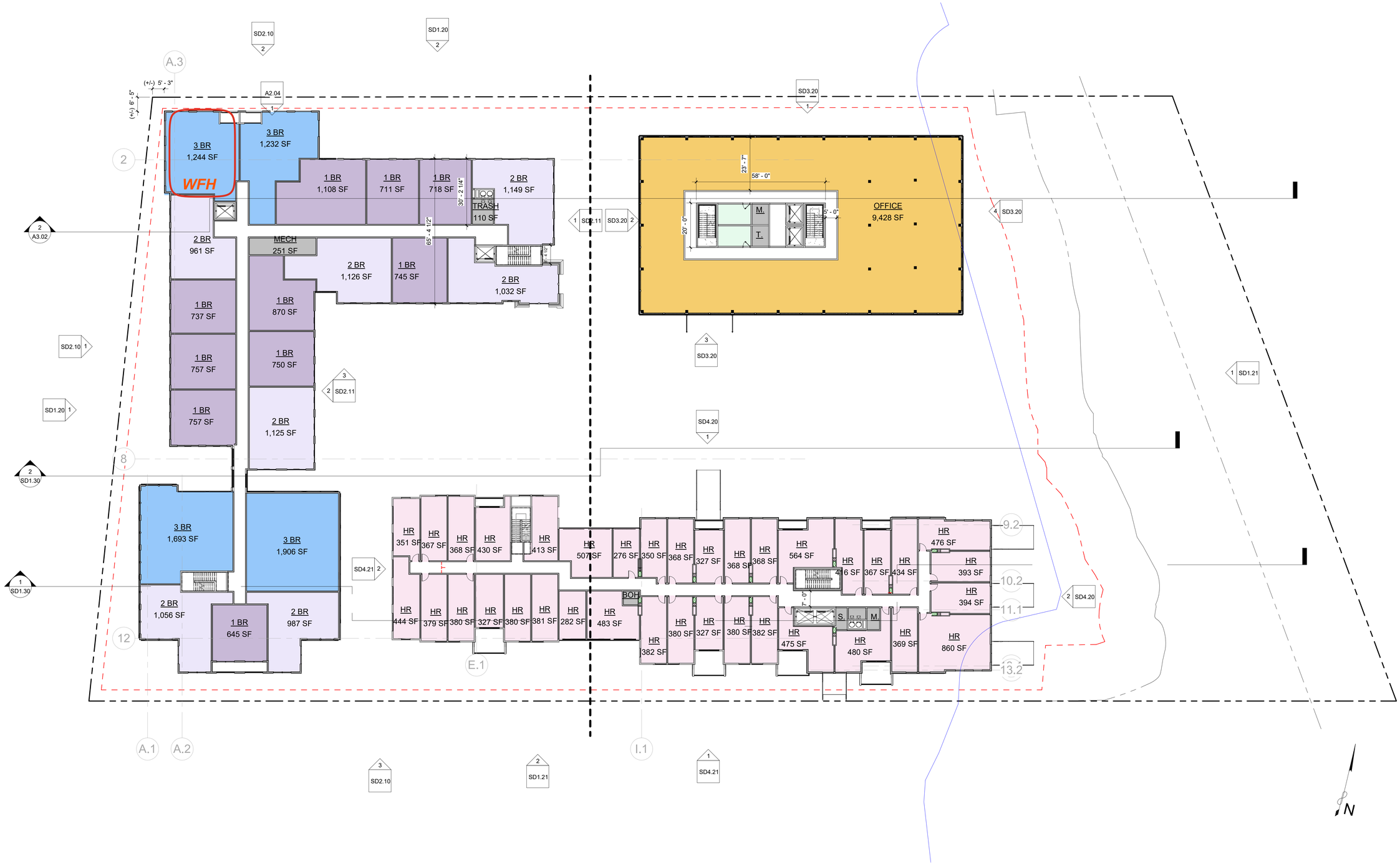
1 SD1.02 OVERALL - LEVEL_02
1" = 20'-0"

20' ENTRY DRIVEWAY EXHIBIT

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

108 WATER ST | 01/13/26 | LEVEL 2 - OVERALL PLAN | SD1.02

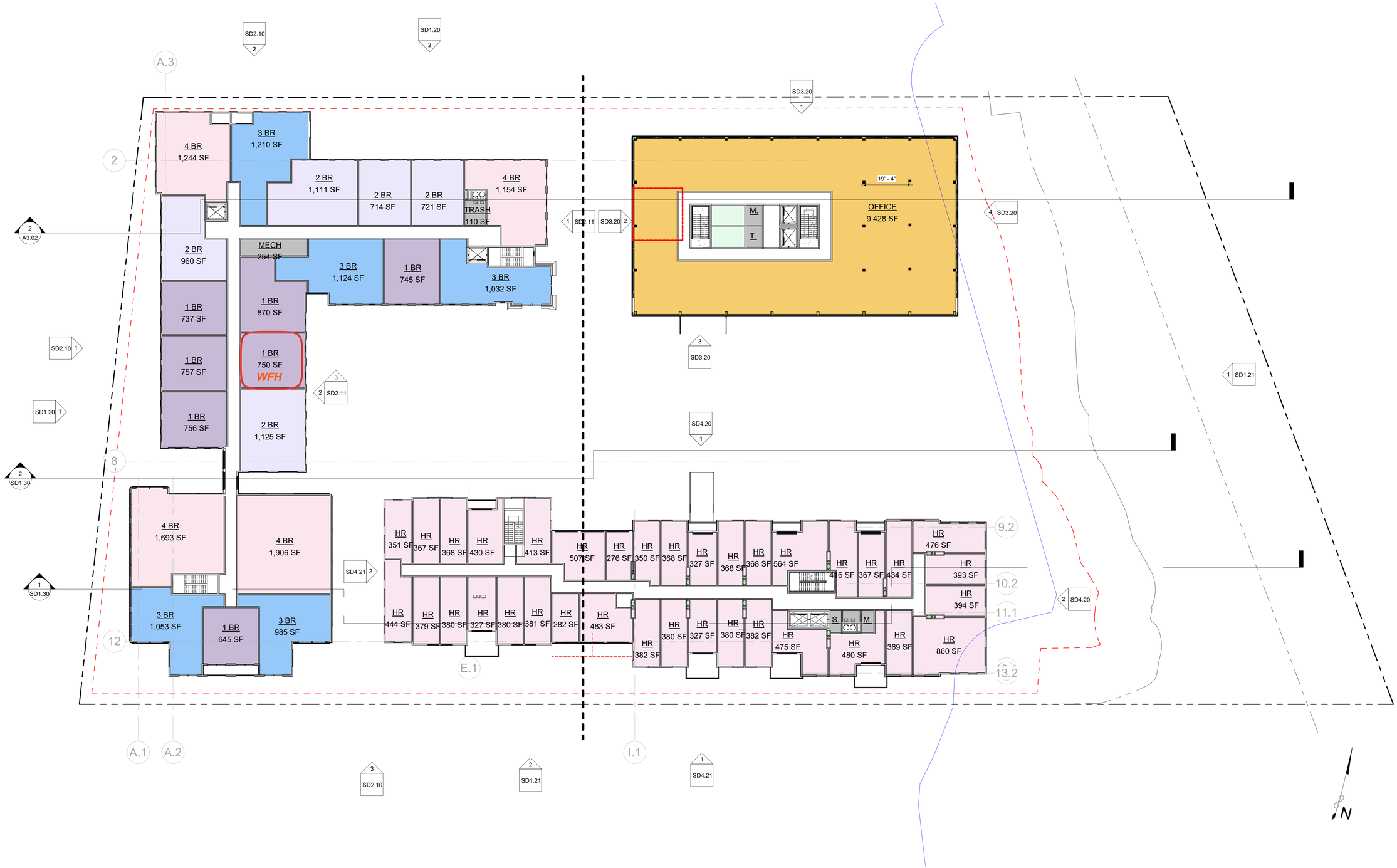
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.03 OVERALL - LEVEL_03
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

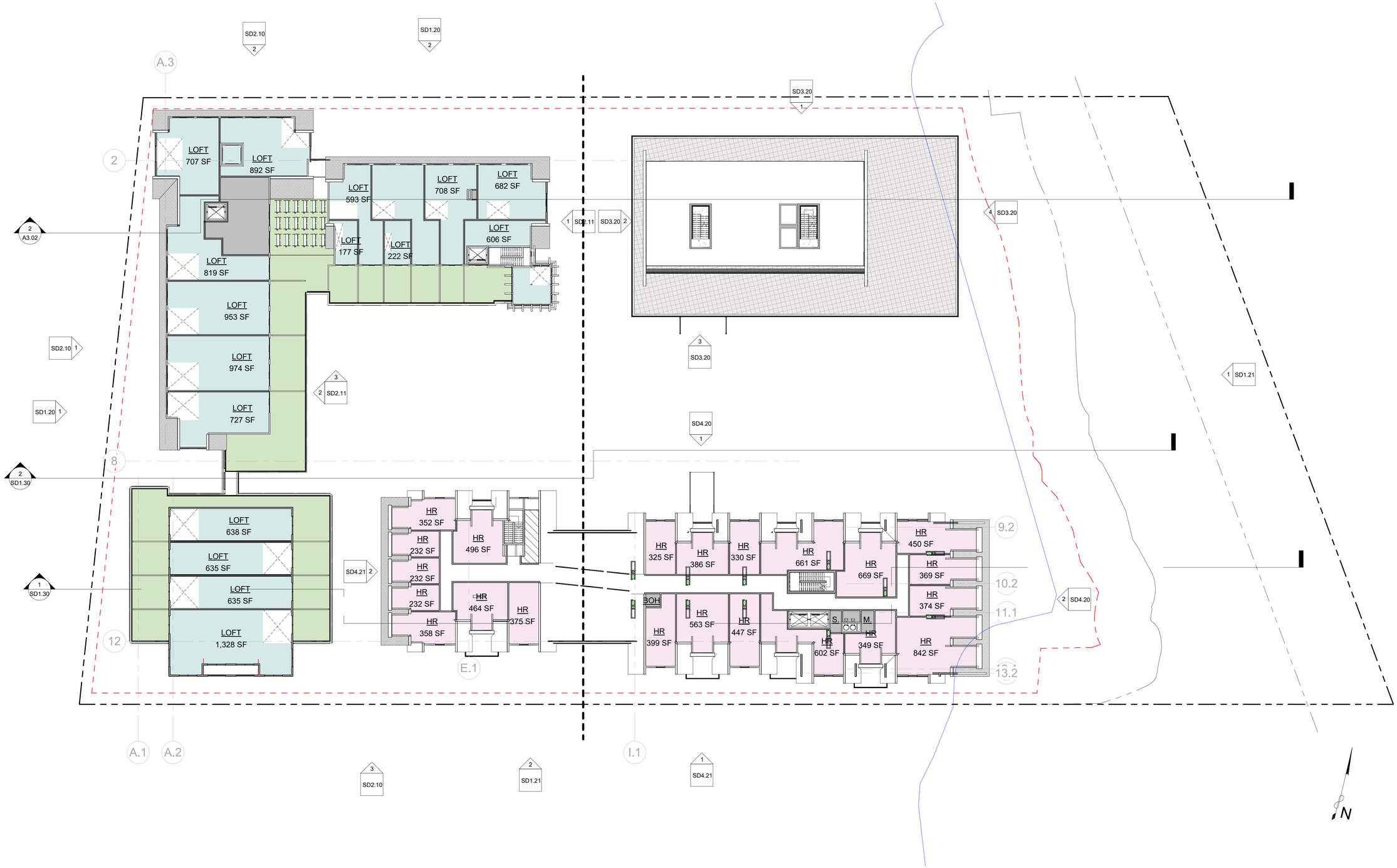
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.04 OVERALL - LEVEL_04
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

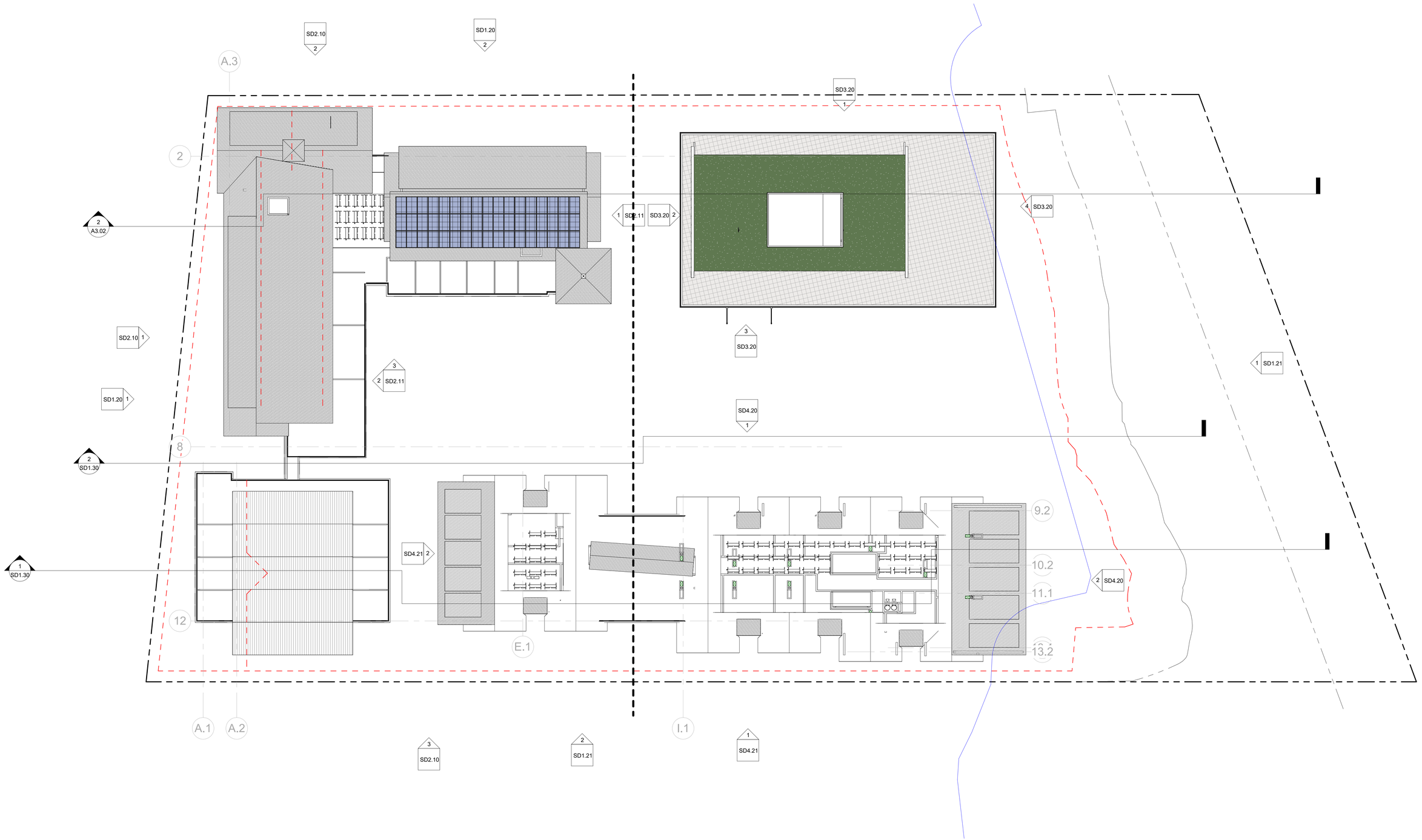
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.05 OVERALL - LEVEL_04.5
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1 SD1.06 OVERALL - LEVEL_ROOF
1" = 20'-0"

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

2-59-1-0
SONO SQUARE ASSOCIATES LLC 25% &D
-
WESTPORT, CT 06880-0000

2-60-6-0
TREV MTK HARBOURSIDE LLC
2 SCHOOL ST
RYE, NY 10580-0000

2-60-9-0
PHYL-VIC LLC
7 MURIEL ST.
NORWALK, CT 06851

2-84-15-0
NORWEST MARINE INC
C/O AUSTIN IODICE
FAIRFIELD, CT 06824-7031

2-84-17-0
BLOOM NORMAN R ESTATE OF (1/6TH INT)
120 WATER ST
NORWALK, CT 06854-3067

2-84-47-0
MILKOVICH LESLIE B &
46 COVE AVE
NORWALK, CT 06855

2-84-47A-0
SONO SQUARE ASSOCIATES LLC 25% &D
57 WILTON ROAD
WESTPORT, CT 06880-0000

N
W E
S

SCALE: 1" = 100'

0 50 100 200
Feet

108 Water Street
2-84-18-0

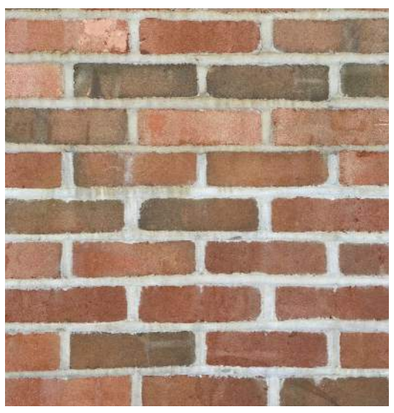
Aerial photographs taken April, 2019

Document Name: 108 Water St - Aerial Image Request

108 Water Street

BEINFIELD ARCHITECTURE

06.26.2025



1. Brick

2. Aluminum Panel

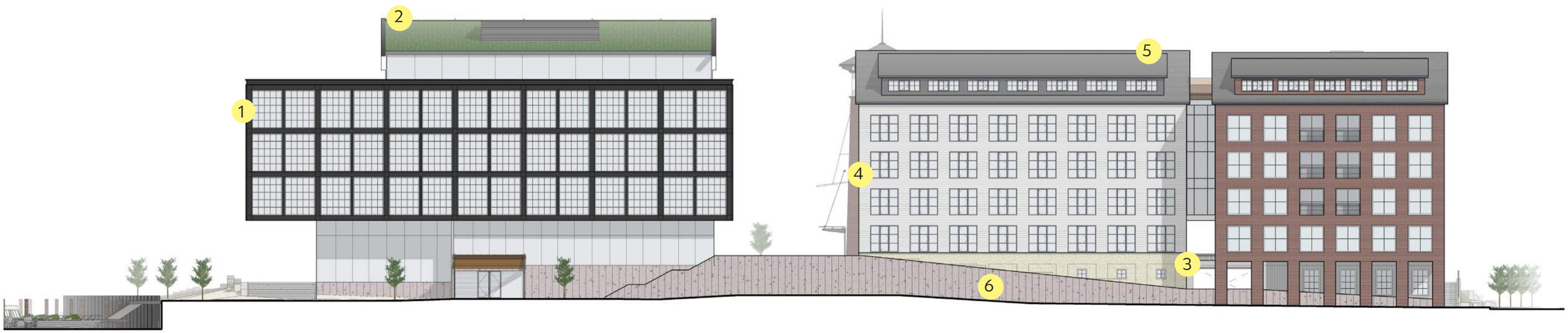
3. Corrugated Metal Vertical Roofing

4. Asphalt Shingles

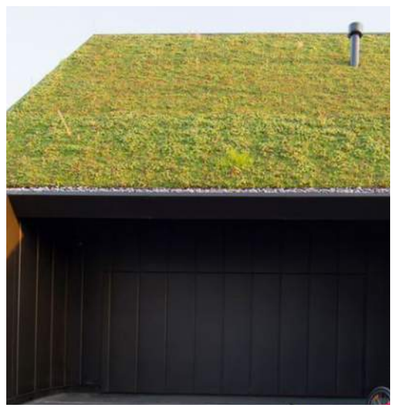
5. Vertical Wood Plank

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

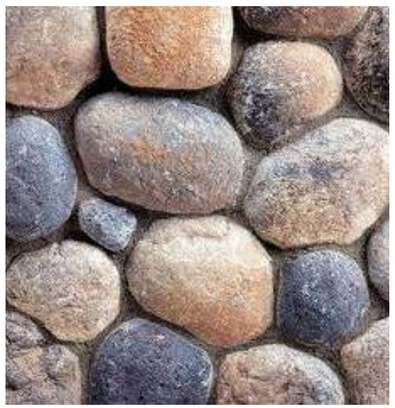
©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



1. Windows



2.Green Roof



3. Stone Foundation

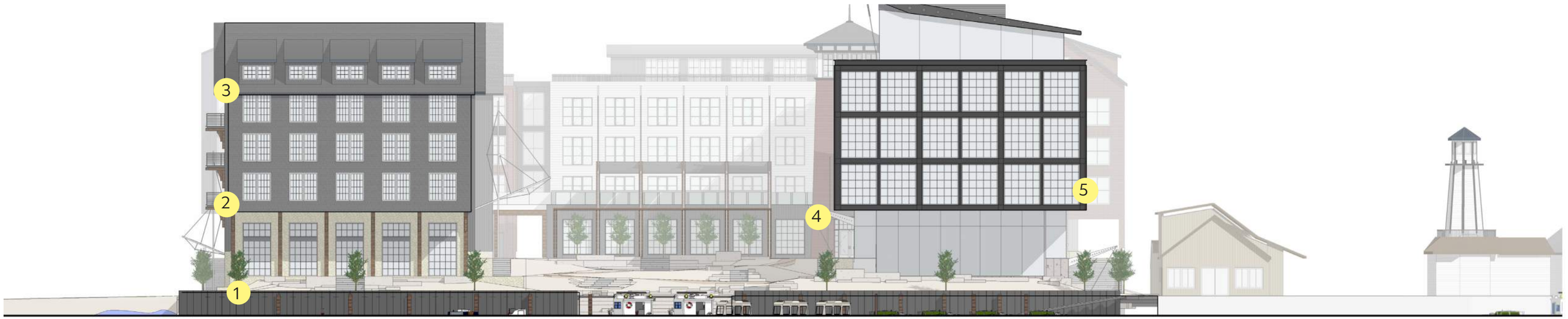
4. Hardie Plank Clapboard Siding

5. Asphalt Roof

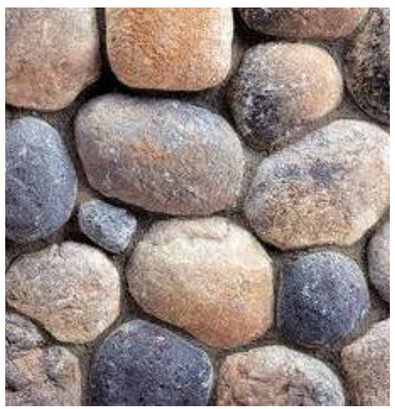
6. Concrete Panel

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



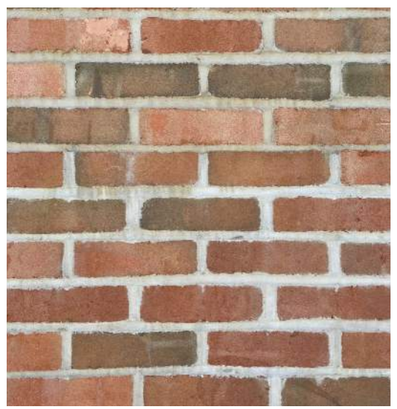
1 SD1.21 SITE - EAST ELEVATION
1/16" = 1'-0"



1. Stone Foundation

2.Grey Washed Cedar Shakes

3. Asphalt Roof

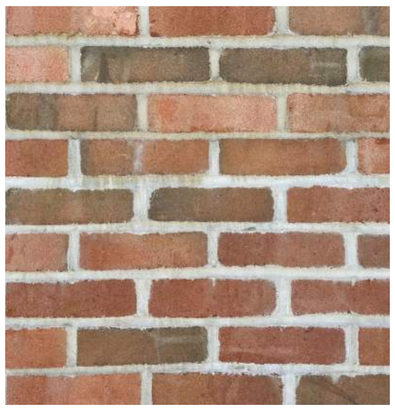


4 Brick

5. Window

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC



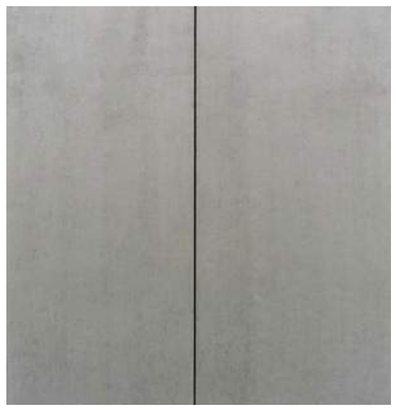
1. Brick

2. Vertical Grey Washed Cedar Siding

3. Grey Washed Cedar Shakes

4. Stone Foundation

5. Asphalt Shingles



6. Concrete Panel

BEINFIELD ARCHITECTURE PC
203.838.5789 | 11 Chestnut Street #102 | South Norwalk, CT 06854

©2022 BEINFIELD ARCHITECTURE PC EXPRESSLY RESERVES ITS COMMON-LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY OTHER FORM OR MATTER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPXRESS WRITTEN PERMISSION AND CONSENT OF BEINFIELD ARCHITECTURE PC

CITY OF NORWALK
Harbor Management Commission

www.norwalkct.gov

Norwalk City Hall
Room 129
125 East Avenue, PO Box 5125
Norwalk, CT 06856-5125

January 29, 2026

Bryan Baker, AICP
Principal Planner
City of Norwalk

RE: **108 Water Street SP CSPR Referral - Application #2026-05**

Dear Mr. Baker:

At a regular meeting of the Norwalk Harbor Management Commission held Wednesday, January 28th, 2026, the above-referenced Special Permit and Coastal Site Plan Review application referral was reviewed. The proposal consists of constructing a 4.5 story, 59-unit, mixed-use building with various commercial uses, including hotel. The Commission found the proposal to be **CONSISTENT WITH THE HARBOR MANAGEMENT PLAN** and reserves the right to continue to review the applicant's proposal and provide additional comments at such time as it may be modified, additional information is provided, or the proposal is the subject of a Public Notice or Hearing.

As the proposal affects property on, in, or contiguous to the Norwalk Harbor, it is subject to review by the Harbor Management Commission to determine its consistency with the Norwalk Harbor Management Plan. The requirements of this review are specified in Sec. 22a-113p of the Connecticut General Statutes and the Norwalk Harbor Management Plan. Pursuant to the General Statutes and the Plan, a 2/3 vote of all members of the Planning and Zoning Commission is needed to approve a proposal that has not received a favorable recommendation from the Harbor Management Commission.

If you should have any questions regarding the above, please feel free to contact me.

Sincerely,

Amelia Williams

Amelia Williams
Staff to the Harbor Management Commission

CITY OF NORWALK
Planning and Zoning

Norwalk City Hall, Room 129
125 East Avenue
Norwalk, CT 06856-5125

MEMORANDUM

TO: Planning and Zoning Commission – Chapin Bryce, Chair

FROM: Amelia Williams, Land Use Planner

DATE: February 11, 2026

SUBJECT: **Preliminary Coastal Site Plan Review of 108 Water Street for Application #2026-05 SP CAM** for the construction of a 4.5 story, 59-unit, mixed-use building including hotel use.

District: 2 **Block:** 84 **Lot:** 18 **Zone:** SD-MC **Flood Zone:** VE-14 and AE-12

Though a similar application was recently approved for this property, Staff has similar comments on this proposal that directly abuts the Norwalk Harbor and is entirely within the VE-14 and AE-15 flood zones. The applicant proposes complete redevelopment of the property, with extensive grading and site work. Below are concerns as they pertain to consistency with the Connecticut Coastal Area Management Act (CCMA):

- The property has been historically used for marine services, including boat repair and marine construction, which are water-dependent uses. The CCMA includes definitions of adverse impacts on future water-dependent development opportunities and activities which include:
    - Locating a non-water-dependent use at a site that (i) is physically suited for a water-dependent use for which there is a reasonable demand, or (ii) has been identified for a water-dependent use in the plan of development of the municipality or the zoning regulations [CGS section 22a-93(17)(A)].
    - Replacement of a water-dependent use with a non-water-dependent use [CGS section 22a-93(17)(B)].
    - Siting of a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters [CGS section 22a-93(17)(C)].

  In accordance with CGS section 22a-106, a municipal board or commission reviewing a coastal site plan must determine whether or not the potential adverse impacts of the proposed activity on both coastal resources and future water-

dependent uses are acceptable. If any of the above three conditions apply, the proposed non-water-dependent use may preclude existing or future water-dependent uses and create unacceptable adverse impacts. Upon such a determination, the proposed use should be modified or conditioned if such impacts can be mitigated to a level which is consistent with applicable goals and policies of the CCMA or, if modification cannot achieve consistency, the project should be denied.

- There are no water-dependent uses proposed for this waterfront site. The currently proposed "marine supply store"/"TBD" is not water-dependent, and the boat slips do not seem to be related to a specified water-dependent use on the property. It is CCMA policy to give high priority and preference to uses and facilities which are dependent upon proximity to the water. Developable waterfront property, particularly property that can support an active water-dependent use is extremely rare and valuable in Connecticut. Because the proposed private boat slips and boardwalk demonstrate that the site is capable of supporting water-dependent uses, the coastal site plan must be modified to incorporate some type of water-dependent use in order to ensure that future water-dependent use opportunities at the site are not lost.

- It is also CCMA policy to consider in the planning process the potential impact of a rise in sea level, coastal flooding and erosion patterns on coastal development so as to minimize damage to and destruction of life and property and minimize the necessity of public expenditure and shoreline armoring to protect future new development from such hazards. This property is partially within the VE flood zone, which is a high hazard coastal zone.

- Staff would recommend moving the boardwalk West (out of the VE flood zone) and installing a robust buffer of salt-tolerant native plantings along the bulkhead.

- The submitted flood preparedness plan only addresses potential issues on-site. Access to and from the site during flooding events should also be considered. Water Street consistently floods during non-storm events, including during spring tides throughout the year. Aside from residents of the development, this can also impact emergency vehicle access especially during storm events.

- Additionally, the proposed hotel use creates additional issues regarding flood preparedness. The flood preparedness plan has not been revised since the hotel use was added, and primarily references residents and tenants of the building, whereas those patronizing the hotel would likely be staying on the property in the short

term. It does not make sense for guests of the hotel to sign up for notifications, and those who are visiting from out of town may not receive notices from the City.

- Stormwater should be retained and treated on-site to the maximum extent practicable using appropriate best management practices. The applicant should determine whether of not it is possible to increase the percentage of site area treated to more than 79%.

- Staff is concerned about the feasibility of the proposed public access. The six foot wide walkways are narrow and do not appear open or welcoming in the renderings. The walkways should be widened to at least ten feet and signage should be proposed that clearly identifies this as public access. This will require a signage manual be submitted to the Commission for review. Coastal public access areas should always be carefully designed and include appropriate amenities to provide attractive and usable public facilities. It's also important to ensure that coastal public access is ensured though a duly executed and legally binding access easement.

February 27, 2026

Memorandum

To: Planning & Zoning Commission – Chapin Bryce, Chair

From: Bryan Baker, AICP, Principal Planner

Re: #2026-05 SP/CAM – Spinnaker Acquisitions LLC – 108 Water Street (District 2, Block 84, Lot 18) – Special permit and coastal site plan review application for the construction of a 4.5-story mixed-use development

Commissioners,

The applicant has submitted a special permit and coastal site plan review application to redevelop the property at 108 Water Street into a 4 ½ story, mixed-use development, containing 59 dwelling units, approximately 90,000 square feet of commercial space (office, hotel, retail/personal service/restaurant), approximately 44,000 square feet of public realm space, 14 boat slips, and 249 parking spaces.

If you will recall, the applicant was previously approved for a similar development last year, the only difference being that the previous approval did not contemplate a hotel use. Because hotel uses are permitted by special permit in the SD-MC zone, the applicant has reapplied for a separate approval to use a portion of the proposed building as a hotel. Should the Commission approve this approval, the applicant will have two active approvals for the site and can either use the southern wing of the building either as office or as hotel.

108 Water Street is a 2.72-acre waterfront property located in the SD-MC (Marine Commercial) zone. The property is currently utilized primarily for seasonal boat storage with a dock building business near the water.

As part of the **coastal site plan review**, the Commission is responsible for reviewing the criteria within Section 22a-106 of the Connecticut General Statutes, which can be summarized as follows: *"In determining the acceptability of potential adverse impacts of the proposed activity described in the coastal site plan on both coastal resources and future water-dependent development opportunities a municipal board or commission shall: (1) Consider the characteristics of the site, including the location and condition of any of the coastal resources defined in section 22a-93; (2) consider the potential effects, both beneficial and adverse, of the proposed activity on coastal resources and future water-dependent development opportunities; and (3) follow all applicable goals and policies stated in section 22a-92 and identify conflicts between the proposed activity and any goal or policy."*

The applicant has submitted a Coastal Area Management Assessment (the assessment) noting what coastal resources are applicable to the property and their location in relation to the property:

TABLE 2: Coastal Resources

A list of coastal resources is provided below with those resources present on site, adjacent, or not applicable so indicated.

General Resources	present
Bluffs & Escarpments	not applicable
Rocky Shorefronts	not applicable
Beaches & Dunes	not applicable
Intertidal Flats	nearby (on eastern bank of Norwalk Harbor)
Tidal Wetlands	not applicable

Freshwater Wetlands	not applicable
Coastal Waters & Embayments	adjacent
Coastal Hazard Areas	present
Developed Shorefront	present
Islands	not applicable
Shorelands	not applicable
Shellfish Concentrations	not applicable

As noted by the applicant, the most applicable coastal resources are coastal hazard areas and developed shorefront. The Connecticut General Statutes further define each of these resources as follows:

Coastal hazard areas: means those land areas inundated during coastal storm events or subject to erosion induced by such events, including flood hazard areas as defined and determined by the National Flood Insurance Act, as amended and all erosion hazard areas as determined by the commissioner

Developed shorefront: means those harbor areas which have been highly engineered and developed resulting in the functional impairment or substantial alteration of their natural physiographic features or systems

This can be summarized as; 108 Water Street is an already developed property in the flood zone. As detailed in the assessment regarding impacts to the applicable coastal resources, the property is proposed to be redeveloped with a structure that is compliant with the flood zone regulations which requires that the first finished floor of residential structures be constructed two feet above the base flood elevation. The applicant is also proposing to reduce the impervious surface that currently exists on the site by approximately 12,000 square feet and install new drainage infrastructure that will treat about 79% of the site runoff when none is treated under existing conditions. Therefore, Staff agrees with the findings of the assessment that the development will not have adverse impacts on coastal resources.

In determining the acceptability of potential adverse impacts of the proposed activity described in the coastal site plan on future water-dependent development opportunities, it is important to define what "water-dependent uses," are:

Water-dependent uses: means those uses and facilities which require direct access to, or location in, marine or tidal waters and which therefore cannot be located inland, including but not limited to: Marinas, recreational and commercial fishing and boating facilities, finfish and shellfish processing plants, waterfront dock and port facilities, shipyards and boat building facilities, water-based recreational uses, navigational aides, basins and channels, industrial uses dependent upon water-borne transportation or requiring large volumes of cooling or process water which cannot reasonably be located or operated at an inland site and uses which provide general public access to marine or tidal waters

As the site currently exists, the dock building business would be considered a water-dependent use and the boat storage would not be considered a water-dependent use. The proposed development will replace the existing water-dependent use with other water-dependent uses which are public access to marine or tidal waters, waterfront dock, and a space within a portion of the proposed building for a future water-dependent use/tenant. The proposed development will likely prevent some of the more intense water-dependent uses from occurring on the property such as finfish and shellfish processing plants, shipyards, and industrial uses in favor of providing public access and waterfront docks. The existing site conditions provide for the possibility of more intense

water-dependent uses however it prevents water-dependent uses like public access and waterfront docks. Therefore, the applicant is not proposing to remove water-dependent sites from the property, but to provide different water-dependent uses.

Additionally, the application was referred to the Connecticut Department of Energy and Environmental Protection (DEEP) and the Norwalk Harbor Management Commission (HMC). The HMC found the application to be consistent with the city's Harbor Management Plan. At the time of the drafting of this memo, DEEP has not yet provided comments, but Staff is including commentary from our previous memorandum about DEEP's review of that application:

DEEP found that the application was consistent with the Connecticut Coastal Management Act (CCMA) except for the residential portion of the project. DEEP also emphasized the importance of a means of dry egress from the site during flood events. To address the concerns regarding dry egress from the site, the applicant has provided documentation that they will fund the installation of a duckbill backflow preventer to reduce Water Street flooding by up to 18" as well as the development reducing total stormwater runoff by over 60%. The Commission must evaluate whether the improvements and plans offered by the applicant are sufficient in addressing the concern of dry egress from the site during flood events. A study, initiated by the city, regarding dry egress and the potential raising of Water Street is pending.

Staff notes that the SD-MC zoning district (formerly titled "Marine Commercial") was created in 1987, which 108 Water Street was re-zoned to at that time from Heavy Industrial. When the Marine Commercial zone was created it permitted multifamily uses via special permit and was found to be consistent with the CCMA. The 2024 regulation re-write removed the special permit requirement for the residential portion of mixed-use structures, like the one proposed, however the density did not change. Therefore, developments like the one proposed generally have been allowed within the Marine Commercial zone since its adoption in 1987.

As part of the site plan review portion of the application, the proposed structure has a footprint that exceeds 5,000 square feet as well as a gross floor area that exceeds 20,000 square feet which requires a site plan review application. Below is a zoning chart demonstrating that, as proposed, the application complies with the zoning regulations.

Regulation	Allowed	Proposed	Compliant
Impervious surface coverage	80% max, 90% max if use LID practices and provide a vegetative buffer against the water, required access to the water shall not be included in calculations	94,694sf (79.8%)	Yes
Front setback	5 ft. min.	5 ft.	Yes
Side setback	5 ft. min.	5 ft.	Yes
Rear setback	25 ft. from the Coastal Jurisdiction Line	28 ft.	Yes
Density	1 Dwelling Unit per 2,000sf	59 units	Yes
Principal building height	4 ½ stories max.	4 ½ stories	Yes
Principal building ceiling height	May not exceed 13 ft. from finished floor to finished floor, except for first floor commercial use which must be a minimum of 15 ft. with a maximum of 25 ft.	First floor: 25' Other floors: 11'	Yes
Main entrance	Main entrance must be in Façade of Principal Frontages	Within façade of principal frontage	Yes

Façade position	Parallel to straight Frontage Line or to tangent of curved Frontage Line	Parallel to straight Frontage Line	Yes
Blank walls	Not Permitted at Frontage, unless located within the Flood Hazard Zone Overlay and required to be elevated, then shall comply with 4.3.7.C	No blank walls proposed	Yes
Primary building material on facades	Brick, natural stone, wood, cementitious siding, authentic stucco over masonry	Brick	Yes
Building types	Townhouse, live/work, jewel box, commercial, mixed use, flex, civic	Mixed use	Yes

As part of the Commission's **special permit review**, the only component of the proposed project that is subject to the special permit criteria is the hotel use. The applicant, as part of their narrative, included their reasoning for why the application meets the standards of review for a special permit application. Staff offers the following comments for consideration by the Commission as part of their review of the special permit criteria:

1. Density of Use and the bulk of the Buildings.

As proposed, the bulk of the building(s) comply with the standards of the zoning regulations, meaning that a special permit is not required to construct the size of the building or the location of the building. For the density of use specifically related to the hotel use, the total number of rooms proposed is 130. The cap on the number of hotel rooms is largely determined by some combination of market viability, parking capacity, traffic impacts, and any limits imposed by the Commission. Should the application be approved with the 130 hotel rooms, subsequently marketed and a need is found for more hotel rooms, the application would have to come back to the Commission to request additional hotel rooms.

2. General traffic impacts and safe ingress and egress.

The applicant has provided a traffic study detailing that the change from office use to hotel use would result in a net decrease in overall trips generated as part of the development. Staff also assumes that public improvements that were agreed to by the applicant as part of their previous approval would be included as part of this application further limiting any adverse impacts.

3. Utilization of green infrastructure and other sustainability measures and conservation of other ecologically valuable lands.

There are two different components of this application related to green infrastructure and sustainability. The first component is the building itself, which is proposed to comply with the sustainability standards set forth in the zoning regulations via stormwater management and energy efficiency. The second component is the site itself, which is currently almost entirely impervious with no existing on-site drainage infrastructure. As proposed, the development will reduce the impervious surface by roughly 12,000 square feet and create a nearly 12,000 square foot public park along the harbor. Therefore, the development has the potential to create ecologically valuable land where none exists today. Additionally, new drainage infrastructure will be installed which will decrease the amount of stormwater runoff that enters both the city's stormwater infrastructure as well as what currently flows directly into the harbor.

Staff offers the following resolution for consideration by the Commission:

Draft resolution to approve:

THEREFORE, BE IT RESOLVED by the Norwalk Planning & Zoning Commission that application #2026-05 SP/CAM – Spinnaker Acquisitions LLC – 108 Water Street (District 2, Block 84, Lot 18) – Special permit and coastal site plan review application for the construction of a 4.5-story mixed-use development be **APPROVED** subject to the following conditions:

1. That the buildings and site will be developed in accordance with the following plans:
    a. Per site plan package entitled "Zoning Site Plan Depicting 108 Water Street," prepared by Redniss & Mead, dated 1/8/2026; and
    b. Per architectural drawings entitled "108 Water St," prepared by Beinfield Architecture, dated 1/13/2026; and
    c. Per landscape site plans entitled "108 Water Street," prepared by Eric Rains Landscape Architecture, LLC, dated 6/13/2025; and
2. That the overhead service wires and all other utilities shall be installed underground; and
3. That prior to the issuance of a zoning permit the applicant shall provide documentation that the application complies with Section 8.4.5.N.2.g of the zoning regulations; and
4. That a water-dependent use shall be located within the portion of the building labeled as "water related use;" and
5. That the applicant shall work with Staff and revise their plans to widen the public access paths to the boardwalk and park at the rear of the property as much as feasible, including but not limited to providing different materials for the walkways and a signage plan, to improve public wayfinding; and
6. That a public right-of-way passage easement agreement shall be filed on the Norwalk Land Records for the sidewalk space needed to ensure a continuous, five-foot wide, unobstructed pedestrian access route along the frontage of the property on Water Street; and
7. That any areas open to the public as indicated on the approved site plan shall be open to the public from dawn to dusk at a minimum while the site plan approval remains effective; and
8. That the applicant has agreed to pay for the reasonable design, consultant, material and applicable permit fees necessary for a duckbill backflow preventer at the city's stormwater outflow pipe located at 130 Water Street within 90 days of the applicant receiving a request from the city for payment; and
9. That prior to the issuance of a zoning permit and per the Transportation, Mobility and Parking (TMP) Department's August 29, 2025, memorandum, the applicant has agreed to:
    a. Coordinate with TMP on a mutually agreeable plan to remove, relocate, replace and/or modify traffic signal infrastructure; and
    b. Revise the site plans per comment #4 and shall incorporate the design of a new pedestrian curb ramp at the southeast corner of Water Street/Hanford Place, in addition to associated pedestrian signals, push buttons, pedestals/bases and conduit; and
    c. Submit a revised signal plan to include any agreed-upon signal infrastructure changes; and
    d. Install curb ramps, pavement markings, and the foundations for Rectangular Rapid Flashing Beacons (RRFBs) for a new crosswalk across Water Street in the vicinity of the north site driveway exit, in partnership with TMP, who will help determine the exact location/design of the crosswalk and install the RRFBs; and
    e. Ensure that the driveway aprons shall be city standard Type B; and
    f. Ensure that city standard light pole details/specifications shall be included in a detail sheet; and

10. That a final Workforce Housing Plan showing a total of three workforce housing units shall be submitted to Staff for review and approval and shall include deed restriction documents, architectural floor plans and a breakdown of the number of bedrooms for each workforce housing unit provided. All such workforce housing units shall be deed restricted in perpetuity and meet all requirements of the Workforce Housing Regulations; and
11. That a surety bond be submitted, in an amount to be determined by the Staff, to guarantee the installation of the required erosion and sediment controls prior to the issuance of a zoning permit; and
12. That all erosion and sediment controls be installed and maintained prior to the start of any construction or site work and that additional controls be installed at the direction of the Staff, as needed; and
13. That a Connecticut licensed engineer shall certify that all required improvements, including any required off-site improvements, were installed to City standards prior to the issuance of a Certificate of Zoning Compliance (COZC); and
14. That a surety bond be submitted to guarantee the completion and maintenance of the site plan and any modifications to the plan and all work required as a condition of approval under this special permit/coastal site plan review prior to the issuance of a COZC; and

BE IT FURTHER RESOLVED that this application complies with all applicable sections of the Norwalk Zoning Regulations; and

BE IT FUTHER RESOLVED that the effective date of this approval is March 13, 2026.

Sincerely,

Bryan Baker

Bryan Baker, AICP
Principal Planner
City of Norwalk
203-854-7705
bbaker@norwalkct.gov

CITY OF NORWALK
Daniel Stanton, P.E.
Senior Engineer
125 East Avenue
Norwalk, CT 06851
Office: (203) 854-7981
Norwalkct.gov
dstanton@norwalkct.gov

February 25, 2026

Subject: 8-24 Referral

Dear Department of Public Works(DPW) Committee:

For DRG2024-1 Lockwood and Heather Lane Drainage Project, the City of Norwalk requires drainage easements connecting Heather Lane to George Avenue and into the Lockwood Lane drainage system. The drainage was constructed to mitigate flooding for the homes on Heather Lane. To create the permanent drainage easements, we need a positive Planning and Zoning Commission Report and acceptance by the Common Council.

We are asking the DPW Committee to:

a. Authorize the Mayor, Barbara Smyth, to execute any and all agreements and instruments necessary to acquire drainage easements for the City of Norwalk from property owners located at 13 Heather Lane and 15 Heather Lane, per Drainage Easement Map 13 Heather Lane and Drainage Easement Map 15 Heather Lane.
b. Referral to Planning and Zoning Commission for review and report: acquire drainage easement for purposes of maintaining newly installed storm drainage, per Drainage Easement Map 13 Heather Lane and Drainage Easement Map 15 Heather Lane.

Sincerely,

Daniel Stanton, PE
Senior Engineer

Cc: Project File

Att.: Proposed Easement Maps

DRAFT FOR PRELIMINARY REVIEW ONLY

N/F
THOMAS M & MICHELLE M NOVAK
PARCEL ID: 5-4-203-0
#15 HEATHER LN

15 HEATHER LANE

13 HEATHER LANE

N/F
DAVID G & MARY J KOPAS
PARCEL ID: 5-4-202-0
#13 HEATHER LN

CT N.A.D. 83 (2011)

S 60°47'09" W 16.00'
4.95'
S 56°35'55" E 26.68'
S 65°43'00" W 25.76'
S 62°59'09" W 53.66'
N 65°43'00" E 30.47'
S 47°22'29" W 48.76'
N 47°22'29" E 50.33'
S 24°57'27" E 10.50'
N 55°37'51" W 139.67'
N 56°35'55" W 103.42'
N 70°32'21" W 150.06'

DRAINAGE EASEMENT
TO BE ACQUIRED FROM
DAVID G. & MARY J. KOPAS
BY THE CITY OF NORWALK
1,230 SQ. FT. / 0.028 ACRES ±

EXISTING 10' DRAINAGE
EASEMENT PER N.L.R. MAP #6850

IRON PIPE FOUND
L=2.03'

IRON PIPE FOUND

BIT. DRIVE

WG

BIT. DRIVE

L= 44.99'
L= 55.00'
R=175.00'

HEATHER LANE
(PUBLIC WAY)

MAP NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND "THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED JUNE 21, 1996; AMENDED OCTOBER 26, 2018.
2. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF AN EASEMENT MAP.
3. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY.
4. THE NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM N.A.D. 1983 (2011). THE ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) USING GEOID 12B. COORDINATES AND ELEVATIONS WERE DETERMINED FROM RTK GPS OBSERVATIONS MADE ON JUNE 2, 2022, USING THE CT DOT RTK NETWORK KNOWN AS ACORN (CTDA BASE), HAVING THE FOLLOWING VALUES:

   LATITUDE = N 41° 03' 57.06968"
   LONGITUDE = W 73° 30' 25.94233"
   ELLIPSOID HEIGHT = -13.266M

5. REFERENCE IS MAP TO MAP #5084 & #6850 IN THE CITY OF NORWALK LAND RECORDS.

LEGEND:

BOUNDARY LINE

EXISTING DRAINAGE EASEMENT

PERMANENT EASEMENT

5 0 5 10 15
SCALE: 1"=10'

martin
Surveying Associates, LLC
201 CHRISTIAN LANE BERLIN, CT 06037
860-832-9328 860-357-4604 (FAX)

DRAINAGE EASEMENT
TO BE ACQUIRED FROM
DAVID G. & MARY J. KOPAS
BY
THE CITY OF NORWALK
13 HEATHER LANE NORWALK , CONNECTICUT

DATE:	02-19-2026
SCALE:	1"=10'
SHEET:	1 OF 1
DWG NO:	22-064-03

DRAFT FOR PRELIMINARY REVIEW ONLY

N 60°47'09" E 17.58'

S 56°35'55" E 28.97'

N 65°43'00" E 23.75'

S 56°35'55" E 4.94'

S 09°20'59" E 27.33'

N 55°37'51" W 139.67'

S 56°35'55" E 67.41'

DRAINAGE EASEMENT
TO BE ACQUIRED FROM
THOMAS M. & MICHELLE M. NOVAK
BY THE CITY OF NORWALK
2,700 SQ. FT. / 0.062 ACRES ±

N/F
THOMAS M & MICHELLE M NOVAK
PARCEL ID: 5-4-203-0
#15 HEATHER LN

15 HEATHER LANE

13 HEATHER LANE

N/F
DAVID G & MARY J KOPAS
PARCEL ID: 5-4-202-0
#13 HEATHER LN

CT N.A.D. 83 (2011)

CL&P #13881

BIT. DRIVE

IRON PIPE FOUND

R = 175.00'
L = 18.00'

WG

HEATHER LANE
(PUBLIC WAY)

MAP NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND "THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED JUNE 21, 1996; AMENDED OCTOBER 26, 2018.
2. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF AN EASEMENT MAP.
3. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY.
4. THE NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM N.A.D. 1983 (2011). THE ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) USING GEOID 12B. COORDINATES AND ELEVATIONS WERE DETERMINED FROM RTK GPS OBSERVATIONS MADE ON JUNE 2, 2022, USING THE CT DOT RTK NETWORK KNOWN AS ACORN (CTDA BASE), HAVING THE FOLLOWING VALUES:

   LATITUDE = N 41° 03' 57.06968"
   LONGITUDE = W 73° 30' 25.94233"
   ELLIPSOID HEIGHT = -13.266M

5. REFERENCE IS MADE TO MAP #5084 & #6850 IN THE CITY OF NORWALK LAND RECORDS.

LEGEND:

BOUNDARY LINE

EXISTING DRAINAGE EASEMENT

PERMANENT EASEMENT

5 0 5 10 15
SCALE:1"=10'

martin
Surveying Associates, LLC
201 CHRISTIAN LANE BERLIN, CT 06037
860-832-9328 860-357-4604 (FAX)

DRAINAGE EASEMENT
TO BE ACQUIRED FROM
THOMAS M. & MICHELLE M. NOVAK
BY
THE CITY OF NORWALK
15 HEATHER LANE NORWALK , CONNECTICUT

DATE: 02/19/2026
SCALE: 1"=10'
SHEET: 1 OF 1
DWG NO: 22-064-003

NORWALK PLANNING & ZONING COMMISSION

CITY HALL, 125 EAST AVENUE
NORWALK, CONNECTICUT

CERTIFICATE OF SPECIAL PERMIT

#2024 - 08 SP/CAM – Harbor Ventures, LLC and Plumbing Works, LLC – 18 Harbor Avenue (District 1, Block 25, Lot 7) – Construct a new building and use the entire property as an Earth Processing and Contractor Materials Storage Yard.

Town Clerk's No._____

I, Louis Schulman, Chair, Norwalk Planning & Zoning Commission, do hereby certify that a regular meeting of the Planning & Zoning Commission was held on March 20th, 2024 on the following application:

#2024 - 08 SP/CAM – Harbor Ventures, LLC and Plumbing Works, LLC – 18 Harbor Avenue (District 1, Block 25, Lot 7) – Construct a new building and use the entire property as an Earth Processing and Contractor Materials Storage Yard.

PROPERTY OWNER: Harbor Ventures, LLC
PROPERTY ADDRESS: 18 Harbor Avenue
DISTRICT/BLOCK/LOT: 1/25/7

BE IT RESOLVED that application #2024 - 08 SP CAM – Harbor Ventures, LLC and Plumbing Works, LLC – 18 Harbor Avenue – Construct a new building and use the entire property as an Earth Processing and Contractor Materials Storage Yard be **APPROVED** subject to the following conditions:

1. That the building and site be developed in accordance with the following plans:

    a. Per zoning location survey dated 12/22/2023 and revised 2/6/2024 prepared by Arcamone Land Surveyors LLC, Norwalk, CT

    b. Per architectural plans dated 2/9/2024 and revised 3/14/2024 prepared by Tomasetti Architects LLC, Wilton, CT

    c. Per the site plans dated 2/9/2024 prepared by Landtech, Westport, CT

2. That a certificate of special permit and mylar map of the approved Site Plan (as revised by any conditions of approval) be filed on the Norwalk Land Records prior to the issuance of a zoning permit; and

3. That all department sign-offs are obtained prior to issuance of any Zoning Permit; and

4. That any and all conditions listed in a memo dated March 15, 2024, from Norwalk DPW are applicable to this approval including any revisions; and

5. That any and all conditions listed in a memo dated March 19, 2024, from Norwalk WPCA are applicable to this approval including any revisions; and

6. That any and all conditions listed in a memo dated March 19, 2024, from Norwalk TMP are applicable to this approval including any revisions; and

7. That a surety be submitted, in an amount to be determined by staff, to guarantee the installation of the required sedimentation and erosion controls prior to the issuance of a zoning permit; and

8. That all required soil sedimentation and erosion controls are in place prior to the start of any construction; and

9. That any additional needed soil sedimentation and erosion controls be installed at the direction of the Staff; and

10. That any changes to the plans be reviewed by Staff prior to implementation; and

11. Any utilities comply with setbacks; and

12. All equipment and material shall be stored in an environmentally safe manner and comply with setbacks; and

13. That no storage of empty refuse containers used exclusively for the collection and disposal of construction debris in the construction trade occurs on this site; and

14. No materials be stored outdoors; and

15. A landscaping plan, prepared by a qualified professional, is submitted to and approved by Staff. The plan shall depict a five (5) foot vegetated buffer where feasible along all property lines, except where the property abuts a residential zone where there shall be a ten (10) foot vegetated buffer. All materials, equipment, and vehicles will be screened from the adjacent properties. The area within required yards, except for required parking, vehicle and pedestrian accessways, shall be landscaped with lawns, native trees and shrubs per §118-700B(4)b.

16. That all plantings be implemented prior to COZC; and

17. That all plantings be maintained, and any dead plantings must be replaced in accordance with the approved planting plan; and

18. Lighting shall not emit onto neighboring properties; and

19. That a CT licensed engineer shall certify that all of the required improvements, including any required off-site improvements, were installed to City standards prior to the issuance of a Certificate of Zoning Compliance; and

20. Nothing in this permit shall obviate the requirements for the applicant to obtain any other assents, permits or licenses required by law or regulation by the City of Norwalk, State of Connecticut, or the Government of the United States, including any approval required by the Connecticut Department of Environmental Protection and U.S. Army Corps of Engineers- obtaining such assents, permits or licenses is the sole responsibility of the applicant; and

BE IT FURTHER RESOLVED that this proposal complies with all applicable coastal resource and use policies, section 118-1450 Special Permits, and with all applicable sections of the Building Zone Regulations for the City of Norwalk; and

BE IT FURTHER RESOLVED that the effective date of this approval shall be March 29th, 2024.

EXECUTED AT NORWALK, CONNECTICUT THIS ____ DAY OF_____, 2024.

_____
Louis Schulman, Chairman
Norwalk Planning & Zoning Commission

CITY OF NORWALK
Planning & Zoning Commission
Norwalk City Hall, Room 129
125 East Avenue,
Norwalk, CT 06856-5125

May 28th, 2025

Elizabeth A.B. Suchy, Esq.
Carmody Torrance Sandak & Hennessey LLP
1055 Washington Blvd
Stamford, CT 06901
ESuchy@carmodylaw.com

RE: #2024-08 SP/CAM – Harbor Ventures, LLC and Plumbing Works, LLC – 18 Harbor Avenue (District 1, Block 25, Lot 7) – Construct a new building and use the entire property as an Earth Processing and Contractor Materials Storage Yard.

Dear Attorney Suchy,

At the March 19th, 2025, Norwalk Planning and Zoning Commission regular meeting, the Commission voted unanimously to grant a **one year extension** of time for item #2024-08 SP/CAM – Harbor Ventures, LLC and Plumbing Works, LLC – 18 Harbor Avenue (District 1, Block 25, Lot 7) – Extension of time request to construct a new building and use the entire property as an Earth Processing and Contractor Materials Storage Yard. All conditions from the original approval continue to be in effect.

If you have any questions regarding the above, please contact this office at (203) 854-7780.

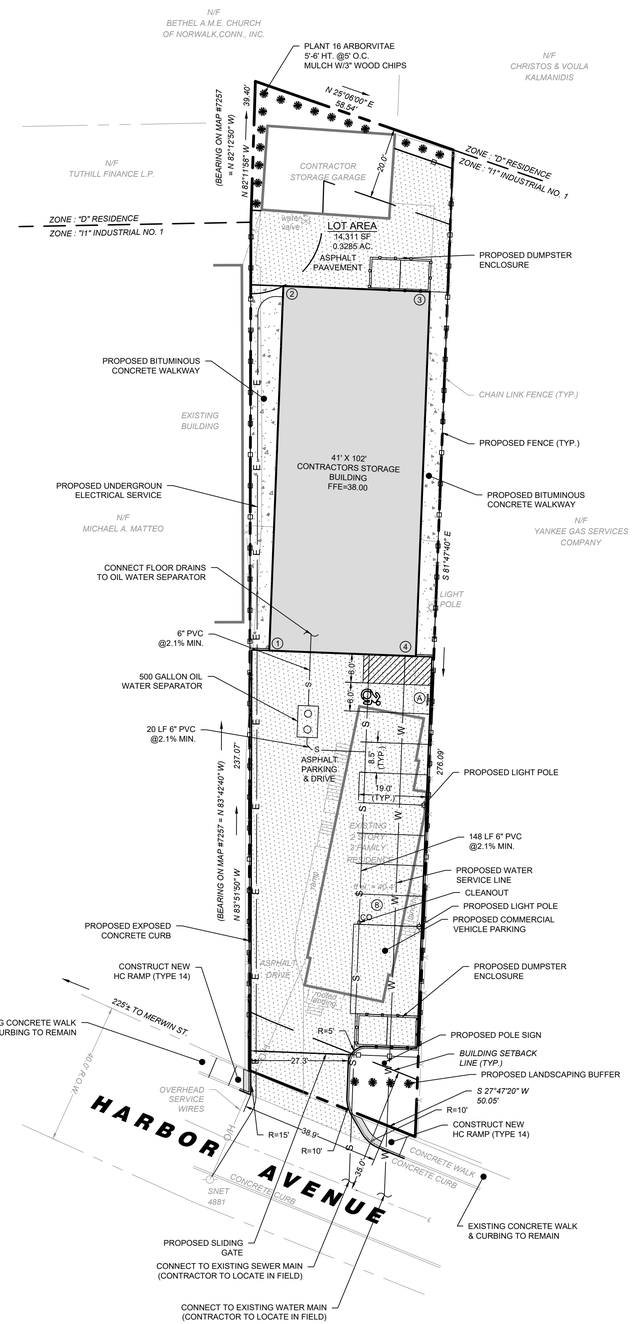
Sincerely,

Amelia Williams

Amelia Williams
Land Use Planner
Norwalk Planning & Zoning Department

GENERAL NOTES

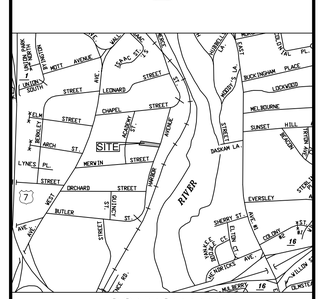
1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 18 HARBOR AVENUE TAKEN FROM ZONING LOCATION SURVEY PREPARED BY ARCAMONE LAND SURVEYORS DATED DECEMBER 22, 2023.
2. DATUM: ASSUMED
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UNDERGROUND PIPING, UTILITIES, AND OTHER FEATURES ARE TAKEN FROM EXISTING AS-BUILT MAPPING AND OTHER SOURCES OF INFORMATION AND ARE APPROXIMATE. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IN ADDITION, THERE MAY BE OTHER UNDERGROUND PIPING, UTILITIES, AND OTHER FEATURES PRESENT THAT ARE NOT SHOWN. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE PRESENCE OF ANY OF THESE EXISTING ELEMENTS BY WHATEVER MEANS NECESSARY AND PROTECTING THESE ELEMENTS AS REQUIRED OR RELOCATING THEM IF THEY ARE IN CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CALL "CALL BEFORE YOU DIG," 1-800-922-4455, THREE FULL WORKING DAYS PRIOR TO ANY EXCAVATION WORK ON THE PROPERTY.
5. FEMA NOTE
6. WETLAND FLAGGING NOTE (AS APPLICABLE)
7. A NEW BENCHMARK SHALL BE SET PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
8. ALL EROSION AND SEDIMENT CONTROL MEASURES SPECIFIED IN THE PLAN SHALL BE MAINTAINED UNTIL DISTURBED AREAS.



SIGN LEGEND

(A)	RESERVED PARKING FOR/MAT REQUIRED VAN ACCESSIBLE MOUNTED AT 7'-0" MIN. ABOVE GRADE TO BOTTOM OF SIGN	31-0662 (12"X24" SIGN)

PARKING REQUIREMENTS		
USE: INDUSTRIAL/MANUFACTURING ESTABLISHMENTS		
	SPACES REQUIRED	SPACES PROVIDED
WAREHOUSE 869 SF EXISTING 5225 PROPOSED 6094 TOTAL	1 SPACE PER 5,000 SF FLOOR AREA 6,094 / 5,000 = 2 SPACES	8 SPACES INCLUDING 1 HANDICAP SPACES
	1 SPACE PER EMPLOYEE 4 EMPLOYEES = 4 SPACES	
OFFICE SPACE 630 SF	1 SPACE PER 334 SF FLOOR AREA 630 / 334 = 2 SPACES	
	TOTAL = 8 SPACES	



LOCATION MAP
(NTS)

REVISION DATE	ISSUE

LANDTECH
SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING
518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:
PLUMBING WORKS LLC

PROJECT LOCATION:
18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:
SITE IMPROVEMENTS FOR A
PROPOSED CONTRACTORS YARD

DRAWING TITLE:
SITE LAYOUT AND UTILITY PLAN

PROJECT No.: 24017-01

DATE:	DESIGNED BY:	CHECKED BY:
2/9/2024	SM	AS

SCALE: 1" = 20'
IN FEET
0 20 40 60

PROJECT STATUS:
DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

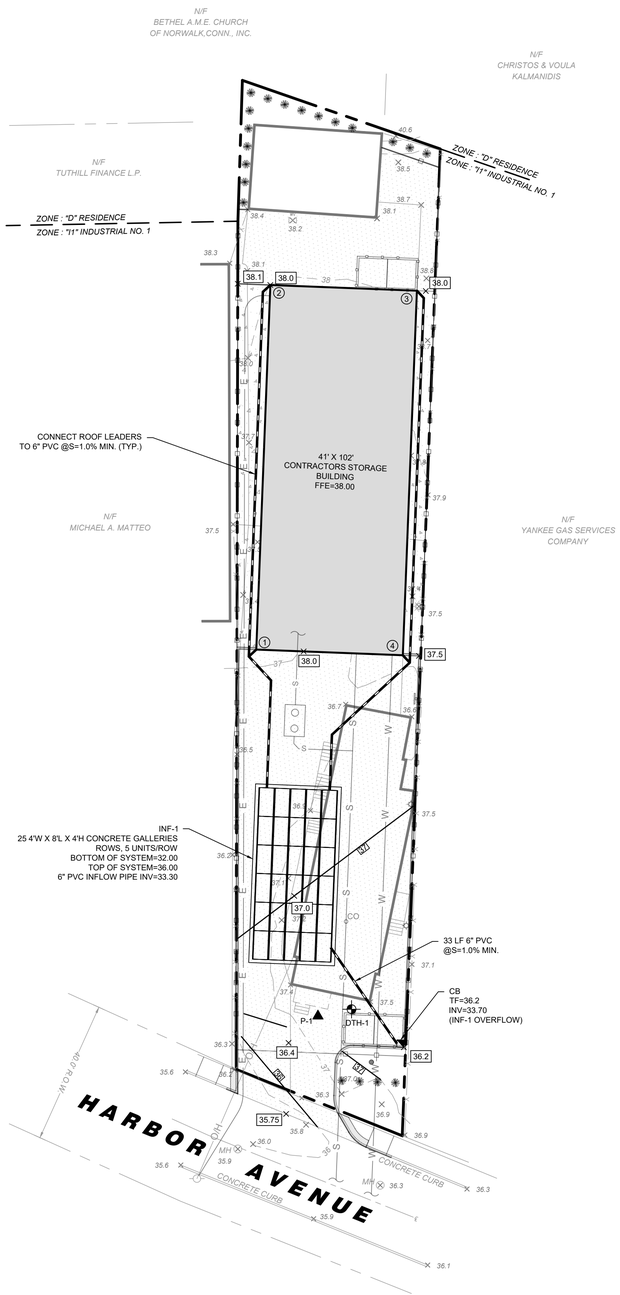
STATE OF CONNECTICUT · SCOTT M. SOUWLOS · 27803 · LICENSED PROFESSIONAL ENGINEER

C-1.0

T:\ - ACTIVE PROJECTS\24017-01 PARDY - 18 HARBOR AVE, NORWALK\DRAWINGS\18 HARBOR AVENUE - SITE PLAN.DWG

EXISTING AVERAGE BUILDING GRADE CALCULATIONS					
Spot Elev No.	Grade Elevation		Average Elev	Distance	Ave Elev x Distance
1-2	37.2	38.0	37.6	102.0	3,835.2
2-3	38.0	38.2	38.1	41.0	1,562.1
3-4	38.2	37.2	37.7	102.0	3,845.4
4-1	37.2	37.2	37.2	41.0	1,525.2
		Total		286.0	10,767.9
		AVERAGE GRADE		37.7	

PROPOSED AVERAGE BUILDING GRADE CALCULATIONS					
Spot Elev No.	Grade Elevation		Average Elev	Distance	Ave Elev x Distance
1-2	38.0	38.0	38.0	102.0	3,876.0
2-3	38.0	38.0	38.0	41.0	1,558.0
3-4	38.0	37.5	37.8	102.0	3,850.5
4-1	37.5	38.0	37.8	41.0	1,547.8
		Total		286.0	10,832.3
		AVERAGE GRADE		37.9	



TEST HOLE DATA

SOIL TEST CONDUCTED ON JANUARY 22, 2024

TEST HOLE 1

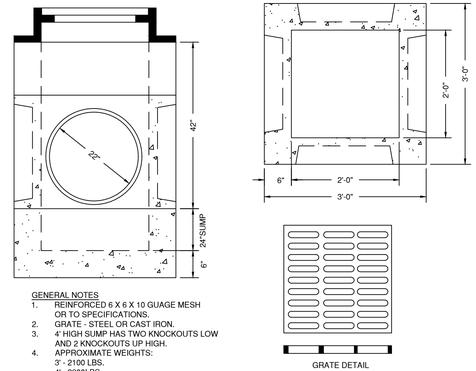
0 – 12"	TOPSOIL
12 – 45"	BROWN SILT
45 – 80"	TAN BROWN SILT & SAND
	NO MOTTLING, NO GROUNDWATER, NO LEDGE
	NO RESTRICTIVE LAYER

PERCOLATION TEST DATA

Perc Hole 1 Date: 1/22/2024
Depth: 28 in. Presoak: 1 hr

Time	Depth (in.)	Drop (in.)	Interval (min.)	Rate (min./in.)
11:15	8.00			
11:25	14.25	6.25	00:10	1.60
11:35	18.50	4.25	00:10	2.35
11:45	21.00	2.50	00:10	4.00
11:55	23.50	2.50	00:10	4.00
12:05	25.50	2.00	00:10	5.00
12:15	26.50	1.00	00:10	10.00

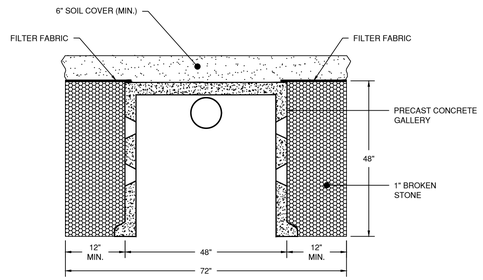
Final Rate: 1" in 10.00 minutes



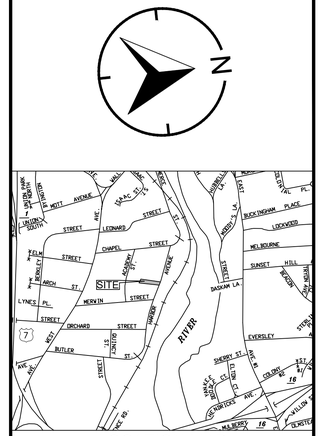
GENERAL NOTES
1. REINFORCED 6 X 6 X 10 GUAGE MESH OR TO SPECIFICATIONS.
2. GRATE - STEEL OR CAST IRON.
3. 4' HIGH SUMP HAS TWO KNOCKOUTS LOW AND 2 KNOCKOUTS UP HIGH.
4. APPROXIMATE WEIGHTS:
   3' - 2100 LBS.
   4' - 2800LBS.

GRATE DETAIL

2' X 2' PRECAST CONCRETE CATCH BASIN
(NTS)



48"x48" PRECAST CONCRETE GALLERY TYPICAL CROSS SECTION
(NTS)



LOCATION MAP
(NTS)

REVISION DATE	ISSUE

LANDTECH
SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING
518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:

PLUMBING WORKS LLC

PROJECT LOCATION:

18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:

SITE IMPROVEMENTS FOR A
PROPOSED CONTRACTORS YARD

DRAWING TITLE:

SITE GRADING AND DRAINAGE PLAN

PROJECT No. 24017-01

DATE:	DESIGNED BY:	CHECKED BY:
2/9/2024	SM	AS

SCALE: 1" = 20'
IN FEET
0 20 40 60

PROJECT STATUS:
DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

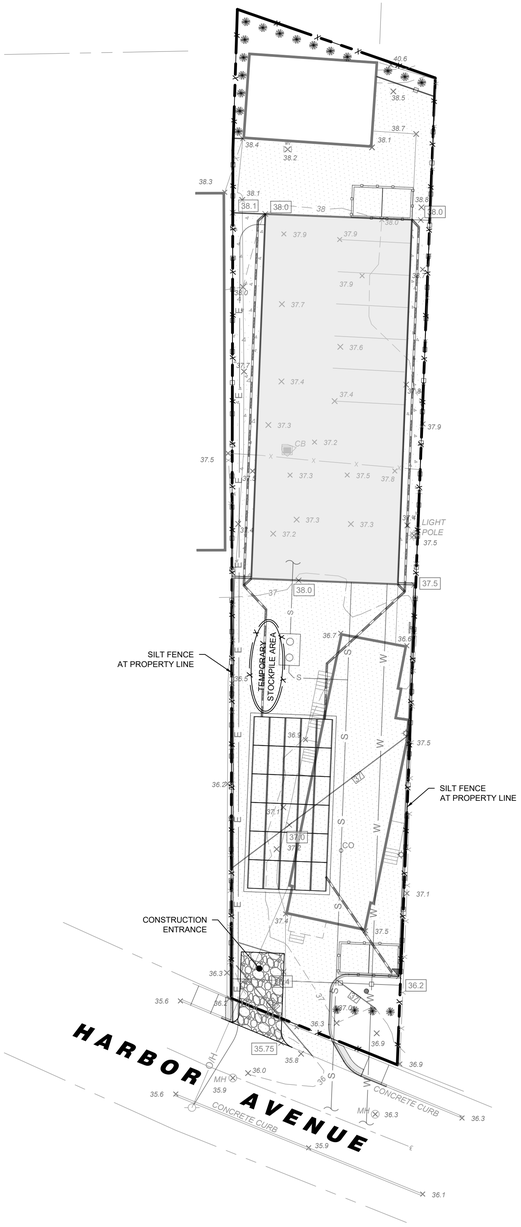
STATE OF CONNECTICUT · ANDREW J. SOUWEIDANE · 27803 · LICENSED PROFESSIONAL ENGINEER

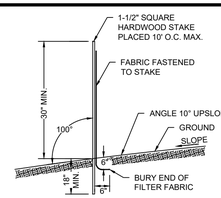
C-2.0

T:\ - ACTIVE PROJECTS\24017-01 PARDY - 18 HARBOR AVE. - NORWALK\DRAWINGS\18 HARBOR AVENUE - SITE PLAN.DWG

GENERAL EROSION AND SEDIMENT CONTROL NOTES

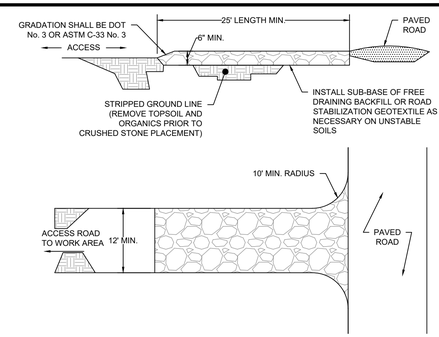
1. LAND DISTURBANCE WILL BE KEPT TO A MINIMUM; RESTABILIZATION WILL BE SCHEDULED AS SOON AS POSSIBLE.
2. SILT FENCE WILL BE INSTALLED ALONG THE TOE OF ALL CRITICAL CUT AND FILL SLOPES, SOIL STOCKPILE AREAS, AND IN THOSE AREAS SHOWN ON THE PLAN.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE STATE OF CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL. 2002.
4. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO LAND DISTURBANCE WHENEVER POSSIBLE.
5. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED UNTIL STABILIZATION HAS BEEN ACHIEVED.
6. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD IF NECESSARY OR REQUIRED. A MINIMUM OF 50 FEET OF SILT FENCE SHALL BE STORED AT THE SITE FOR EMERGENCY USE.
7. ANY EXCAVATIONS THAT MUST BE DEWATERED WILL BE PUMPED INTO A 15'x15' DIRTBAG ON-SITE. THE INLETS OF ALL PUMPS ARE TO BE FLOATED A MINIMUM OF 24 INCHES OFF THE BOTTOM OF THE EXCAVATION. THE CONTRACTOR SHALL KEEP A MINIMUM OF (2) 15'x15' DIRTBAGS ON-SITE THROUGHOUT THE EXCAVATION OF PROPOSED FOUNDATIONS.
8. WATER AND CALCIUM CHLORIDE SHALL BE APPLIED TO UNPAVED ACCESSWAYS TO PREVENT WIND GENERATED SEDIMENTS AND DUST.
9. DEBRIS AND OTHER WASTES RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION ACTIVITIES WILL NOT BE DISCARDED ON-SITE.
10. SEDIMENT REMOVED FROM CONTROL STRUCTURES WILL BE DISPOSED OF IN A MANNER WHICH IS CONSISTENT WITH INTENT OF THE PLAN.
11. SILT FENCES SHALL HAVE SEDIMENT REMOVED WHEN THE DEPTH OF THE SEDIMENT IS EQUAL TO ½ TO ⅔ THE HEIGHT OF THE FENCE. FENCES SHALL BE PROPERLY INSTALLED AND RIPPED FENCE OR BROKEN POSTS REPAIRED AS SOON AS PRACTICAL.
12. ANTI-TRACKING PADS AND GRAVEL CHECK DAMS SHALL BE REPLACED WHEN VOID SPACES ARE FULL OR STRUCTURES ARE BREACHED, AS APPLICABLE.
13. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE SOIL SURFACE STABILIZED WHEN CONSTRUCTION IS COMPLETE AND THE SOIL SURFACES ARE PERMANENTLY STABILIZED. STRUCTURAL COMPONENTS SHALL BE CLEANED OF ALL SEDIMENT UPON COMPLETION OF CONSTRUCTION.
14. THE OWNER IS ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES INSTALLATION AND MAINTENANCE OF CONTROL MEASURES. INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, NOTIFYING THE PLANNING AND ZONING COMMISSION OF ANY TRANSFER OF THIS RESPONSIBILITY, AND FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT PLAN IF AND WHEN THE TITLE OF LAND IS TRANSFERRED.





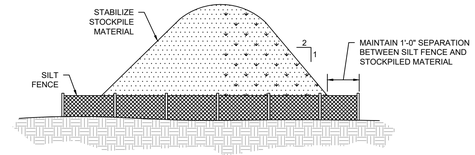
GEOTEXTILE SILT FENCE

(NTS)



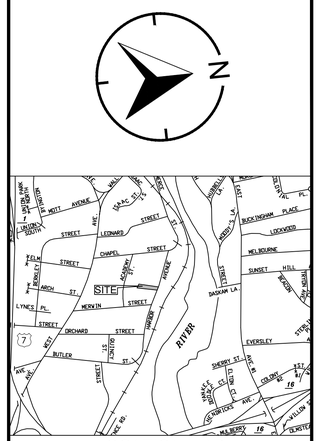
CONSTRUCTION ENTRANCE

(NTS)



STOCKPILE DETAIL

(NTS)



LOCATION MAP

(NTS)

REVISION DATE	ISSUE

LANDTECH

SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING

518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:

PLUMBING WORKS LLC

PROJECT LOCATION:

18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:

SITE IMPROVEMENTS FOR A PROPOSED CONTRACTORS YARD

DRAWING TITLE:

SEDIMENT AND EROSION CONTROL PLAN

PROJECT No. 24017-01

DATE:	DESIGNED BY:	CHECKED BY:
2/9/2024	SM	AS

SCALE: 1" = 20'

IN FEET

0 20 40 60

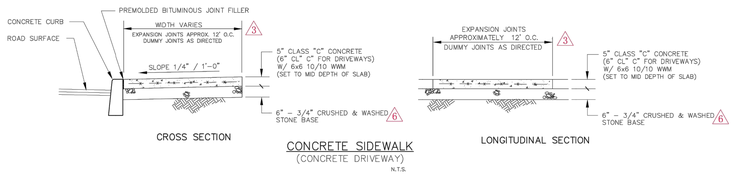
PROJECT STATUS:

DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT · ANDY SOUWLIDIS · 27803 · LICENSED PROFESSIONAL ENGINEER

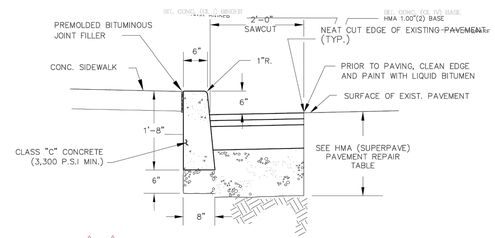
C-3.0

T:\ - ACTIVE PROJECTS\24017-01 (ANDY) - 18 HARBOR AVE, NORWALK\DRAWINGS\18 HARBOR AVENUE - SITE PLAN.DWG



CONCRETE SIDEWALK
(CONCRETE DRIVEWAY)
N.T.S.

N.T.S.

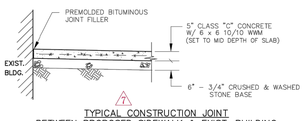


6 4 CAST-IN-PLACE CONCRETE CURB

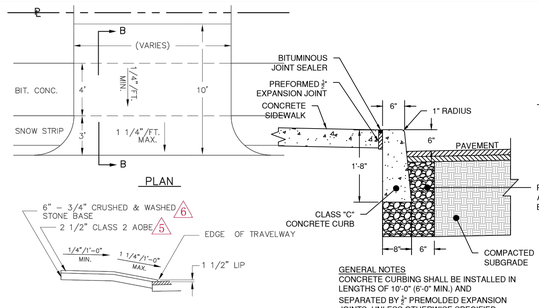
EXPANSION JOINTS @ APPROX. 12'-0" O.C. (TYP.)

(EXISTING PAVEMENT)

NOT IN ROAD RECONSTRUCTION AREA

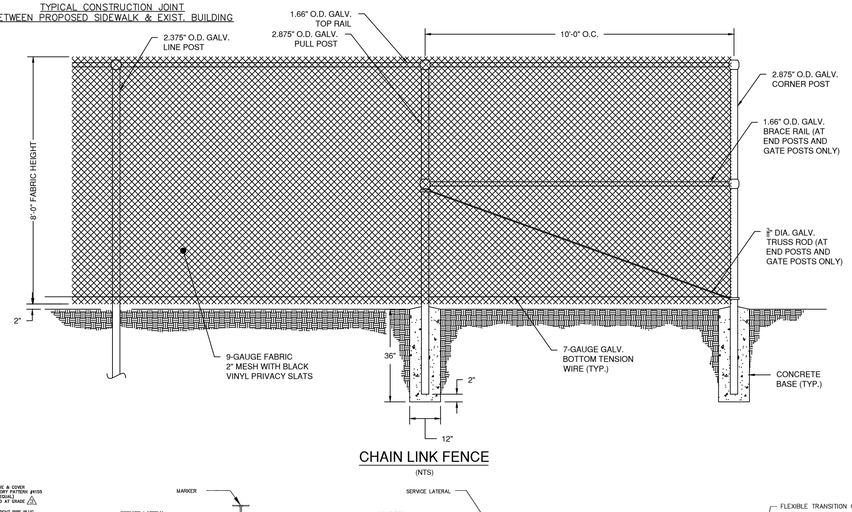


7 TYPICAL CONSTRUCTION JOINT
BETWEEN PROPOSED SIDEWALK & EXIST. BUILDING

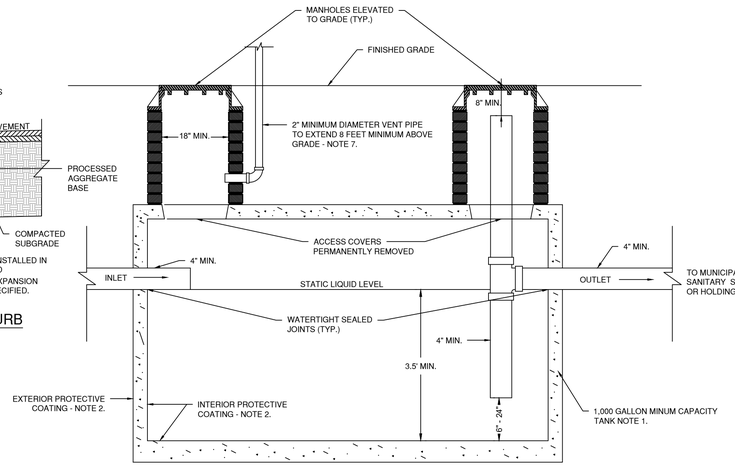


GENERAL NOTES
CONCRETE CURBING SHALL BE INSTALLED IN LENGTHS OF 10'-0" (6'-0" MIN.) AND SEPARATED BY ½" PREMOLDED EXPANSION JOINTS, UNLESS OTHERWISE SPECIFIED.

CONCRETE CURB
(NTS)

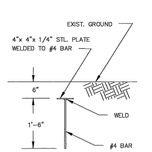


CHAIN LINK FENCE
(NTS)

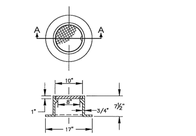


NOTES:
1. TANK SHALL BE CONSTRUCTED OF PRECAST CONCRETE AND SHALL HAVE A MINIMUM CAPACITY SUFFICIENT TO RETAIN SIX HOURS OF THE AVERAGE DAILY FLOW AND NO LESS THAN 1000 GALLONS.
2. INTERIOR OF THE TANK AND EXTENSION TO GRADE MANHOLES SHALL BE COATED WITH AN EPOXY PETROLEUM RESISTANT SEALANT. EXTERIOR OF THE TANK AND EXTENSION TO GRADE MANHOLES SHALL BE COATED WITH A WATERPROOF FOUNDATION SEALANT. THIS INCLUDES THE TANK EXTERIORS TOP AND BOTTOM.
3. STRUCTURAL SEAM OF THE TANK SHALL BE FILLED IN WITH NON-SHRINKING CEMENT OR WATER-PLUG AND COATED WITH A WATERPROOF SEALANT.
4. VOIDS BETWEEN INLET AND OUTLET PIPING OF THE TANK SHALL BE GROUTED WITH NON-SHRINKING CEMENT AND COATED WITH A WATERPROOF SEALANT.
5. THE TANK SHALL HAVE EXTENSIONS TO GRADE ABOVE THE INLET AND OUTLET PIPING. THE EXTENSION SHALL HAVE C.I. FRAMES AND MANHOLE COVERS. THE MANHOLES, EXTENSIONS, AND ACCESSES TO THE TANK SHALL BE AT LEAST 18 INCHES IN DIAMETER.
6. THE OUTLET PIPING SHALL UTILIZE A TEE-PIPE ON THE INTERIOR OF THE TANK. THE TEE-PIPE SHALL BE EQUIPPED WITH A STAND PIPE RISER EXTENDING UP TO GRADE BUT NO CLOSER THAN EIGHT (8") INCHES FROM THE MANHOLE COVER. THE TEE-PIPE SHALL EXTEND SIX (6") TO EIGHTEEN (24") INCHES FROM THE BOTTOM OF THE TANK.
7. THE INLET EXTENSION TO GRADE SHALL BE PROVIDED WITH A VENT LINE WHICH EXTENDS EIGHT (8') FEET ABOVE FINISHED GRADE AND PROPERLY SECURED TO THE BUILDING. THE SIZE OF THE VENT SHALL BE AT LEAST HALF THE SIZE OF THE OUTLET DISCHARGE LINE.
8. THE HORIZONTAL STRUCTURAL SEAM OF THE TANK SHALL BE LOCATED ABOVE THE STATIC LIQUID LEVEL OF THE TANK.
9. THE INCOMING PIPE SHALL NOT INCLUDE ANY SOURCES OF DOMESTIC SEWAGE WASTEWATER OR STORM WATER.
10. THE OUTLET PIPE SHALL BE CONNECTED TO THE SANITARY SEWER OR TO A HOLDING TANK.
11. THE OUTLET PIPE SHALL BE AT LEAST THE SIZE OF THE INLET PIPE OR GREATER AND AT A MINIMUM SHALL BE FOUR (4") INCHES IN DIAM.
12. IF HEAVY PIPING, SUCH AS CAST IRON, IS USED, ALL PIPING MUST BE STRUCTURALLY SECURED.
13. THE CONCRETE COVERS PROVIDED BY THE OIL SEPARATOR MANUFACTURER SHALL BE PERMANENTLY REMOVED.

OIL/WATER SEPARATOR FOR SANITARY
(NTS)



SERVICE LATERAL MARKER DETAIL

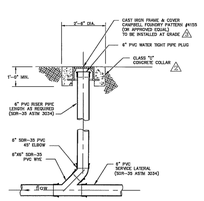


SECTION A–A

CLEAN OUT FRAME & COVER

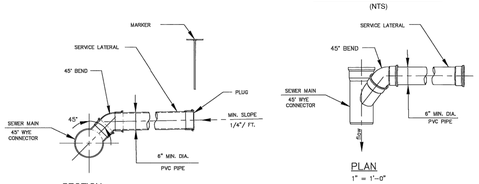
1" = 1'-0"

NOTE:
CLEAN OUT FRAMES & COVERS SHALL BE PATTERN #4155 AS MANUFACTURED BY THE "CAMPBELL FOUNDRY COMPANY" OF NORTH HAVEN, CONNECTICUT, OR APPROVED EQUAL.

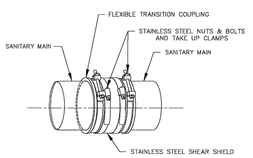


CLEAN OUT DETAIL

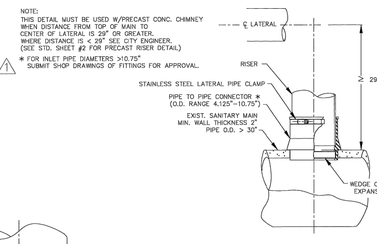
NTS



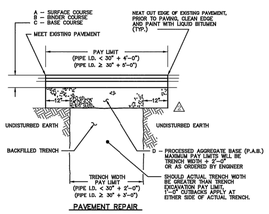
STANDARD SERVICE LATERAL CONNECTION



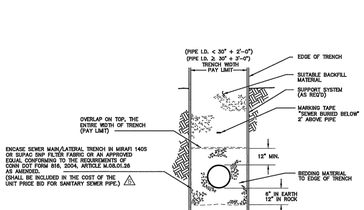
REPAIR COUPLING
28.97" PIPE O.D. MAXIMUM
STRONG BACK RC SERIES
as manufactured by FERNCO INC.
(or Approved Equal)



KOR-N-TEE
LATERAL PIPE TO PIPE CONNECTION
INSTALL PER MANUFACTURERS INSTRUCTIONS
as manufactured by NPC
(or Approved Equal)



PAVEMENT REPAIR



TYPICAL TRENCH SECTION
SANITARY SEWER

	A	B	C	D	E	F
	A = C	X"=STONE SIZE A (T)=LEVEL e.g. 0.50"(2)				
	0.375"(2)	0.50"(2)	1.00"(2)	0.50"(2)	1.00"(2)	P.A.B.
STATE ROAD				3"	6"	12"
MAJOR ARTERIAL				4"	6"	14"
MINOR ARTERIAL	1.5"	2"	3"			12"
COLLECTOR	1.5"	1.5"	3"			12"
LOCAL	3"					12"

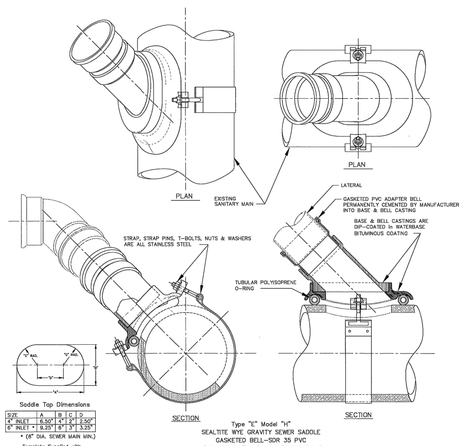
PAVEMENT REPAIR TABLE
(SUPERPAVE) ⚠

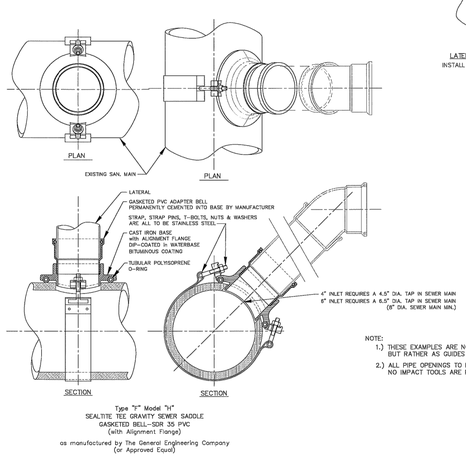
ALLOWABLE UNCOMPACTED THICKNESS PER LIFT	
STONE SIZE	LIFT THICKNESS
	MIN. MAX.
0.375"	1.5" 2"
0.50"	1.75" 2.5"
1.00"	3.0" 5.0"

	A	B	C	D
	CL 2	CL 1	CL 4	P.A.B.
STATE ROAD	–	3"	6"	12"
MAJOR ARTERIAL	3"	3"	6"	14"
MINOR ARTERIAL	1 1/2"	3"	3"	12"
COLLECTOR	1 1/2"	1 1/2"	3"	12"
LOCAL	1 1/2"	1 1/2"	—	12"

PAVEMENT REPAIR TABLE
(MARSHALL MIX)

⚠ MAXIMUM ALLOWABLE UNCOMPACTED THICKNESS PER LIFT:
CLASS 2 – 3" THK.
CLASS 1 – 2 1/2" THK.
CLASS 4 – 4" THK.





NOTE:
1.) THESE EXAMPLES ARE NOT TO BE CONSIDERED ALL–INCLUSIVE, BUT RATHER AS GUIDES TO CITY ACCEPTED PRACTICES.
2.) ALL PIPE OPENINGS TO BE MADE BY CORE DRILL. NO IMPACT TOOLS ARE PERMITTED.

NOTE: ALL DETAILS COMPLY WITH CITY OF NORWALK DPW REQUIREMENTS/STANDARDS

LANDTECH

T:\1 ACTIVE PROJECTS\2017-01 FANEY - 18 HARBOR AVE - NORWALK\DRAWINGS\18 HARBOR AVENUE - SITE PLAN.DWG

REVISION DATE	ISSUE

LANDTECH
SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING
518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:
PLUMBING WORKS LLC

PROJECT LOCATION:
18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:
SITE IMPROVEMENTS FOR A PROPOSED CONTRACTORS YARD

DRAWING TITLE:
NOTES AND DETAILS

PROJECT No. 24017-01

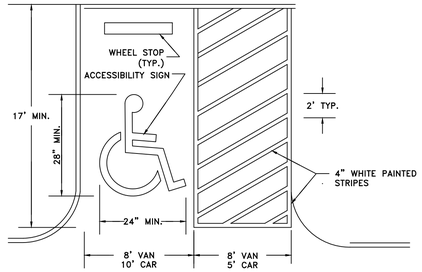
DATE:	DESIGNED BY:	CHECKED BY:
2/9/2024	SM	AS

SCALE: N.T.S.

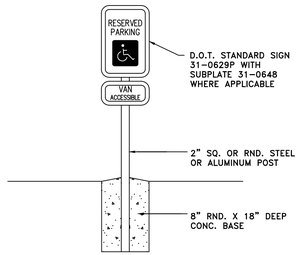
PROJECT STATUS:
DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT · ANDREW SOUWEIDANE · 27803 · LICENSED PROFESSIONAL ENGINEER

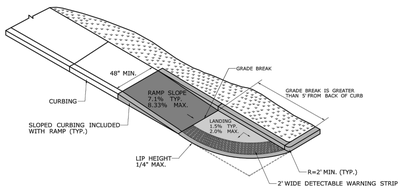
C-4.0



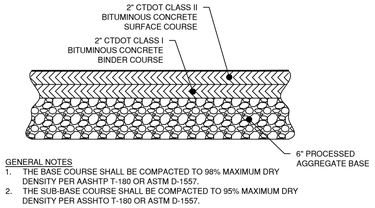
DISABLED PARKING MARKING
(NTS)



DISABLED PARKING SIGN
(NTS)



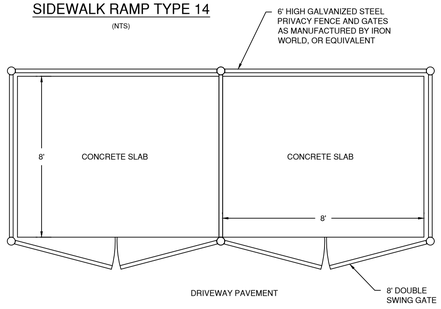
SINGLE DIRECTION RAMP WITHOUT NON-WALKING SURFACE GRADE BREAK GREATER THAN 5' (TYPE 14)

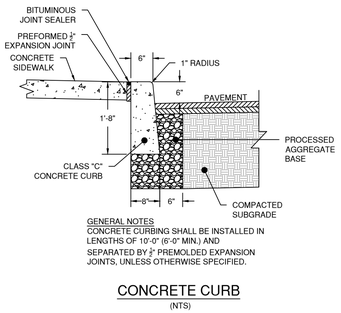


GENERAL NOTES
1. THE BASE COURSE SHALL BE COMPACTED TO 98% MAXIMUM DRY DENSITY PER AASHTP T-180 OR ASTM D-1557.
2. THE SUB-BASE COURSE SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY PER ASSHTO T-180 OR ASTM D-1557.

DRIVEWAY PAVEMENT TYPICAL CROSS SECTION
(NTS)

SIDEWALK RAMP TYPE 14
(NTS)

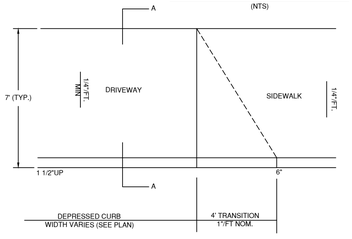




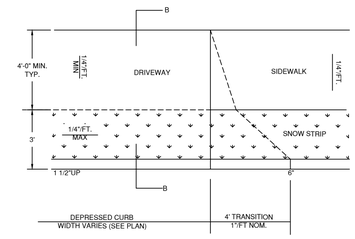
GENERAL NOTES
CONCRETE CURBING SHALL BE INSTALLED IN LENGTHS OF 10'-0" (6'-0" MIN.) AND SEPARATED BY ½" PREMOLDED EXPANSION JOINTS, UNLESS OTHERWISE SPECIFIED.

CONCRETE CURB
(NTS)

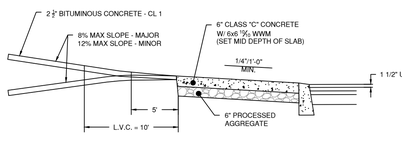
DUMPSTER ENCLOSURE
(NTS)



PLAN



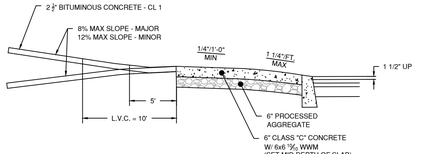
PLAN



SECTION A-A

TYPE 'A' DRIVE
(WITHOUT SNOW STRIP)

CONCRETE APRON W/ CONCRETE CURBING
(NTS)

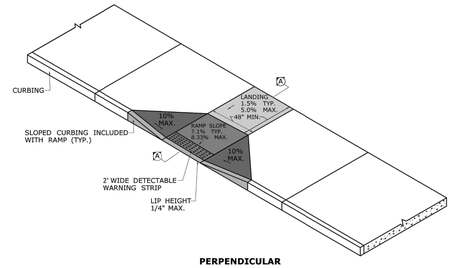


SECTION B-B

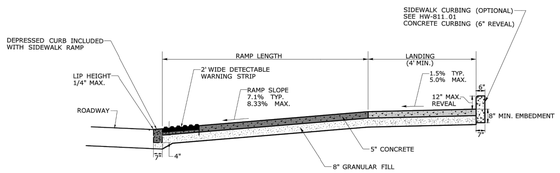
TYPE 'B' DRIVE
(WITH SNOW STRIP)

CONCRETE APRON W/ CONCRETE CURBING
(NTS)

NOTE: ALL DETAILS COMPLY WITH CITY OF NORWALK DPW REQUIREMENTS/STANDARDS

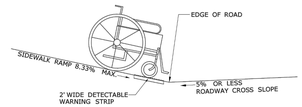


PERPENDICULAR SIDEWALK RAMP

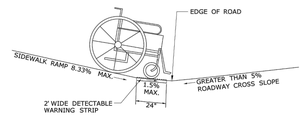


SECTION AA

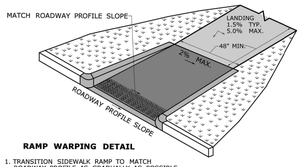
GENERAL NOTES:
1. SIDEWALK RAMPS SHALL HAVE A COARSE BROOM FINISH TRAVERSE TO THE SLOPE OF THE RAMP.
2. VERTICAL SURFACE DISCONTINUITIES AT JOINTS SHALL NOT EXCEED ¼ INCH.
3. REMOVAL OF EXISTING SIDEWALK FOR NEW RAMP INSTALLATIONS SHALL BE TO THE NEAREST EXPANSION OR CONTRACTION JOINT.
4. THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET.



SIDEWALK RAMP GRADE AT ROADWAY CROSS SLOPE OF 5% OR LESS



SIDEWALK RAMP GRADE AT ROADWAY CROSS SLOPE OF GREATER THAN 5%



RAMP WARPING DETAIL
1. TRANSITION SIDEWALK RAMP TO MATCH ROADWAY PROFILE AS GRADUALLY AS POSSIBLE. DO NOT EXCEED 3 % PER FOOT CROSS SLOPE RATE OF CHANGE WHEN TRANSITIONING TO ROADWAY PROFILE.
2. COMPLETE TRANSITION TO ROADWAY PROFILE BEHIND DETECTABLE WARNING SURFACE.

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES, OF WORK SHOWN ON THESE SHEETS IS APPROXIMATE AND IS THE RESULT OF LIMITED FIELD INVESTIGATIONS BY THE STATE AND IS NOT GUARANTEED TO BE AN EXACT REPRESENTATION OF THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 1/30/2018

DESIGNED/DRAWN BY: -
CHECKED BY: -

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_HIGHWAY_GD_(1-30-18).dgn

SIGNATURE BLOCK: OFFICE OF ENGINEERING
APPROVED BY: -

PROJECT TITLE: - -

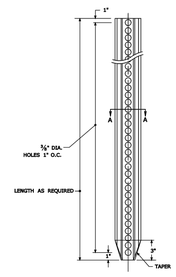
TOWN: - -

DRAWING TITLE: SIDEWALK RAMPS SHEET 1

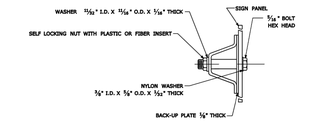
PROJECT NO. -
DRAWING NO. -
SHEET NO. -

TYPICAL METAL SIGN POSTS

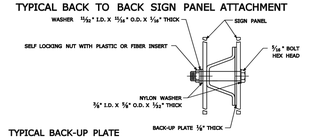
SECTION A-A



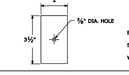
TYPICAL SIGN PANEL ATTACHMENT



TYPICAL BACK TO BACK SIGN PANEL ATTACHMENT

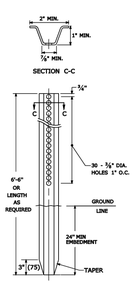


TYPICAL BACK-UP PLATE



BOLTS - STAINLESS STEEL CONFORMING TO ASTM F593, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
SELF LOCKING NUTS - STAINLESS STEEL CONFORMING TO ASTM F594, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
WASHERS - STAINLESS STEEL CONFORMING TO ASTM A240, (ALLOY TYPES 304 OR 316).

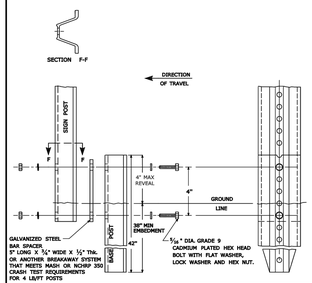
METAL DELINEATOR POST
WT./FT. = 1.12 LBS./FT. MIN.



GENERAL NOTES:

1. STEEL FOR DELINEATOR POSTS SHALL BE ASTM A36 STEEL. STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123.
3. WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYPE 1.
4. SPACER BAR FOR BREAKAWAY INSTALLATION SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A36.
5. ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153.
6. ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 mph WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
7. SIGN POSTS SHALL BE 4 LBS./FT.

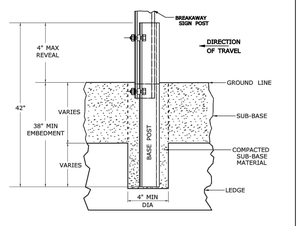
BREAKAWAY INSTALLATION
FOR 4 LBS./FT. POSTS



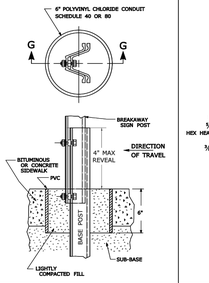
TYPICAL SIGN POST INSTALLATION IN LEDGE

LEDGE SHALL BE REMOVED TO DRIVE THE BASE POST TO A DEPTH OF 38".

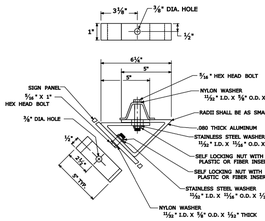
HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.



TYPICAL SLEEVE FOR PAVED AREAS



45° MOUNTING BRACKET FOR INSTALLATION OF PARKING SIGNS



REV.	DATE	REVISION DESCRIPTION
2	6-2017	SIGN POST REVISIONS.
1	2-2011	MINOR REVISIONS.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES, OF WORK SHOWN ON THESE SHEETS IS APPROXIMATE AND IS THE RESULT OF LIMITED FIELD INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/5/2017

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1208_02_May_2017_Aerotech.dgn Model: TR-1208_02

SUBMITTED BY: Mark E. Matlock, P.E. 2017.06.07 07:30:30-04'00'
SIGNATURE BLOCK
APPROVED BY: Mary E. Baker, P.E. 2017.06.13 15:26:14-04'00'
Gregory M. Dorosh, P.E. 2017.06.15 09:27:29-04'00'

CTDOT STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE: METAL SIGN POSTS AND SIGN MOUNTING DETAILS

GUIDE SHEET NO.: TR-1208_02

LANDTECH
SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING
518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:

PLUMBING WORKS LLC

PROJECT LOCATION:

18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:

SITE IMPROVEMENTS FOR A PROPOSED CONTRACTORS YARD

DRAWING TITLE:

NOTES AND DETAILS

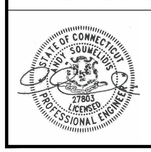
PROJECT No. 24017-01

DATE: 2/9/2024 | DESIGNED BY: SM | CHECKED BY: AS

SCALE: N.T.S.

PROJECT STATUS:

DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

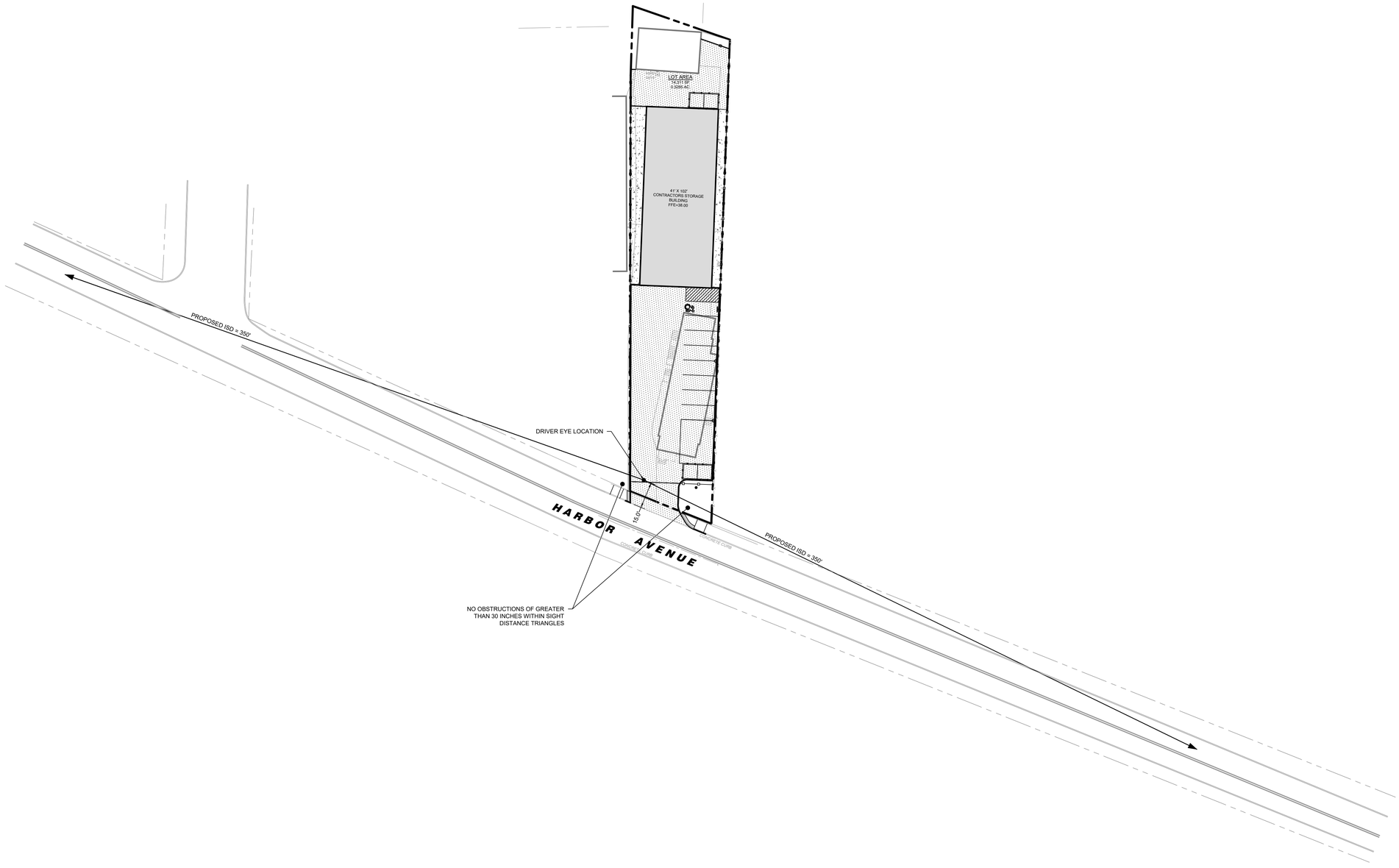


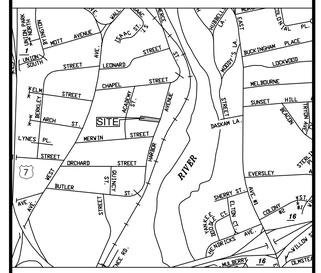
C-5.0

T:\1. ACTIVE PROJECTS\24017-01 FAHEY - 18 HARBOR AVE., NORWALK\DRAWINGS\18 HARBOR AVENUE - SITE PLAN.DWG

SIGHT DISTANCE REQUIREMENTS

SINGLE UNIT TRUCK = 350'





LOCATION MAP
(NTS)

REVISION DATE	ISSUE

LANDTECH

SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING

518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:

PLUMBING WORKS LLC

PROJECT LOCATION:

18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:

SITE IMPROVEMENTS FOR A
PROPOSED CONTRACTORS YARD

DRAWING TITLE:

SIGHT DISTANCE PLAN

PROJECT No. 24017-01

DATE:	DESIGNED BY:	CHECKED BY:
2/9/2024	SM	AS

SCALE: 1" = 30'

IN FEET
0 30 60 90

PROJECT STATUS:

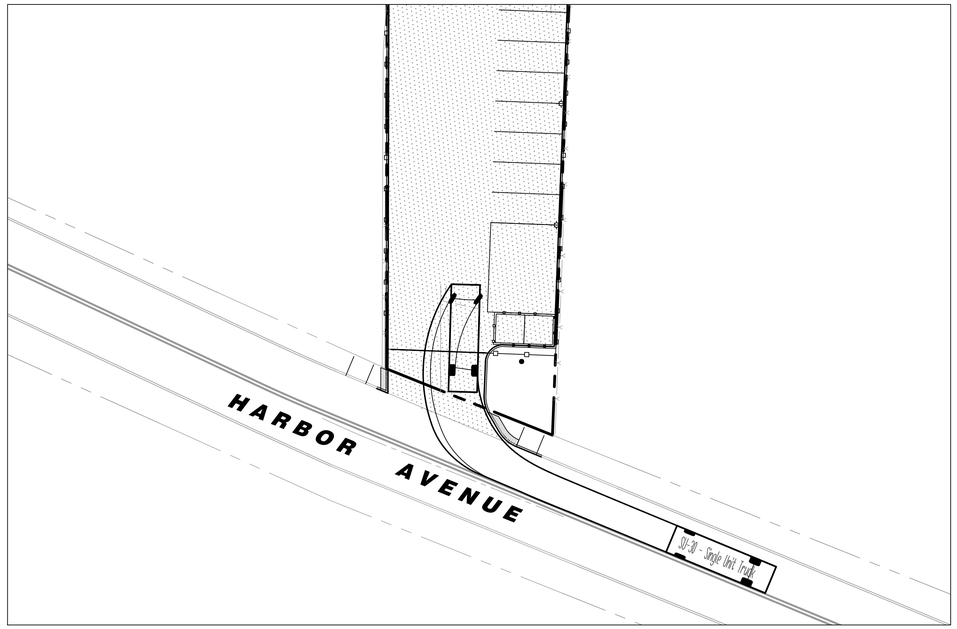
DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER

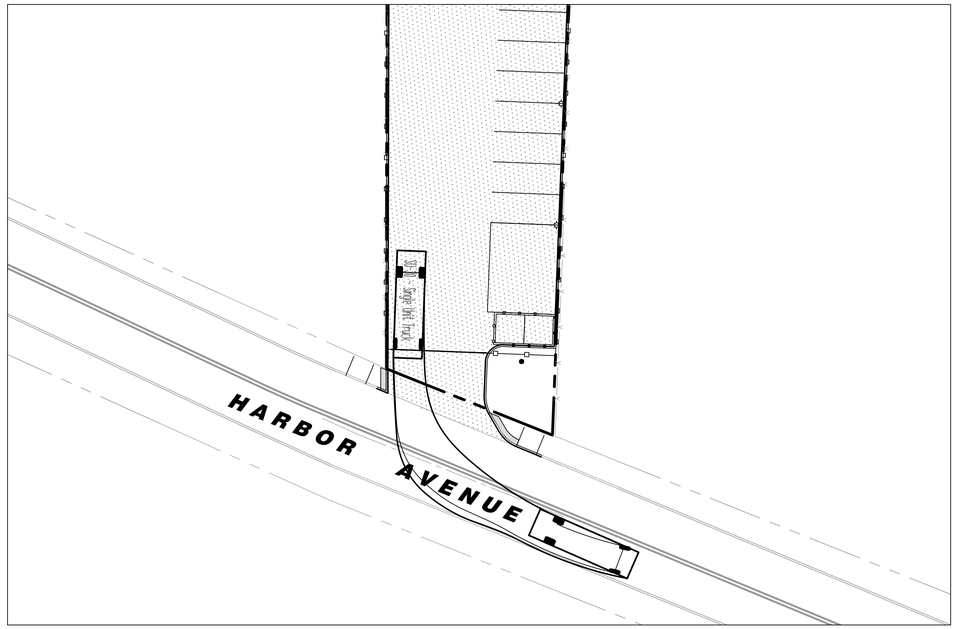
SD-1.0

LANDTECH

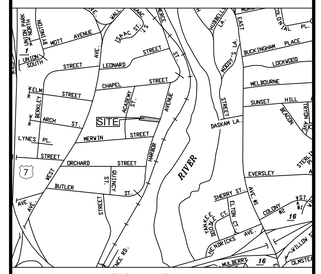
T:\1. ACTIVE PROJECTS\24017-01 FAHEY - 18 HARBOR AVE., NORWALK\DRAWINGS\18 HARBOR AVENUE - SITE PLAN.DWG



TURNING MOVEMENTS SU-30 IN
SCALE: 1"=30'



TURNING MOVEMENTS SU-30 OUT
SCALE: 1"=30'



LOCATION MAP
(NTS)

REVISION DATE | ISSUE

LANDTECH
SITE/CIVIL • ENVIRONMENTAL • SURVEYING • PLANNING
518 RIVERSIDE AVENUE • WESTPORT, CT 06880 • 203-454-2110
HELLO@LANDTECHCONSULT.COM • WWW.LANDTECHCONSULT.COM

PREPARED FOR:

PLUMBING WORKS LLC

PROJECT LOCATION:

18 HARBOR AVENUE
NORWALK, CT

PROJECT TITLE:

SITE IMPROVEMENTS FOR A
PROPOSED CONTRACTORS YARD

DRAWING TITLE:

TURNING MOVEMENT PLAN

PROJECT No. 24017-01

DATE:	DESIGNED BY:	CHECKED BY:
2/9/2024	SM	AS

SCALE: 1" = 20'

IN FEET
0 20 40 60

PROJECT STATUS:

DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

STATE OF CONNECTICUT · SOUMYA DUTTA · 27063 · LICENSED PROFESSIONAL ENGINEER

TM-1.0

LANDTECH

T:\1 - ACTIVE PROJECTS\24017-01 FINLEY - 18 HARBOR AVE., NORWALK\DRAWINGS\1-8 HARBOR AVENUE - SITE PLAN.DWG

Planning & Zoning Commission

APPLICATION FOR COASTAL SITE PLAN REVIEW

Application must be accompanied by two (2) printed and one (1) digital set of all documents, and appropriate filing fee. Filing Fee: $310.00 for single or two family use; $810.00 for all other uses.

Date Stamp

Application Completion Date: Official Receipt Date: Fee Paid:

1. Property Address: 163 Gregory Boulevard, Norwalk **2.** D/B/L/U: 3-75-35-0

3. Proposed Work: Retain Seawall and Construct Dock **4.** Zone: B

5. Applicant Identification:

Applicant Name: LandTech

Address: 518 Riverside Drive, Westport, CT

Phone Number: 203-454-2110 Email: tryder@landtechconsult.com

Interest in Property: ☐ fee simple ☐ option ☐ lessee ☐ easement ☑ other (specify): Consultant

List primary contact for correspondence *if other than applicant* (Agent or Attorney):

Name: _____

Address: _____

Business Phone: _____ Email: _____

6. Property Owner, if different than applicant:

Owner Name: Peter Cotaling

Address: 163 Gregory Boulevard, Norwalk, CT

Phone Number: _____ Email: peter@cotalings.com

7. Project Information:

Please check the appropriate box to identify the plan or application that has resulted in this Coastal Site Plan Review:

- ◉ Coastal Site Plan for Zoning Compliance/Zoning Permit
- ○ Subdivision or Resubdivision Application
- ○ Special Permit or Special Exception Application
- ○ Site Plan Review Application
- ○ Variance Application
- ○ Municipal Project (CGS Section 8-24)

8. Project Site Plans:

Please provide project site plans that clearly and accurately depict the following information, and check the appropriate boxes to indicate that the plans are included in this application:

- ☑ Project location
- ☑ Existing and proposed conditions, including buildings and topography
- ☑ **All** coastal resources on and contiguous to the site
- ☑ High tide line [as defined in CGS Section 22a-359(c)] and mean high water mark elevation contours (for parcels abutting coastal waters and/or tidal wetlands only)
- ☐ Soil erosion and sediment controls
- ☐ Storm water management & treatment practices
- ☑ Ownership and type of use on adjacent properties
- ☑ Reference datum (i.e., National Geodetic Vertical Datum, Mean Sea Level, etc.)
- ☐ Landscaping and planting plan (existing & proposed)
- ☐ Utility Plan (existing & proposed: water, drainage, sanitary sewers, electric & gas lines)
- ☑ Easements (utility, sight preservation, conservation, pedestrian)

9. Site Information:

a) Street Address or Geographical Description:
163 Gregory Boulevard, Norwalk, CT

b) Is project or activity proposed at a waterfront site (includes tidal wetlands frontage)? ◉YES ○NO

c) Name of on-site, adjacent, or downstream coastal, tidal, or navigable waters, if applicable:
Charles Creek

d) Identify and describe the existing land use in and adjacent to the site. Include description of any existing structures and significant features on the project site:
Property is single family residential, property to south is single family residential. Property to north is undeveloped consisting of maintained lawn. Subject and adjacent properties contain boulder seawalls along their entire shoreline.

e) Indicate the area of the project site: 0.19± acres **or** _____ square feet

f) Check the appropriate box below to indicate total land area of disturbance of the project or activity (please also see Question #9 regarding proposed stormwater best management practices):

- ○ Project or activity will disturb five (5) or more total acres of land area on the site. *Registration for CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities required.*
- ◉ Project or activity will disturb land, but less than five (5) total acres of land area would be disturbed. *A soil erosion and sedimentation control plan must be submitted.*
- ○ Project or activity will not disturb any land area.

g) Does the project include a shoreline flood and erosion control structure as defined in CGS section 22a-109(d)? ◉Yes ○No

10. Description of Proposed Project or Activity:

Describe the proposed project or activity including its purpose and related activities such as site clearing, grading, demolition, and other site preparations; percentage of increase or decrease in impervious cover over existing conditions resulting from the project; phasing, timing and method of proposed construction; and new uses and changes from existing uses (*attach additional pages if necessary*):

The application is to retain an existing seawall that was constructed when the property was developed around 2020. No work is proposed on the seawall. A two foot high retaining wall was included on the approved site plans for the site development. When the wall was constructed, they had to go a bit deeper into the soil to achieve the needed stability. The base of the wall has an average elevation of 5.7 in the southern half and 5.9 in the northern half. The wall was approved with a top elevation of 11.0 and was constructed with an average top elevation of 11.4 due to the irregularities of the boulders.

The project also includes the construction of a residential dock consisting of a 12' long by 4' wide pier supported by 6 piles, a 37.5' by 3' wide ramp, and a 20' by 5' float with a 6' by 5' landing float. Twelve feet of the pier or 48± sf is landward of the MHW line. Seven feet or 28± sf of the pier is proposed landward of the CJL. The remainder of the dock is being reviewed by the DEEP and Army Corps of Engineers under separate applications. The piles for the dock will be driven using a vibratory hammer on an excavator situated on a barge at mid to high tides. The creek contains around 6 - 14 feet of water in the area where the barge will be working which provides more than adequate water depth for a barge. Once the piles are installed, the stringers, decking and railings of the pier will be installed by hand. The float and ramp will be constructed off site and then installed in place. The dock is expected to be constructed during the winter or early spring of 2026.

11. Description of Proposed Stormwater Best Management Practices:

Describe the stormwater best management practices that will be utilized to ensure that the volume of runoff generated by the first inch of rainfall is retained on-site, especially if the site or stormwater discharge is adjacent to tidal wetlands. If runoff cannot be retained on-site, describe the site limitations that prevent such retention and identify how stormwater will be treated before it is discharged from the site. Also demonstrate that the loadings of total suspended solids from the site will be reduced by 80 percent on an average annual basis, and that post-development stormwater runoff rates and volumes will not exceed pre-development runoff rates and volumes (*attach additional pages if necessary*):

Application is to retain an existing boulder retaining wall and construct a small residential dock. No Stormwater BMP's are applicable to this project.

12. Identification of Applicable Coastal Resources and Coastal Resource Policies:

Identify the coastal resources and associated policies that apply to the project by placing a check mark in the appropriate box(es) in the following table.

Coastal Resources	On-site	Adjacent	Off-site but within the influence of project	Not Applicable
General Coastal Resources* - Definition: CGS Section 22a-93(7); Policy: CGS Section 22a-92(a)(2)	☑	☐	☐	☐
Beaches & Dunes - Definition: CGS Section 22a-93(7)(C); Policies: CGS Sections 22a-92-(b)(2)(C) and 22a-92(c)(1)(K)	☐	☐	☐	☑
Bluffs & Escarpments - Definition: CGS Section 22a-93(7)(A); Policy: CGS Section 22a-92(b)(2)(A)	☐	☐	☐	☑
Coastal Hazard Area - Definition: CGS Section 22a-93(7)(H); Policies: CGS Sections 22a-92(a)(2), 22a-92(a)(5), 22a-92(b)(2)(F), 22a-92(b)(2)(J), and 22a-92(c)(2)(B)	☑	☐	☐	☐
Coastal Waters, Estuarine Embayments, Nearshore Waters, Offshore Waters - Definition: CGS Sections 22a-93(5), 22a-93(7)(G), and 22a-93(7)(K), and 22a-93(7)(L) respectively; Policies: CGS Sections 22a-92(a)(2) and 22a-92(c)(2)(A)	☐	☑	☐	☐
Developed Shorefront - Definition: CGS Section 22a-93(7)(I); Policy: 22a-92(b)(2)(G)	☐	☐	☐	☑
Freshwater Wetlands and Watercourses - Definition: CGS Section 22a-93(7)(F); Policy: CGS Section 22a-92(a)(2)	☐	☐	☐	☑
Intertidal Flats - Definition: CGS Section 22a-93(7)(D); Policies: 22a-92(b)(2)(D) and 22a-92(c)(1)(K)	☐	☐	☐	☑
Islands - Definition: CGS Section 22a-93(7)(J); Policy: CGS Section 22a-92(b)(2)(H)	☐	☐	☐	☑
Rocky Shorefront - Definition: CGS Section 22a-93(7)(B); Policy: CGS Section 22a-92(b)(2)(B)	☐	☐	☐	☑
Shellfish Concentration Areas - Definition: CGS Section 22a-93(7)(N); Policy: CGS Section 22a-92(c)(1)(I)	☐	☑	☐	☐
Shorelands - Definition: CGS Section 22a-93(7)(M); Policy: CGS Section 22a-92(b)(2)(I)	☐	☐	☐	☐
Tidal Wetlands - Definition: CGS Section 22a-93(7)(E); Policies: CGS Sections 22a-92(a)(2), 22a-92(b)(2)(E), and 22a-92(c)(1)(B)	☑	☐	☐	☐

* General Coastal Resource policy is applicable to all proposed activities

13. Consistency with Applicable Coastal Resource Policies and Standards:

Describe the location and condition of the coastal resources identified in Question #10 and explain how the proposed project or activity is consistent with all of the applicable coastal resource policies and standards; also see adverse impacts assessment in Question #14 below (*attach additional pages if necessary*):

See attached sheet.

14. Identification of Applicable Coastal Use and Activity Policies and Standards:

Identify all coastal policies and standards in or referenced by CGS Section 22a-92 applicable to the proposed project or activity:

- [x] General Development* - CGS Sections 22a-92(a)(1), 22a-92(a)(2), and 22a-92(a)(9)
- [x] Water-Dependent Uses** - CGS Sections 22a-92(a)(3) and 22a-92(b)(1)(A); Definition CGS Section 22a-93(16)
- [ ] Ports and Harbors - CGS Section 22a-92(b)(1)(C)
- [x] Coastal Structures and Filling - CGS Section 22a-92(b)(1)(D)
- [ ] Dredging and Navigation - CGS Sections 22a-92(c)(1)(C) and 22a-92(c)(1)(D)
- [x] Boating - CGS Section 22a-92(b)(1)(G)
- [ ] Fisheries - CGS Section 22a-92(c)(1)(I)
- [x] Coastal Recreation and Access - CGS Sections 22a-92(a)(6), 22a-92(C)(1)(j) and 22a-92(c)(1)(K)
- [ ] Sewer and Water Lines - CGS Section 22a-92(b)(1)(B)
- [ ] Fuel, Chemicals and Hazardous Materials - CGS Sections 22a-92(b)(1)(C), 22a-92(b)(1)(E) and 22a-92(c)(1)(A)
- [ ] Transportation - CGS Sections 22a-92(b)(1)(F), 22a-92(c)(1)(F), 22a-92(c)(1)(G), and 22a-92(c)(1)(H)
- [ ] Solid Waste - CGS Section 22a-92(a)(2)
- [ ] Dams, Dikes and Reservoirs - CGS Section 22a-92(a)(2)
- [ ] Cultural Resources - CGS Section 22a-92(b)(1)(J)
- [ ] Open Space and Agricultural Lands - CGS Section 22a-92(a)(2)

* General Development policies are applicable to all proposed activities

** Water-dependent Use policies are applicable to all activities proposed at waterfront sites, including those with tidal wetlands frontage.

15. Consistency With Applicable Coastal Use Policies and Standards:

Explain how the proposed activity or use is consistent with all of the applicable coastal use and activity policies and standards identified in Question #12. **For projects proposed at waterfront sites (including those with tidal wetlands frontage)**, particular emphasis should be placed on the evaluation of the project's consistency with the water-dependent use policies and standards contained in CGS Sections 22a-92(a)(3) and 22a-92(b)(1)(A) -- also see adverse impacts assessment in Question #15 below (attach additional pages if necessary):

See attached sheet.

16. Identification of Potential Adverse Impacts on Coastal Resources: (*Must be completed for ALL projects.*)
Identify the adverse impact categories below that apply to the proposed project or activity.

The **'applicable'** column **must** be checked if the proposed activity has the **potential** to generate any adverse impacts as defined in CGS Section 22a-93(15). If an adverse impact **may result** from the proposed project or activity, please use Question #16 to describe what project design features may be used to eliminate, minimize, or mitigate the potential for adverse impacts.

Potential Adverse Impacts on Coastal Resources	Applicable	Not Applicable
Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or functions - CGS Section 22a-93(15)(H)	☐	☑
Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones - CGS Section 22a-93(15)(E)	☐	☑
Degrading existing circulation patterns of coastal water through the significant alteration of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours - CGS Section 22a-93(15)(B)	☐	☑
Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff - CGS Section 22a-93(15)(D)	☐	☑
Degrading natural erosion patterns through the significant alteration of littoral transport of sediments in terms of deposition or source reduction - CGS Section 22a-93(15)(C)	☐	☑
Degrading visual quality through significant alteration of the natural features of vistas and view points - CGS Section 22a-93(15)(F)	☐	☑
Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity - CGS Section 22a-93(15)(A)	☐	☑
Degrading or destroying essential wildlife, finfish, or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alterations of the natural components of the habitat - CGS Section 22a-93(15)(G)	☐	☑

Coastal Site Plan Review – 163 Gregory Boulevard, Norwalk, CT

Section 13 - Coastal Resource Policy Consistency

- General Coastal Resources
- Coastal Hazard Area – Coastal Hazard Areas are those areas which lie below the 100-year flood elevation. The property is primarily located in AE12 zone. A narrow section of the eastern southeastern property, containing the shoreline slope and tidal wetland is located in an AE 14 zone. The existing seawall straddles the line between AE12 and AE 14 zone. The entire property is in the Coastal Hazard Area. The project is consistent with applicable policies as no alteration to the existing seawall is proposed and the proposed dock will not alter the erosion/dispositional relationship or the water circulation patterns of the shoreline.
- Estuarine Embayments are those protected waters with a direct connection to tidal waters that receive measurable dilution from fresh water. Charles Creek is an estuarine embayment. The project is consistent with applicable coastal resource policies as it will not degrade water quality or alter circulation or drainage patterns within the creek. Water quality leaving the property will be improved through the installation of a stormwater management system where none exists today. intertidal flats, wetlands, or other coastal resources will not be impacted by the proposed project nor will fishing or recreational boating be impeded.
- Shellfish Concentration Areas - Natural shellfish beds area mapped in the creek, no managed beds are present. Charles Creek is classified as prohibited. The project is consistent with applicable policies as no impact to water or sediment quality or aquatic habitat is expected.
- Tidal Wetlands are located along mid to lower slope of the shoreline which is dominated by *Spartina alterniflora*. Two piles for the pier will be located within the wetlands. The project is consistent with applicable policies as the functions and habitat of the tidal wetlands will be preserved and no changes to water quality will occur.

Section 15 - Coastal Use Consistency

- Water Dependent Uses - The property is private and does not contain public access and therefore, no water dependent uses are applicable to this property.
- Coastal Structures and Filling - the project is consistent with applicable policies as there is no soil disturbance. The wall was replaced as it was being maintained which is compliant with the Coastal Management Act. The was similar in design to the previous wall and with others in the area, so there is no impact to circulation or sedimentation patterns and water quality.
- Boating – The project will construct a dock for recreational boating but the policies in the Coastal Management Act focus on increasing the size of existing harbors or state-owned launching facilities and creating new boating facilities in natural harbors or newly created waters, so they do not apply to this application.
- Coastal Recreation and Access – Although the project does provide coastal access for recreational purposes, this use does not apply as applicable policies focus on public access to tidal waters by expansion or utilization of state-owned recreational facilities.

17. Identification of Potential Adverse Impacts on Water-dependent Uses: ***(Complete only if the project/activity is proposed at a waterfront site.)***

a) Identify the adverse impact categories below that apply to the proposed project or activity. The applicable column **must** be checked if the proposed activity has the **potential** to generate any adverse impacts as defined in CGS Section 22a-93(17). If an adverse impact **may result** from the proposed project or activity, use Question #16 to describe what project design features may be used to eliminate, minimize, or mitigate the potential for adverse impacts.

Potential Adverse Impacts on Future Water-dependent Development Opportunities and Activities	Applicable	Not Applicable
Locating a non-water-dependent use at a site physically suited for or planned for location of a water-dependent use - CGS Section 22a-93(17)	☐	☑
Replacing an existing water-dependent use with a non-water-dependent use - CGS Section 22a-93(17)	☐	☑
Siting a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters - CGS Section 22a-93(17)	☐	☑

b) Identification of existing and/or proposed Water-dependent Uses:

Describe the features or characteristics of the proposed activity or project that qualify as water-dependent uses as defined in CGS Section 22a-93(16). If general public access to coastal waters is provided, please identify the legal mechanisms used to ensure public access in perpetuity, and describe any provisions for parking or other access to the site and proposed amenities associated with the access (e.g., boardwalk, benches, trash receptacles, interpretative signage, etc.) *:

The property is private and does not offer public access and therefore, is not appropriate for water-dependent uses.

*If there are no water-dependent use components, describe how the project site is not appropriate for the development of a water-dependent use.

18. Mitigation of Potential Adverse Impacts:

Explain how all potential adverse impacts on coastal resources and/or future water-dependent development opportunities and activities identified in Questions #14 & #15 have been avoided, eliminated, or minimized (*attach additional pages if necessary*):

The proposed project does not incur any of the adverse impacts outlined in the Connecticut Coastal Management Manual, as the project does not: degrade water quality; degrade circulation patterns; degrade erosion or drainage patterns through the significant alteration of groundwater flow; degrade natural features of public vistas or view points; increase the hazard of coastal flooding through the alteration of shoreline bathymetry; degrade wildlife, finfish or shellfish habitat, or alter or degrade tidal wetlands, beaches, or rocky shorefronts.

19. Remaining Adverse Impacts:

Explain why any remaining adverse impacts resulting from the proposed activity or use have not been mitigated and why the project as proposed is consistent with the Connecticut Coastal Management Act (*attach additional pages if necessary*):

No adverse impact remain.

By signing this application, the applicant or his/her agent certifies that they are familiar with the information provided in this application and are aware of the penalties for obtaining a permit through deception or by submission of inaccurate or misleading information.

By signing this application, permission is hereby given to necessary and proper inspection of the subject property by the Commissioners and designated staff of the Commission or consultants to the Commission, at reasonable times, during the pendency of the application.

Applicant's Signature: Peter Catalino **DATE:** 11/6/25

Agent's Signature: **DATE:** 11/5/25

Instructions for Coastal Site Plan Review Application

Notification of Neighbors

Coastal Site Plan Reviews require the applicant make three actions to notice to neighbors during the review of the application: 1) initial notification of the application submittal, 2) notice of public hearing (if applicable), and 3) legal notice of the public hearing in the newspaper (if applicable).

1) **Notice of Application Submittal:** ALL applications shall notify *by a certificate of mailing* the owners of land within 100 feet of the subject parcel *within ten (10) days of submitting an application* to the Planning & Zoning Commission. The name of the owners shall be taken from the latest Tax Assessor records. *Proof of mailings shall be evidenced by providing a certificate of mailing* that must be submitted to the Planning & Zoning staff immediately following mailing. See Sample Letter below.
2) **Public Hearing Notice:** Any application for which a public hearing is required, the applicant shall notify *by certified mail, return receipt requested at least ten (10) days prior to the public hearing*, the owners of land that abut or are directly across the street from the subject parcel. The name of the owners shall be taken from the latest Tax Assessor records. See Sample Letter below.
   When a condominium is located across the street or abuts the subject proposal notification may be sent to the condominium association in lieu of the individual unit owners. Evidence of certified mailings shall be submitted by the applicant on or before the public hearing date.
3) **Legal Notice Payment:** When a public hearing is required, applicants shall be responsible for payment of three legal notices in The Hour newspaper. Two notices will advertise the application's public hearing date and one will advertise the Commission's action on the application.
   The Planning & Zoning staff will provide the required legal notices to The Hour. Applicants must contact The Hour at the number given below to arrange for payment in advance of the publication date.
   Classified Advertising Manager
   The HOUR
   Phone: (203) 354-1100 or 846-3281
   Fax: (203) 846 – 9897

Application Decision Publication

Decisions on ALL Coastal Site Review Applications must be published in The Hour. All application decisions must be published as a Legal Notice in The Hour. The applicant is responsible for payment of the Legal Notice of Decision. The Planning & Zoning staff will provide the required legal notices to The Hour. Applicants must contact The Hour at the number given below to arrange for payment.
Classified Advertising Manager
The HOUR
Phone: (203) 354-1100 or 846-3281
Fax: (203) 846 – 9897

Sample Letter: APPLICATION SUBMITTAL NOTIFICATION

Dear _____,

Be advised that _____ has applied for a Coastal Site Plan
(Applicant)

application for property located at the following address: _____

_____
(Street name and number and District, Block and Lot numbers)

The proposal is for _____
(Description of Proposal)

_____

You are being notified because your property abuts the property or is located directly across the street from the subject parcel. The application is on file in the Planning & Zoning Office located at City Hall, 125 East Avenue, Room 129, Norwalk, Connecticut 06856. The application materials can be reviewed on the City webpage at https://www.norwalkct.gov/1746/Pending-Application-Materials. If you have any questions regarding this application, you can email the staff person noted on the pending application webpage or you can call the Planning & Zoning Office at (203) 854-7780.

_____
Signature of applicant

Applicant must sign above and provide contact information below.
(THIS FORM IS TO BE COMPLETED BY APPLICANT)

Sample Letter: PUBLIC HEARING NOTIFICATION

Dear _____,

Be advised that **[Applicant Name]** has applied for a Coastal Site Plan Review application for property located at the following address: **[Project Address – street name and number]** and **[District/Block/Lot number]**.

The proposal is for **[Description of Proposal]**.

The Norwalk Planning & Zoning Commission will conduct a public hearing on this proposal on **[Day, Date, Time, and Location of Public Hearing].**

You are being notified because your property abuts the property or is located directly across the street from the subject parcel. The application is on file in the Planning & Zoning Office located at City Hall, 125 East Avenue, Room 129, Norwalk, Connecticut 06856. The application materials can be reviewed on the City webpage at https://www.norwalkct.gov/1746/Pending-Application-Materials. If you have any questions regarding this application, you can email the staff person noted on the pending application webpage or you can call the Planning & Zoning Office at (203) 854-7780.

_____
Signature of applicant

Applicant must sign above and provide contact information below.
(THIS FORM IS TO BE COMPLETED BY APPLICANT)

Application Form Instructions:

8. Project Site Plans
It is important to include clear and concise project plans that delineate coastal resources on and/or adjacent to site, especially the waterbody receiving stormwater discharges, if applicable. *Complete plans will expedite the review process.*

9. Site Information
Describe in detail the current land use on the site, current zoning classification, and any significant features of the project site. Indicate overall area of disturbance of the project. "*Disturbance*" includes not only the footprint of any construction, but also the extent of the project's work area. If the disturbance is 5 or more total acres of land area, then a CT DEEP stormwater permit may be required.

10. Description of Proposed Project or Activity Provide a detailed description of the proposed project or activity, including the construction phasing, timing, and methodology. Include all activities related to construction such as site clearing, grading, and demolition. Also include the percentage of increase or decrease in impervious cover over existing conditions resulting from the project, and any changes or new uses of the property.

11. Description of Proposed Stormwater Best Management Practices
Describe in detail the stormwater best management practices (BMP), which will be utilized in this project. Explain how these stormwater BMPs will retain on-site the volume of runoff generated by the first inch of rainfall, especially if the site or ultimate discharge is adjacent to tidal wetlands. If retention is not a feasible option, explain why not and describe how the stormwater will be treated before it is discharged. It is also necessary to demonstrate that the loadings of total suspended solids from the site will be reduced by 80%on an average annual basis, and that post-development runoff rates and volumes will not exceed pre-development rates and volumes.

12. Identification of Applicable Coastal Resources and Coastal Resource Policies
Check ALL appropriate coastal resources and their associated Coastal Management Policies. This information should be based on a field-verified determination of on-site and adjacent coastal resources. Note that there is a box provided for the identification of resources, which are off-site but "within the influence of project." This is particularly applicable to "downstream" resources, such as those, which could be affected by project drainage, erosion sedimentation or other impacts unless the project is designed with proper mitigation.

Coastal Resource Maps may not be substituted for field surveys by qualified personnel where warranted by the presence of sensitive resources.

Please note that general "*Coastal Resources*" is "pre-checked" as its policies apply to all activities in the coastal boundary.

Additionally, check "*Shorelands*" for any site which is not entirely within the coastal flood hazard area, since shorelands are statutorily defined as, "...those land areas within the coastal boundary exclusive of coastal hazard areas…."

13. Consistency with Applicable Coastal Resource Policies and Standards
Explain how the proposed activity is consistent with the associated policies for each of the identified coastal resources in Question #10. Describe the location and condition of the coastal resources identified and explain how the proposed project is consistent with ALL applicable coastal resource policies. Where appropriate, describe mitigation measures proposed to offset any impacts from the project. For example, if "*Tidal Wetlands*" are identified on-site, explain the proposed wetland protection measures that will be incorporated into the project including setbacks, buffer areas, conservation easements and other protective measures, since the CCMA policies require strict protection of tidal wetland resources. Or, if off-site Tidal Wetlands could be affected by construction, provide a detailed description of the measures that will mitigate potential impacts.

14. Identification of Applicable Coastal Use and Activity Policies and Standards
This section provides a list of all statutory policies and standards for land and water uses in Connecticut's Coastal Boundary which are either set forth in, or referenced by, Section 22a-92 of the CCMA.
Using the appropriate fact sheet(s) identify all policies and standards applicable to the proposed activity.
Please note that "*General Development* " is "pre-checked" as its policies apply to all activities in the coastal boundary.

15. Consistency with Applicable Coastal Use Policies and Standards
Explain how the proposed activity, including any mitigation proposed to offset adverse impacts, is consistent with the coastal use policies and standards. Because all activities invoke the "*General Development*" policies, consistency must be addressed in every case.

16. Identification of Potential Adverse Impacts on Coastal Resources
This section requires the identification of applicable adverse impacts to coastal resources. "Adverse Impacts" are specifically defined by statute and are discussed in the Fact Sheet for Adverse Impacts. Based upon the proposed activity and its location, identify the potential adverse impacts to the resources on and adjacent to the site.

17. Identification of Potential Adverse Impacts on Future Water-dependent Uses:
Complete this Question if the project abuts marine or tidal waters, or tidal wetlands. Identify applicable adverse impacts to future water-dependent development opportunities and activities. As a reference, each statutorily defined adverse impact is listed with its statutory citation. Based upon the proposed activity and its location, carefully identify the potential adverse impacts on future water-dependent uses.

Identify the components of the project that constitute water-dependent uses and therefore render the project consistent with the CCMA. If there are no water-dependent use components, describe how the project is not appropriate for development of a water dependent use.

18. Mitigation of Potential Adverse Impacts
Explain how all potential adverse impacts to coastal resources and future water-dependent development opportunities have been avoided, minimized, or mitigated. For example, potential water-quality impacts might be minimized through preservation of pervious surfaces, which reduce runoff and mitigated by stormwater pre-treatment prior to discharge off-site. Impacts to water-dependent uses could be avoided by locating a water-dependent use at an appropriate site where no such water-dependent use currently exists.

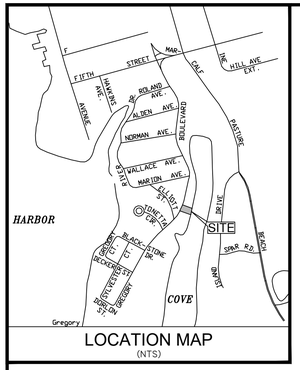
19. Remaining Adverse Impacts
Identify any remaining impacts to coastal resources and/or future water-dependent development opportunities that have not been mitigated and explain why no other mitigation is proposed. Clearly explain why there are no feasible or prudent alternatives to the proposed activity that would result in fewer or lesser impacts to coastal resources and water-dependent uses.

N.B.

The Commission reserves the right to require any further plans or documentation which in its judgement may be necessary for the proper exercise of its responsibilities under the terms of Article 6, Section 10 of the Norwalk Zoning Regulations.

NO APPLICATION WILL BE ACCEPTED BY THE COMMISSION UNTIL IT IS COMPLETE AND DOCUMENTED AS SPECIFIED ABOVE. The applicant is encouraged to review their application with the Planning and Zoning Staff prior to the date of submission to facilitate expeditious administration of the application and to ensure that all necessary information and documentation is included.

Upon written request, the Commission may waive any of the requirements of a Coastal Site Plan Review application where such requirements are inappropriate or do not apply.



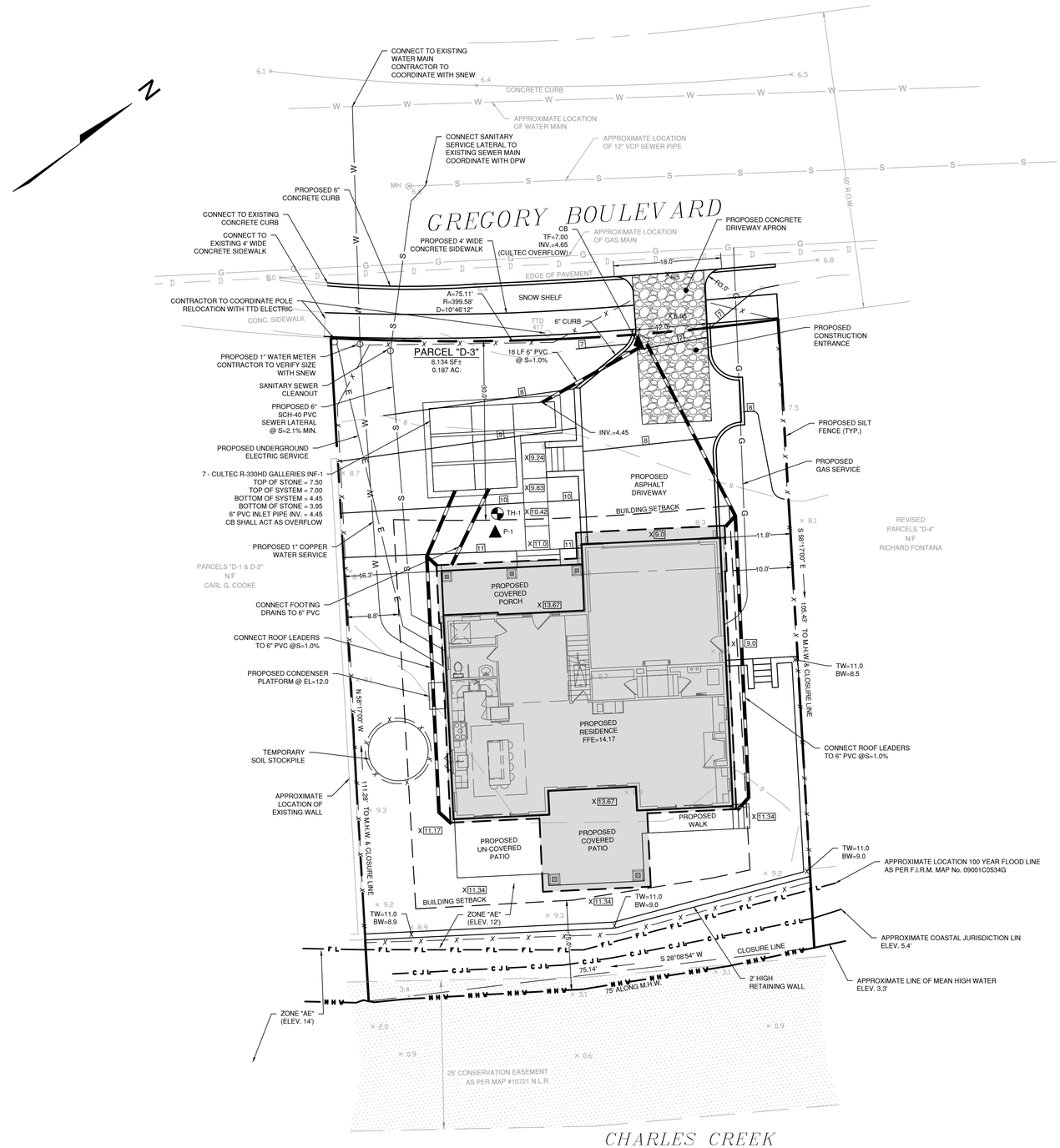
LOCATION MAP
(NTS)

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM ZONING LOCATION SURVEY PREPARED BY ARCAMONE LAND SURVEYORS DATED DECEMBER 5, 2019.
2. THE PROPERTY APPEARS ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY - FLOOD INSURANCE RATE MAP - COMMUNITY No. 0900012, PANEL No. 534, SUFFIX G - EFFECTIVE DATE JULY 8, 2013 AND IS DEPICTED AS LYING COMPLETELY WITHIN THE 1% ANNUAL CHANCE FLOOD BOUNDARY, ZONE AE - ELEV 12. THIS INFORMATION IS PROVIDED FOR REFERENCE PURPOSES ONLY. IT DOES NOT NECESSARILY REPRESENT THE ACTUAL POTENTIAL FOR FLOOD DAMAGE TO EXISTING OR PROPOSED IMPROVEMENTS LOCATED OR TO BE LOCATED ON THIS PROPERTY.
3. CONTRACTOR IS RESPONSIBLE FOR GETTING APPROVALS FROM CITY OF NORWALK WPCA FOR PROPOSED SEWER AND SNEW FOR PROPOSED WATER SERVICE.

COASTAL RESOURCES

1. GENERAL COASTAL RESOURCES
2. COASTAL HAZARD AREA
3. TIDAL WETLANDS
4. SHELLFISH CONCENTRATION
5. COASTAL WATERS



SCALE IN FEET
0 10 20 30

LEGEND

EXISTING SYMBOLS:

- Iron Pin (Found)
- Monument (Found)
- Manhole
- "CB" Catch Basin
- Utility Pole
- Light Pole
- Water Gate
- Gas Valve
- Gas Meter
- (W) Existing Well

PROPOSED SYMBOLS:

- (YD) Storm Yard Drain
- (MH) Storm Drain Manhole
- (CB) Catch Basin
- (SSMH) Sanitary Sewer Manhole
- P-1 Perc Test Hole Location & Number
- DTH-1 Deep Test Hole Location & Number
- (W) Proposed Well

EXISTING LINETYPES:

- Property Line
- S Sanitary Sewer Line
- E U/G Elec. Line
- W Water Line
- O/H Overhead Utilities
- T U/G Tele. Line
- E/T U/G Electric/Telephone Line
- Wood/Chain Link Fence
- Stone Ret. Wall
- 20 Contour
- WF#3 WF#4 Wetland Limit
- × 20.1 Spot Elevation
- Watercourse Limit
- D D Drainage Line
- Town/City Line
- 25 Year Flood Line
- 100 Year Flood Line
- F L FEMA Flood Zone Line
- Floodway Boundary
- M H V Mean High Water
- C J Coastal Jurisdiction Line

PROPOSED LINETYPES:

- S Sanitary Sewer
- E Electric Service
- W Water Service
- T U/G Telephone Service
- E/T Electric/Telephone Service
- Primary Septic
- Reserve Septic
- Retaining Wall
- 20 Contour
- 20.1 × Spot Elevation
- Silt Fence (GSF)
- Wood/Chain Link Fence
- Construction Fence
- Vegetative Buffer
- WF#3 WF#4 Wetland Limit (Flagged)

NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL BY PUBLIC AGENCIES ONLY

T:\STAFF\DOCUMENTS\20-100 GREGORY BLVD, SITE PLANTING

LANDTECH

STATE OF CONNECTICUT
SCOTT SOUMELIDIS
27803
LICENSED PROFESSIONAL ENGINEER

REVISION DATE	ISSUE
3/9/21	REVISED UTILITIES
9/11/20	REVISED PER DPW COMMENTS

LANDTECH
Civil Engineering · Site Planning
Environmental Science & Engineering
Hydrogeology · Septic Design · Land Surveying
Permit Coordination & Management
Construction Management & Financing
518 Riverside Avenue ● Westport, Connecticut 06880 ● 203-454-2110 ● info@landtechconsult.com

PREPARED FOR: PETER AND DIANA COTALING
PROJECT LOCATION: 163 GREGORY BOULEVARD NORWALK, CT
TITLE: PROPOSED SITE IMPROVEMENT PLAN FOR A NEW SINGLE FAMILY RESIDENCE

PROJECT No.	20000-01
SCALE: 1" = 10'	DATE: 7/31/20
DRAWN BY: AS	CHECKED BY: AS

C-1

ZONING LOCATION SURVEY

OF PROPERTY PREPARED FOR

PETER COTALING

#163 GREGORY BOULEVARD, NORWALK, CONNECTICUT

SCALE: 1" = 10' DATE: JULY 2, 2020

BY "ARCAMONE LAND SURVEYORS LLC"

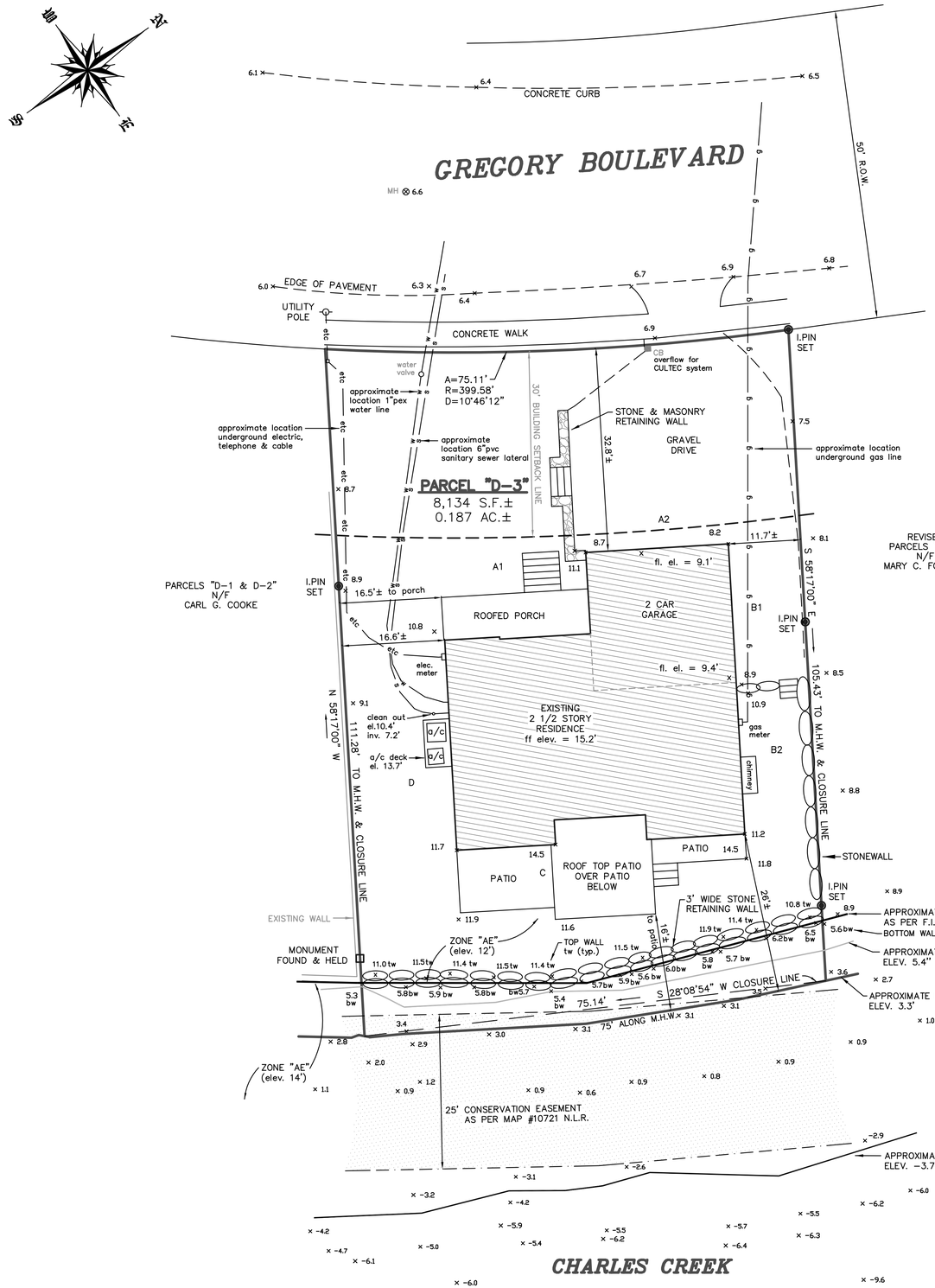
4 TAFT STREET, UNIT A-2B
S. NORWALK, CT. 06854
PHONE : 203-866-2058
FAX : 203-838-1217
www.ArcamoneSurveyors.com

REVISIONS		
11/02/21	AS-BUILT UTILITIES	AAT
09/30/21	AS-BUILT FINAL	AAT
02/04/21	ELEVATIONS TOP & BOTTOM WALL	AAT
01/21/21	MEAN LOW WATER LINE	AAT
01/19/21	TOP OF FOUNDATION ELEVATIONS	AAT
12/29/20	AS-BUILT FOUNDATION	AAT
10/08/20	PROPOSED GARAGE	AAT
08/03/20	PROPOSED RESIDENCE	AAT
07/14/20	PROPOSED RESIDENCE	AAT
DATE	DESCRIPTION	BY

		REQUIRED/ALLOWED		EXISTING	PROPOSED RESIDENCE	AS-BUILT
FRONT SETBACK		30'	MIN.		33.0'±	32.8'±
REAR		15'	MIN.		26'±	26'±
SIDE		6'	MIN.		11.8'±	11.7'±
AGGREGATE SIDE	(25% OF LOT WIDTH)		MIN.		28.5'±	28.3'±
LOT WIDTH		50'	MIN.	VARIES	VARIES	VARIES
LOT AREA		6,250sf	MIN.	8,134sf	8,134sf	8,134sf
HEIGHT	(MID ROOF)	31'	MAX.		29'±	30.2'±
	(PEAK ROOF)	39'	MAX.		36'±	36.9'±
# OF STORIES		2 1/2	MAX.		2 1/2	2 1/2
LOT COVERAGE: STRUCTURE		2752sf	MAX.		2244sf *	2295sf *

* UNROOFED PATIO NOT INCLUDED IN LOT COVERAGE COMPUTATIONS

MAP NORTH #10721 N.L.R.



AVERAGE GRADE AROUND HOUSE

WALL SEGMENT	ELEVATION 1	ELEVATION 2	AVERAGE (E)	WALL (L)	PRODUCT E x L = Y
A1	10.8	11.1	10.95	23.6'	258.42
A2	8.7	8.2	8.45	23.1'	195.20
B1	8.2	8.9	8.55	24.4'	208.62
B2	10.9	11.2	11.05	22.6'	249.73
C	14.5	14.5	14.5	46.7'	677.15
D	11.7	10.8	11.25	34.0'	382.50
			TOTAL	174.4'	1971.62
				Y + L = GRADE PLANE	
				GRADE PLANE = 11.3'	

0 10 20 30

GRAPHIC SCALE

X 10.0 = EXISTING SPOT ELEVATION - DATUM IS REFERENCED TO N.A.V.D. 1988

THIS SURVEY MEETS THE STANDARD OF A CLASS "A-2" SURVEY, "V-2" VERTICAL ACCURACY.

SURVEY TYPE : ZONING LOCATION SURVEY
BOUNDARY DETERMINATION : RESURVEY

THIS SURVEY AND MAP WERE PREPARED IN ACCORDANCE WITH THE "RECOMMENDED STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", SEC. 20-300b-1 to 20-300b-20. EFFECTIVE; JUNE 21,1996 AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS INC., SEPTEMBER 26, 1996

THE CERTIFICATION SHOWN ABOVE RUNS TO THE PERSON(S) FOR WHOM THE SURVEY WAS PREPARED AND ANY GOVERNMENTAL AGENCY, TITLE INSURANCE CO., OR LENDING INSTITUTION WHOSE NAME APPEARS ABOVE. CERTIFICATION IS NOT TRANSFERABLE & ANY UNAUTHORIZED USE IN WHOLE OR IN PART IS STRICTLY PROHIBITED.

WETLAND OR WETLAND SOIL TYPES IF ANY, ARE NOT DEPICTED

UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS IF ANY, ARE NOT DEPICTED

THIS MAP IS INVALID WITHOUT A LIVE SIGNATURE AND EMBOSSED SEAL.

REFERENCES TO THE ABOVE PROPERTY ARE MADE TO MAP No. 10721 N.L.R.

TAX MAP 24NW DISTRICT 3 BLOCK 75 TAX LOT 35

PROPERTY IS LOCATED IN ZONE : "B" RESIDENCE

F.I.R.M. ZONES : "AE" (el. 12') & "AE" (el. 14') PANEL 534 of 626 MAP NO. 09001C0534G DATE 7/8/13

PROPERTY LIES WITHIN THE COASTAL AREA MANAGEMENT BOUNDARY

DISTANCES SHOWN +/- FROM BUILDINGS TO PROPERTY LINES ARE NOT TO BE USED TO ESTABLISH BOUNDARIES.

"TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON"

CONNECTICUT REG # 15773
WAYNE J. ARCAMONE, LAND SURVEYOR, NORWALK, CONN.

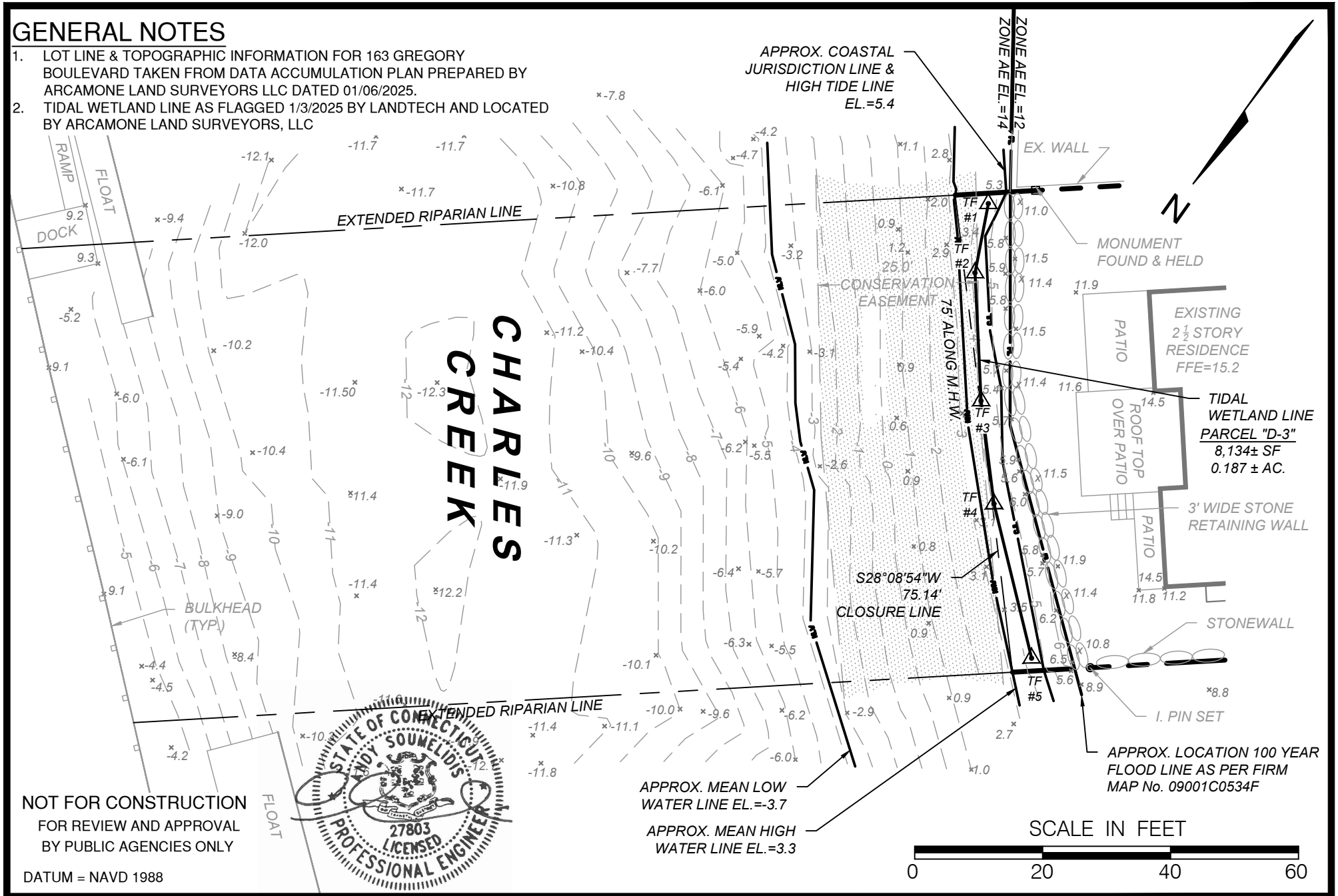
NO USE, REPRODUCTION OR DISSEMINATION MAY BE MADE OF THIS DRAWING WITHOUT THE PRIOR WRITTEN CONSENT OF ARCAMONE LAND SURVEYORS, LLC

TAX MAP 24NW DISTRICT 3 BLOCK 75 TAX LOT 35

10721-Gregory163.DWG

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER

FIG-3

SCALE	1" = 20'
DRAWN BY:	SM
CHECKED BY:	TR
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD, NORWALK, CT

TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK
EXISTING CONDITIONS

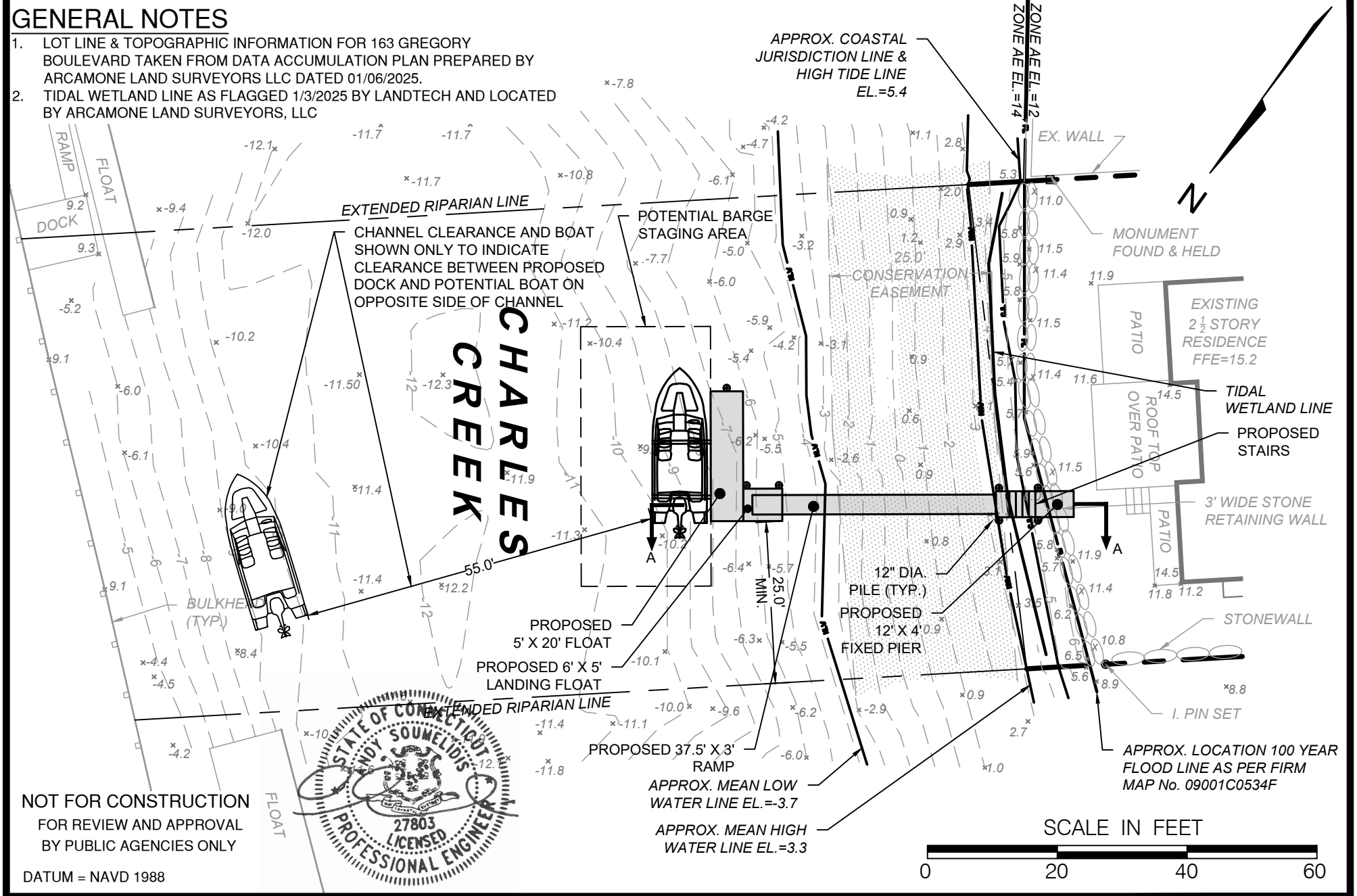
LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD., NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



SCALE IN FEET

0 20 40 60

NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

STATE OF CONNECTICUT · ANDY SOUMELIDIS · 27803 · LICENSED PROFESSIONAL ENGINEER

FIG-4

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 20'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD, NORWALK, CT

TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK
PROPOSED CONDITIONS

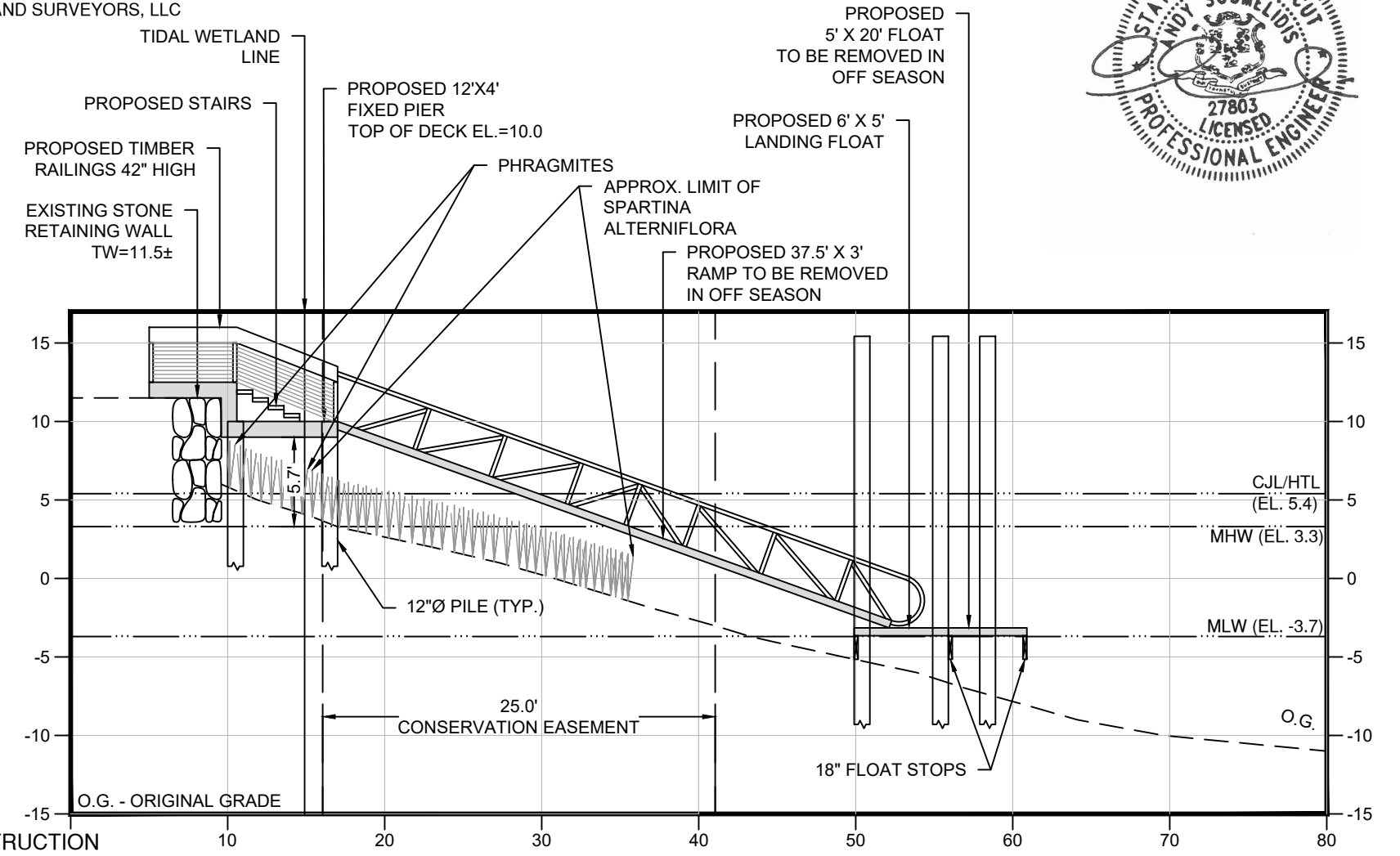
LANDTECH
Civil Engineering • Site Planning
Environmental Science & Engineering
Structural Engineering • Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

ELEVATION A-A
SCALE: 1" = 10'

SCALE IN FEET
0 10 20 30

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD., NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

FIG-5

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 10'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD NORWALK, CT

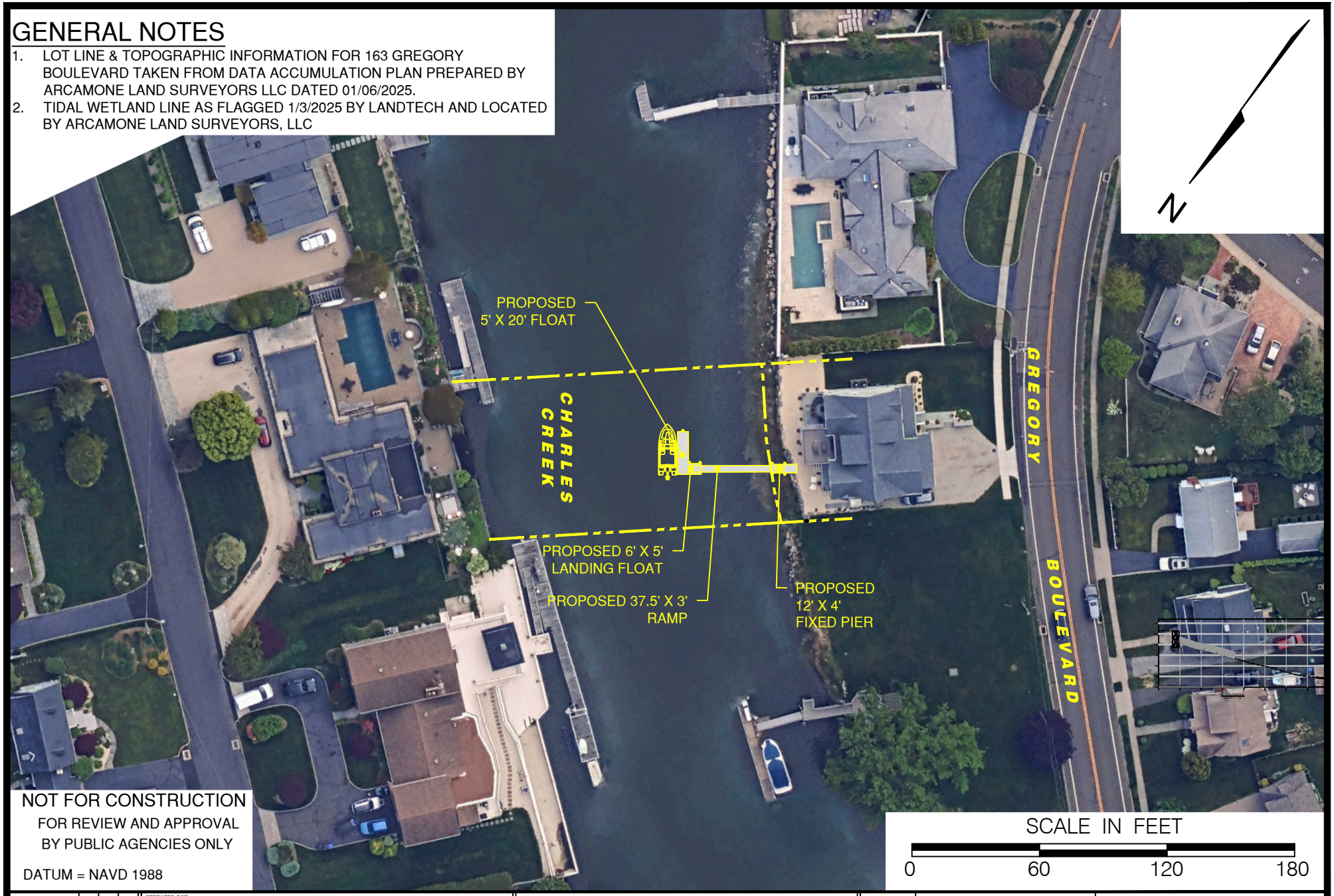
TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK ELEVATION A-A

LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

FIG-6

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 60'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR:
PETER COTALING

PROJECT LOCATION:
163 GREGORY BOULEVARD
NORWALK, CT

TITLE:
PROPOSED IMPROVEMENTS FOR A NEW DOCK
AERIAL VIEW

LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
7/22/25	REVISED DOCK LAYOUT

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

January 5, 2026

Norwalk Planning and Zoning Commission
c/o Bryan Baker, Principal Planner
125 East Avenue
Norwalk, CT 06851

Subject: 163 Gregory Boulevard, Norwalk; Coastal Site Plan Review

Dear Commissioners:

Thank you for notifying the Land and Water Resources Division of the Department of Energy and Environmental Protection ("DEEP") of the proposed coastal site plan application noted above. Our office has reviewed the application for consistency with the policies and standards of the Connecticut Coastal Management Act ("CCMA"). Based upon our review, we find that there are significant coastal management concerns regarding this proposal and provide the following comments.

The applicant is seeking after-the-fact approval for a large boulder wall and fill constructed in 2020. The lot was previously vacant. The development went through the municipal coastal site plan review ("CSPR") approval process but was not referred to DEEP for review. The project that was approved included a low retaining wall at the top of the existing slope; however, the as-built survey indicates a taller wall was built much closer to but still landward of the Coastal Jurisdiction Line ("CJL") than what was approved. According to Norwalk's Senior Environmental Officer, Alexis Cherichetti, the City of Norwalk ("City") recommended that the applicant include removal of the wall and fill as part of the after-the-fact Coastal Site Plan Application. However, it remains as a component of this application.

Pursuant to Section 22a-108 of the CCMA, any activity within the coastal boundary not exempt from CSPR which occurs without having received lawful approval from a municipal board or commission or **which violates the terms or conditions of such approval, shall be deemed a public nuisance**. Because the wall as constructed is not the same size or in the same location as depicted on the approved CSPR, the activity likely constitutes a public nuisance pursuant to Connecticut General Statutes ("CGS") Section 22a-108.

Further, the wall and fill that were placed now constitute a “shoreline flood and erosion control structure” in accordance with CGS Section 22a-109(c) because its “purpose or effect…is to control flooding or erosion from tidal, coastal or navigable waters...” Shoreline flood and erosion control structures are allowed under very limited circumstances, the first of which is that they are **necessary and unavoidable** to protect residential structures and substantial appurtenances that are attached or integral thereto, **constructed as of January 1, 1995**. As the subject consisted of a vacant lot at the time of construction, the property is not eligible for any shoreline flood and erosion control structure; thus, any coastal site plan application submitted to retain the wall must be denied.

Accordingly, because the shoreline flood and erosion control structure remaining on the property landward of the CJL cannot be approved through the municipal coastal site plan review process, the wall and fill should be completely removed, and the shoreline should be restored as nearly as reasonably possible to the conditions proposed by the site plan that was approved by the Planning and Zoning Commission in 2020. DEEP will defer to the City’s enforcement authority to address the situation.

However, DEEP does have authority pursuant to CGS Section 22a-108 to order that a public nuisance be halted, abated, removed, or modified and that the site of the violation be restored. Staff of the Land and Water Resources Division are available to assist in any way necessary to ensure that the public nuisance on the subject site is properly addressed.

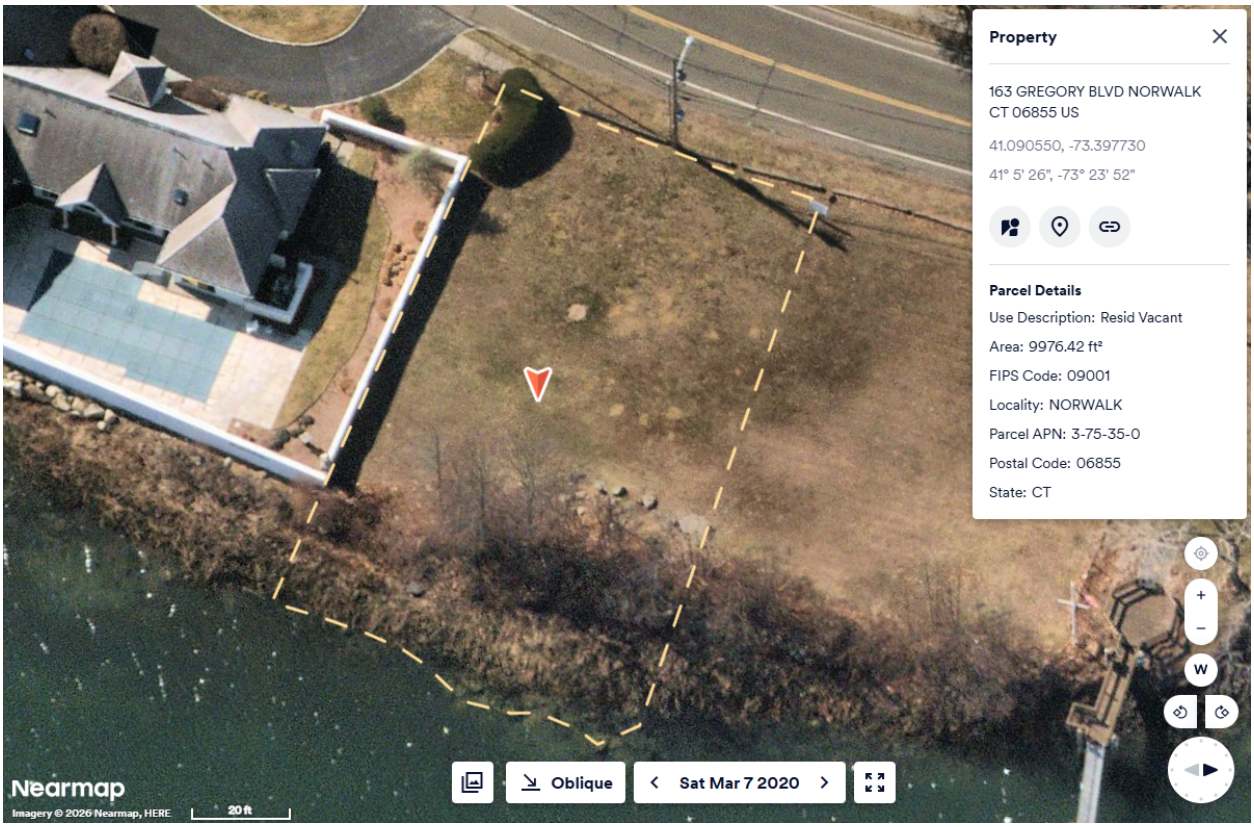
We hope these comments are helpful to the Commission in your review of the application. Please contact Braden Lynn my staff at braden.lynn@ct.gov with any questions and to work toward conclusion of this matter.

Sincerely,

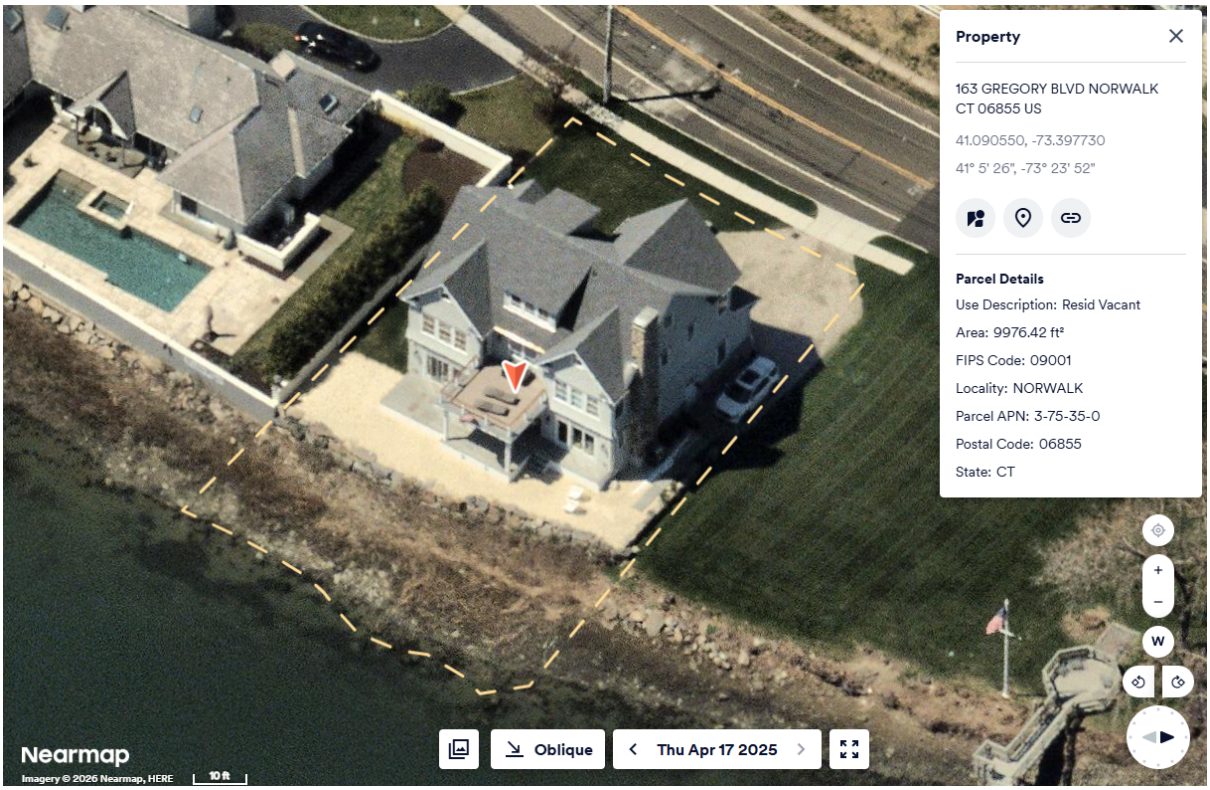
Brian P. Thompson
Director
Land and Water Resources Division

BPT/BL

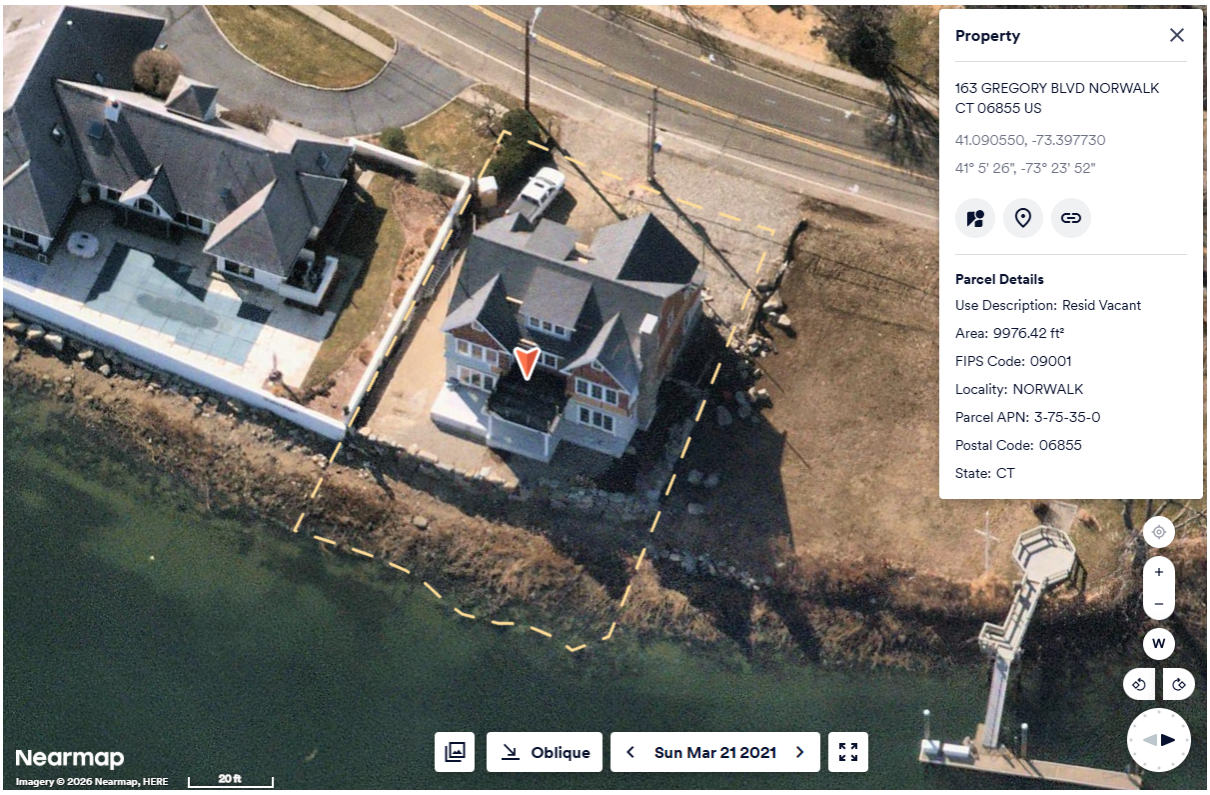
March 2020 Pre-construction Aerial Photo



April 2025



March 2021



Planning and Zoning Staff COZC Inspection Photos December 2021

BOULDER WALL COMPLIANCE OPTIONS
163 Gregory Blvd, Norwalk, CT

In 2020, the owners of the property at 163 Gregory Blvd received a permit from the Norwalk Planning and Zoning Department to construct a single-family house with a wall along the shoreline. The property was developed in accordance with the approved plan with the exception of the wall which was constructed a couple feet waterward from where it was approved. Since the wall was constructed on a slope and it was constructed further down the slope (closer to the water), the base of the wall was built lower, creating a taller wall, in order to keep the same top of wall elevation. This resulted in the base of the wall being constructed approximately 3 feet lower on the slope than intended. The City issued a letter in 2021 requiring that a Coastal Site Plan Review application be submitted with plans showing existing and proposed conditions. This narrative and associated plans which show the existing conditions as well as the location of the approved wall, supports that application.

The objective now is to modify the wall to get it as close as practical to the approved wall. To do that, the following options were evaluated.

Move the wall

The wall could be moved landward a couple feet to where it was shown on the approved plans The process would involve a barge with an excavator in Charles Creek and the removal of one section of the boulder wall at a time. This would create a five-foot high 1:1 slope of exposed soil which would need to be stabilized in order to protect the downgradient tidal wetland. This would also expose the fill landward of the wall next to the house which likely would contain some boulders which may need to be removed to create the new wall. Each section of new wall would be reconstructed two feet landward. This would be repeated along the entire wall length. This work would need to be done by barge as there is restricted access at the top of slope behind the house. The barge would be in the channel for a couple weeks which would restrict boat traffic. Once the wall was reconstructed, the footprint of the previous wall would need to be vegetated to stabilize the exposed soil.

This would be a major undertaking and would disturb a stable wall and introduce unneeded erosion issues which would need to be addressed during construction. Then the slope would need to be revegetated and monitored to make sure the vegetation establishes. This work to move a wall approximately two feet would yield little to no benefit making it impractical.

Removal of Wall

We looked at removing the wall and recreating the conditions prior to the construction of the wall.

The entire shoreline on 163 Gregory Blvd is dominated by boulders. Boulders line the marsh where *Spartina alterniflora*, *Phragmites australis* and *Baccharis halimifolia* are rooted in the

voids. Boulders were located in the area of the existing wall similar to how they are on the adjacent property to the north. Fill containing soil and stone was placed in the upland to create a foundation for the patio.

The removal of the wall is not prudent as the wall cannot be removed entirely. The base of the wall is basically a reorganization of the boulders that were there. Some boulders were there to maintain the slope. Removing the wall down to its base and replacing it with randomly set boulders similar to what was there prior would not be all that is needed. In order to achieve the grades around the patio that were approved under the permit, the original two-foot-high wall would need to be constructed to retain the soil adjacent to the patio. This alternative would also require a larger excavator sitting on a barge in Charles Creek until the work was done.

Boulders on Adjacent Property To The North Facing North January 9, 2026

Lowering the Wall

After looking at all the alternatives (including a few not discussed above), it is our opinion that the best way to get a wall of similar height to what was approved in the permit and still achieve grades similar to what was approved landward of the wall while not creating any unnecessary environmental impacts (creating a large erodible slope or disturbing the existing vegetation) is to lower the existing wall. Plans showing this alternative accompany this narrative.

This alternative lowers the height of the wall by approximately 2 to 3 feet by removing the top row of boulders while keeping the base of the wall intact. The removed boulders would be placed along the landward side of the wall to stabilize the soil between the house/patio and wall.

This would be an opportunity to enhance the vegetated slope waterward of the wall with additional vegetation. The vegetation along the base of the wall is fairly well established but there are gaps in the tall Baccharis. These gaps would be planted with *Baccharis halimifolia* to provide a more uniform shrub buffer between the wall and the tidal wetland. Baccharis was chosen as this species is already thriving along the base of the wall.

It is our opinion that this is the best option. It is consistent with the approved plans as it contains a shorter wall and achieves similar elevations between the patio and the wall that was approved under the permit without needing a new wall. It does not cause a potential erosion concern while enhancing the vegetated buffer adjacent to the tidal wetlands. In addition, it also could be done using a small excavator at the top of the wall, therefore, it would not need a barge which would disrupt boat traffic in the spring.

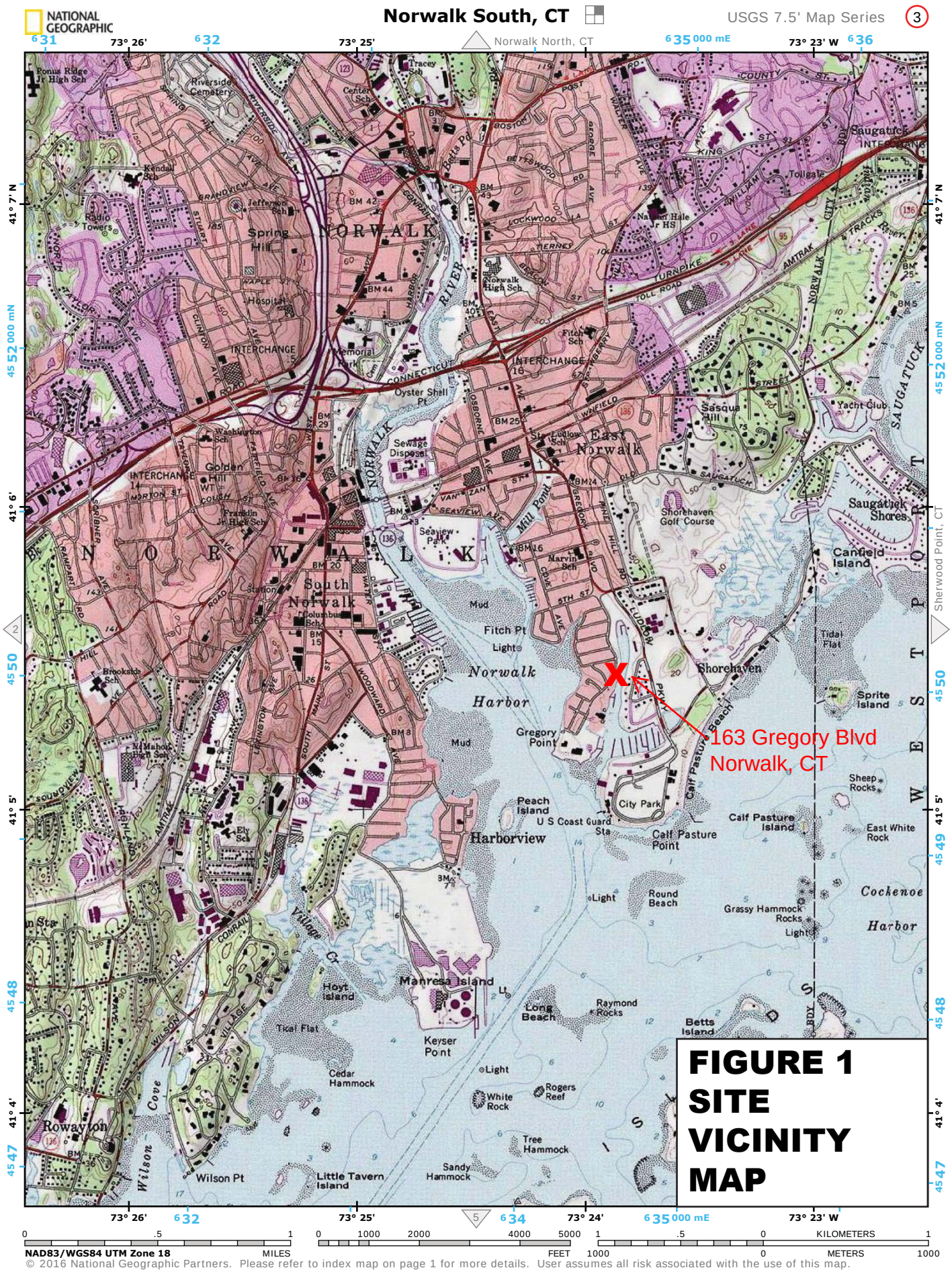


FIGURE 1
SITE VICINITY MAP

© 2016 National Geographic Partners. Please refer to index map on page 1 for more details. User assumes all risk associated with the use of this map.

163 GREGORY BOULEVARD, NORWALK, CT

Norwalk Information

ID	103-3-75-35-0
Site Address	163 GREGORY BLVD
Owner	COTALING PETER
Co-Owner	
Owner Address	163 GREGORY BLVD

WESTCOG

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Regional Map Viewer makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

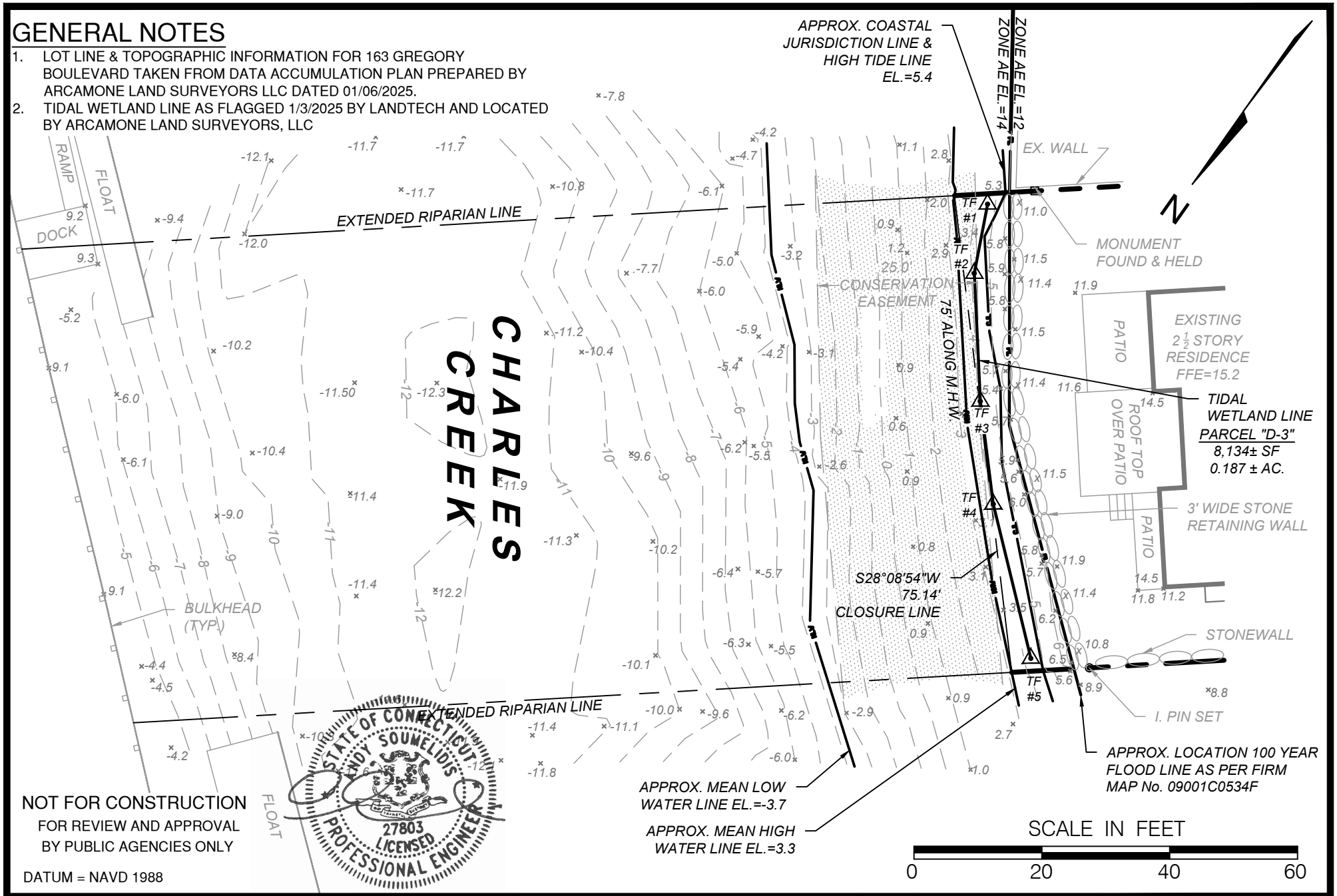
Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

FIGURE 2

ASSESSORS MAP

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD., NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

FIG-3

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 20'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD, NORWALK, CT

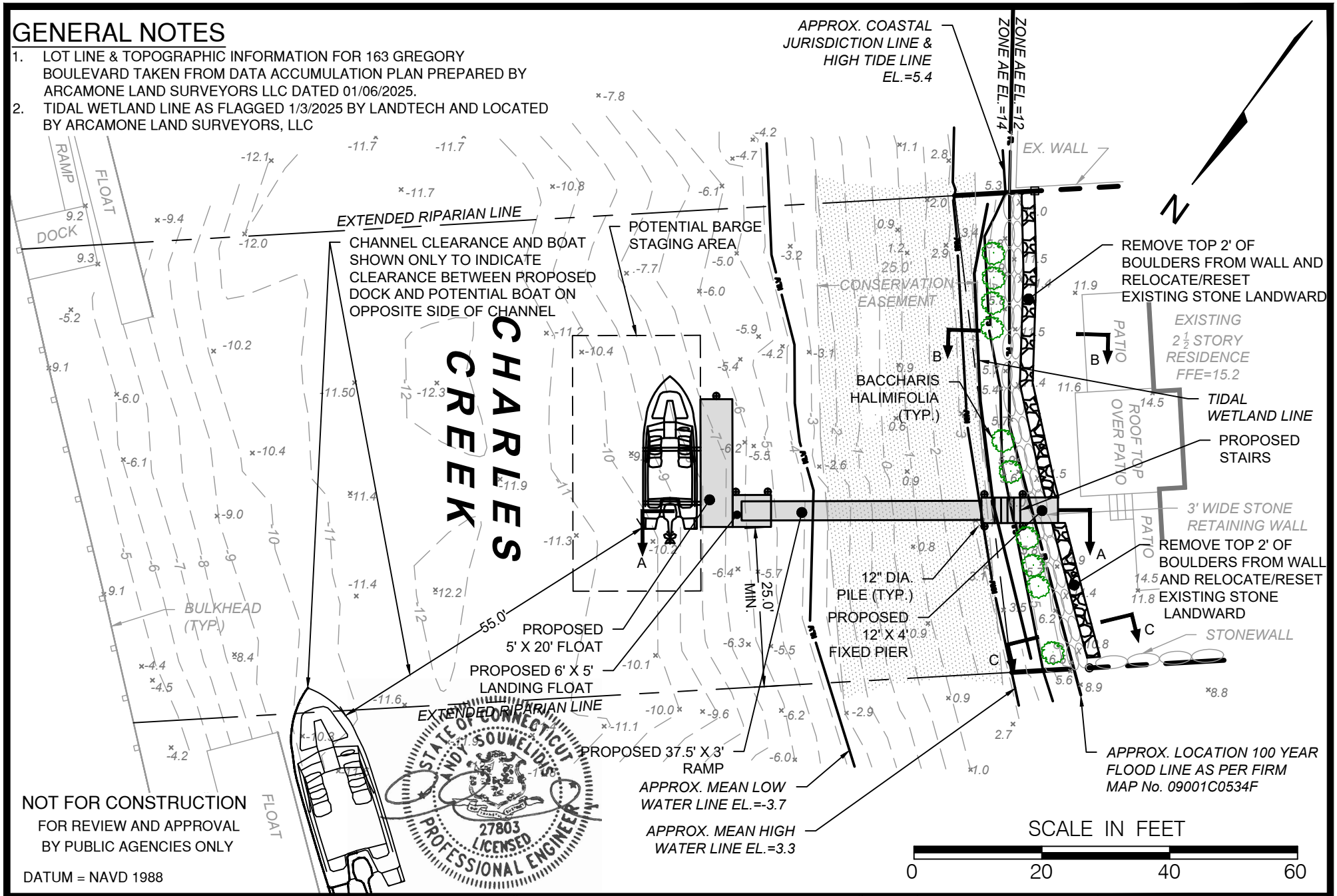
TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK AND WALL COMPLIANCE - EXISTING CONDITIONS

LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

STATE OF CONNECTICUT · ANDY SOUMELIDIS · 27803 · LICENSED PROFESSIONAL ENGINEER

FIG-4

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 20'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD, NORWALK, CT

TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK AND WALL COMPLIANCE - PROPOSED CONDITIONS

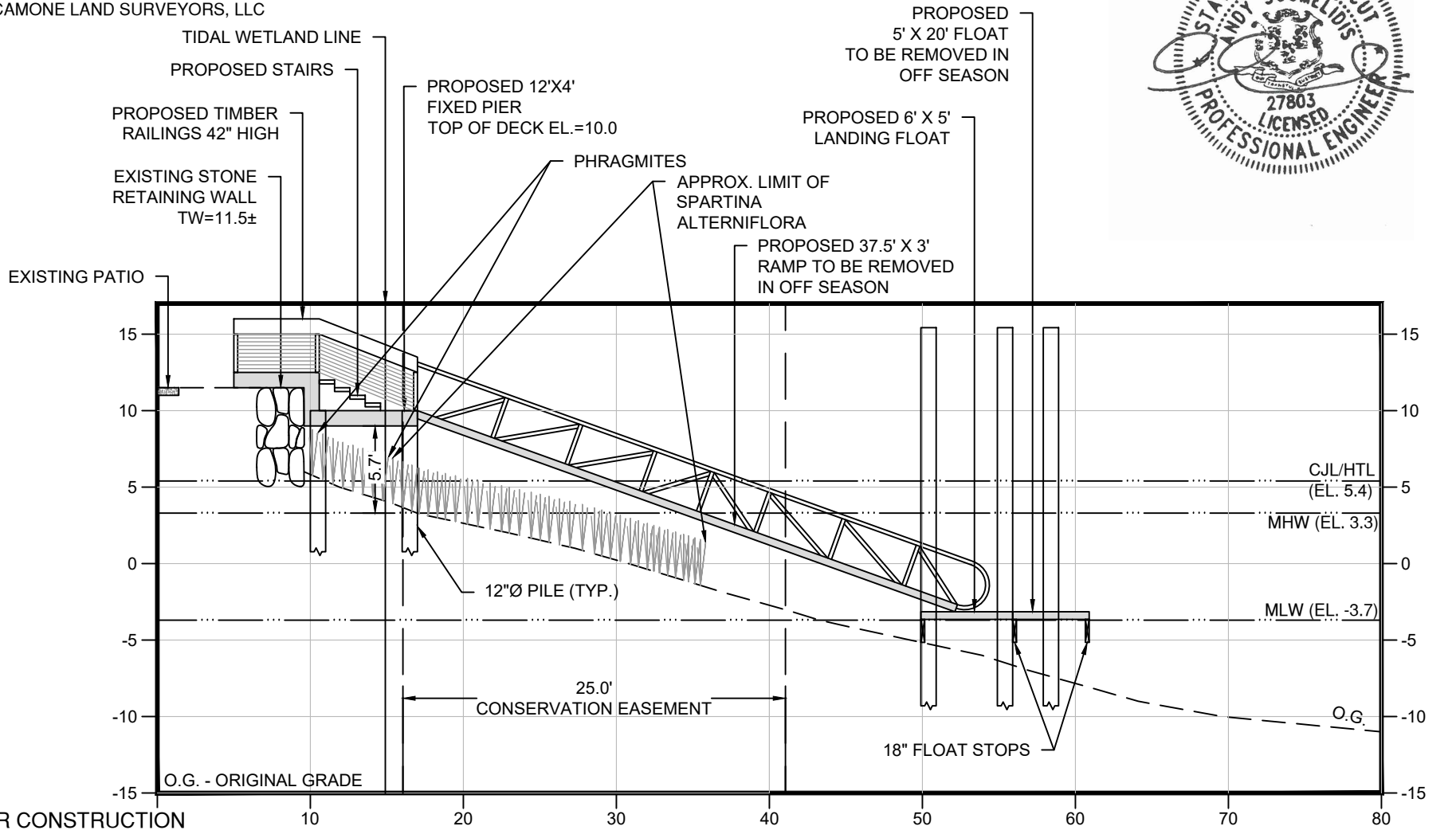
LANDTECH
Civil Engineering • Site Planning
Environmental Science & Engineering
Structural Engineering • Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS
1/5/26	REVISED CROSS-CHANNEL BOAT LOCATION PER DEEP COMMENTS
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

ELEVATION A-A
SCALE: 1" = 10'

SCALE IN FEET
0 10 20 30

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

FIG-5

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 10'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD NORWALK, CT

TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK AND WALL COMPLIANCE - ELEVATION A-A

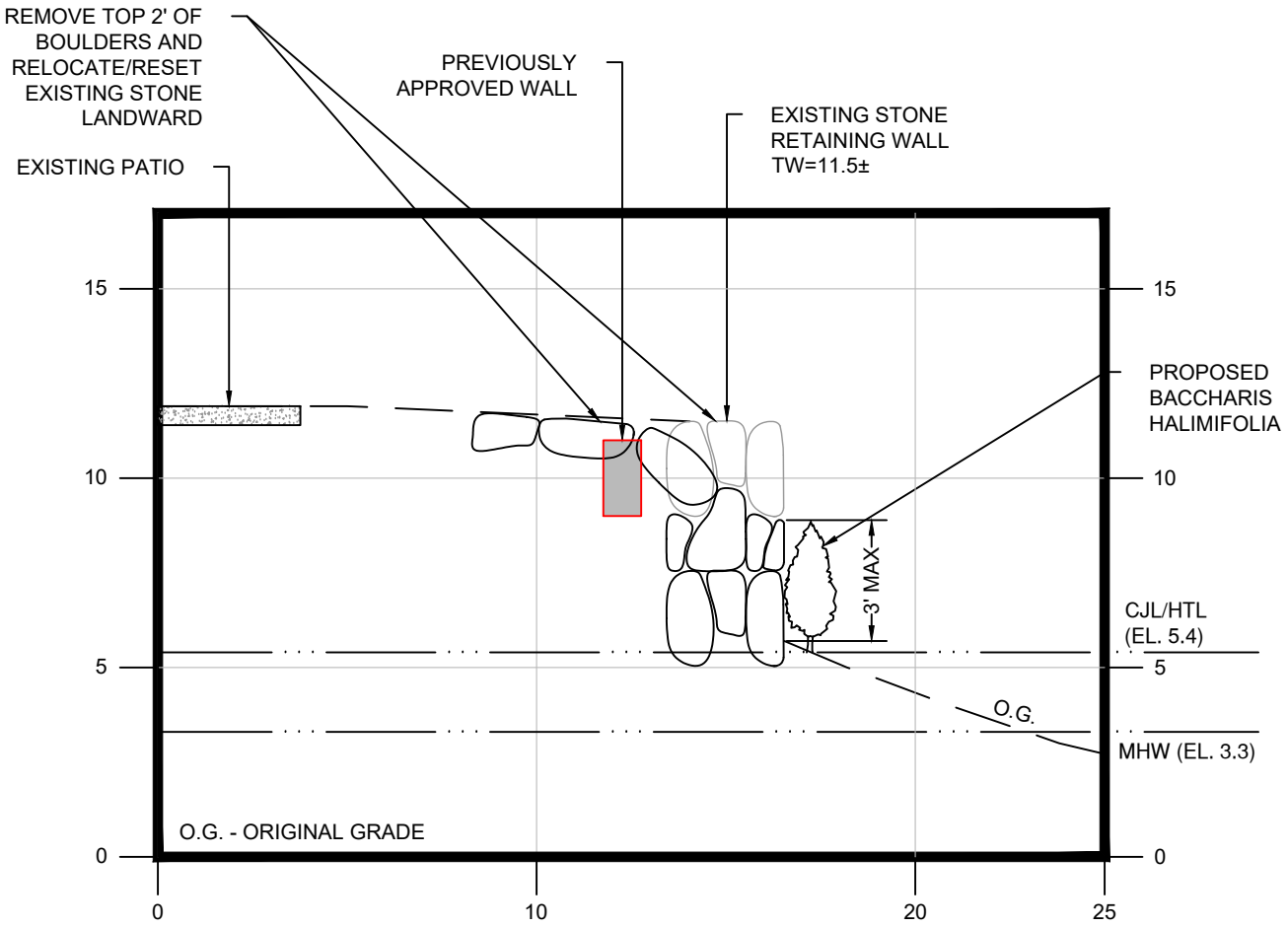
LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER



ELEVATION B-B
SCALE: 1" = 5'

NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

SCALE IN FEET
0 5 10 15

FIG-6

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 5'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD NORWALK, CT

TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK AND WALL COMPLIANCE - ELEVATION B-B

LANDTECH
Civil Engineering • Site Planning
Environmental Science & Engineering
Structural Engineering • Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

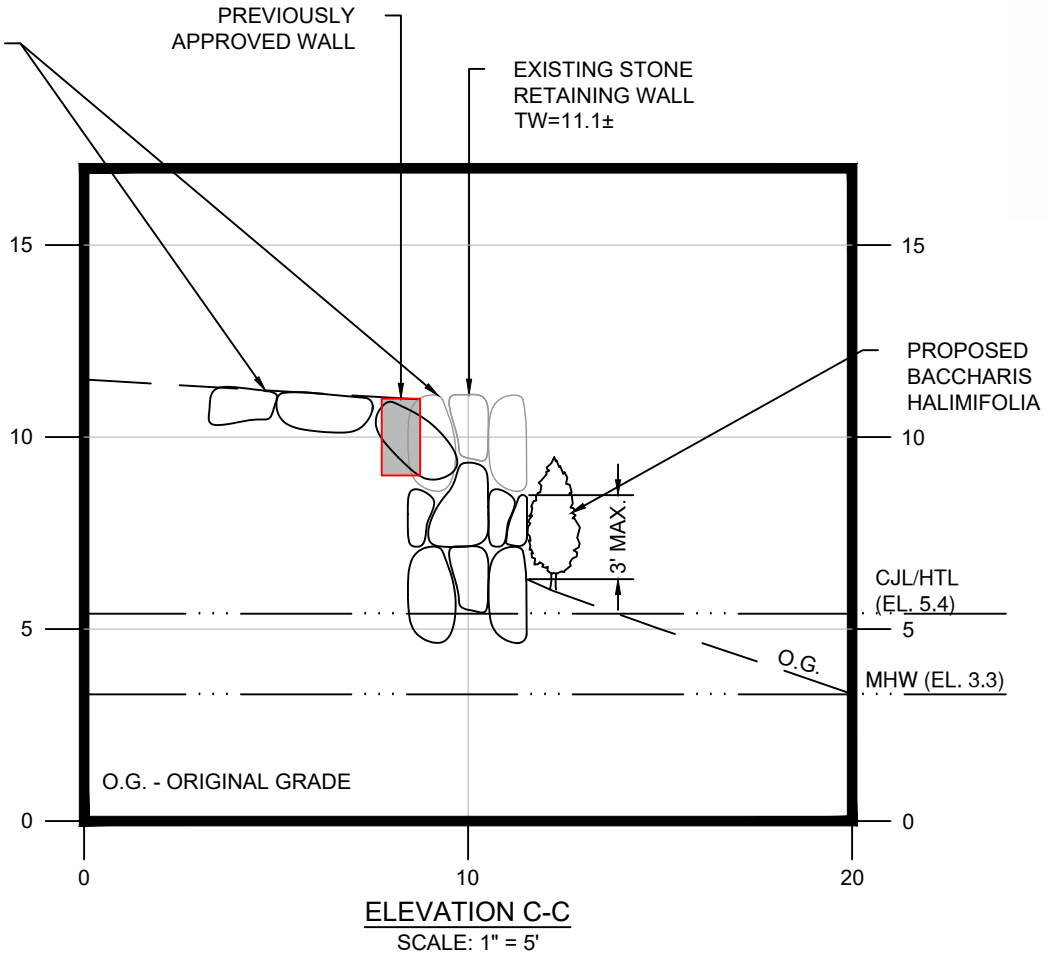
REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC

STATE OF CONNECTICUT
ANDY SOUMELIDIS
27803
LICENSED
PROFESSIONAL ENGINEER



ELEVATION C-C
SCALE: 1" = 5'

NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

SCALE IN FEET
0 5 10 15

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

FIG-7

DRAWN BY:	SCALE	PROJECT No.
SM	1" = 5'	25000-01
CHECKED BY:	DATE	
TR	1/8/2025	

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD, NORWALK, CT

TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK AND WALL COMPLIANCE - ELEVATION C-C

LANDTECH
Civil Engineering • Site Planning
Environmental Science & Engineering
Structural Engineering • Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

PLANTING PLAN

THIS PLANTING PLAN WAS DESIGNED TO ENHANCE THE SHORELINE OF THE PROPERTY.

THE NOTES THAT FOLLOW WILL GUIDE IN THE PREPARATION OF PLANTING AREAS AND THE PLANTING OF NURSERY STOCK.

GENERAL PLANTING NOTES

1. ALL PLANT MATERIALS SHALL BE INSPECTED FOR DEFECTS OR DAMAGE BEFORE PLANTING. SUBSTANDARD PLANTS SHALL BE RETURNED TO, AND REPLACED BY THE CONTRACTOR. ACCEPTABLE PLANTS ARE TO BE PLANTED PER THE SPECIFICATIONS OF THE PLANTING PLAN. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE FOR THE SAFEKEEPING AND MAINTENANCE OF THESE PLANTS FOR THE DURATION OF SITE CONSTRUCTION ACTIVITY. ONCE PLANTED, ALL MACHINERY SHALL AVOID THE PLANTED AREA WHICH SHOULD BE DEMARCATED CLEARLY BY FLAGGED FIELD STAKES. PROVISIONS FOR REGULAR WATERING AND INSPECTIONS SHALL BE MADE BY THE OWNER, OR NURSERY CONTRACTOR FOR THE DURATION OF THE PLANT'S FIRST YEAR IN THE GROUND.
2. ALL PLANT MATERIAL PLACEMENTS ARE SUBJECT TO FIELD ADJUSTMENT IN RESPONSE TO SITE CONDITIONS. THESE ADJUSTMENTS SHALL BE AT THE DISCRETION OF THE SITE SUPERVISOR, BIOLOGIST OR ENVIRONMENTAL MONITOR.
3. ALL PLANT MATERIALS ARE SUBJECT TO REPLACEMENT BY SUITABLE ALTERNATIVES AT THE REQUEST OF THE OWNER, ENVIRONMENTAL MONITOR, NURSERY CONTRACTOR, OR APPROPRIATE AGENCIES.
4. PLANT MATERIALS ARE TO BE PLANTED IN ACCORDANCE WITH REQUIREMENTS SPECIFIED IN THE PLANTING SPECIFICATIONS. AN APPLICATION OF LIME MAY BE REQUIRED IN ADDITION TO A STANDARD APPLICATION OF A COMPLETE FERTILIZER COMPOUND AT THE DISCRETION OF THE SITE SUPERVISOR, OR ENVIRONMENTAL MONITOR.

SHRUB PLANTINGS

SHRUBS ARE TO BE INTRODUCED IN AREAS SHOWN ON THE PLAN.

1. IF SOIL DEPTH IS INADEQUATE TO PLANT A SHRUB DUE TO BOULDER LOCATION, ADJUST SHRUB LOCATION OR PLACE ENOUGH TOP SOIL IN THAT AREA TO MEET THE PLANTING NEEDS.
2. PLANT STOCK AT NURSERY DEPTH BY EXCAVATING A SUFFICIENTLY LARGE ENOUGH HOLE TO ACCOMMODATE THE PLANTS AND ROOTS. THE PLANTING HOLE SHALL THEN BE FILLED WITH WATER SUFFICIENT TO SATURATE THE SURROUNDING SOIL. THE ROOTS SHALL BE SPREAD OUT ADEQUATELY TO PROMOTE GOOD GROWTH.
3. THE PLANTING HOLE SHALL BE FILLED WITH SOIL AND CLOSED AND FIRMED BY TAMPING TO FILL ANY VOIDS.
4. ALL PLANTING STOCK SHALL BE WATERED UPON COMPLETION OF PLANTING.

RECOMMENDED SHRUBS AND PLANTING SPECIFICATIONS						
KEY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING	ROOT
BH	Baccharis halimifolia	Eastern baccharis	FACW	3-4'	3-5' on center	CONTAINER

NOT FOR CONSTRUCTION

FOR REVIEW AND APPROVAL

BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

FIG-8

DRAWN BY: SM | CHECKED BY: TR | SCALE: 1" = 10' | DATE: 1/8/2025 | PROJECT No.: 25000-01

PREPARED FOR: PETER COTALING

PROJECT LOCATION: 163 GREGORY BOULEVARD, NORWALK, CT

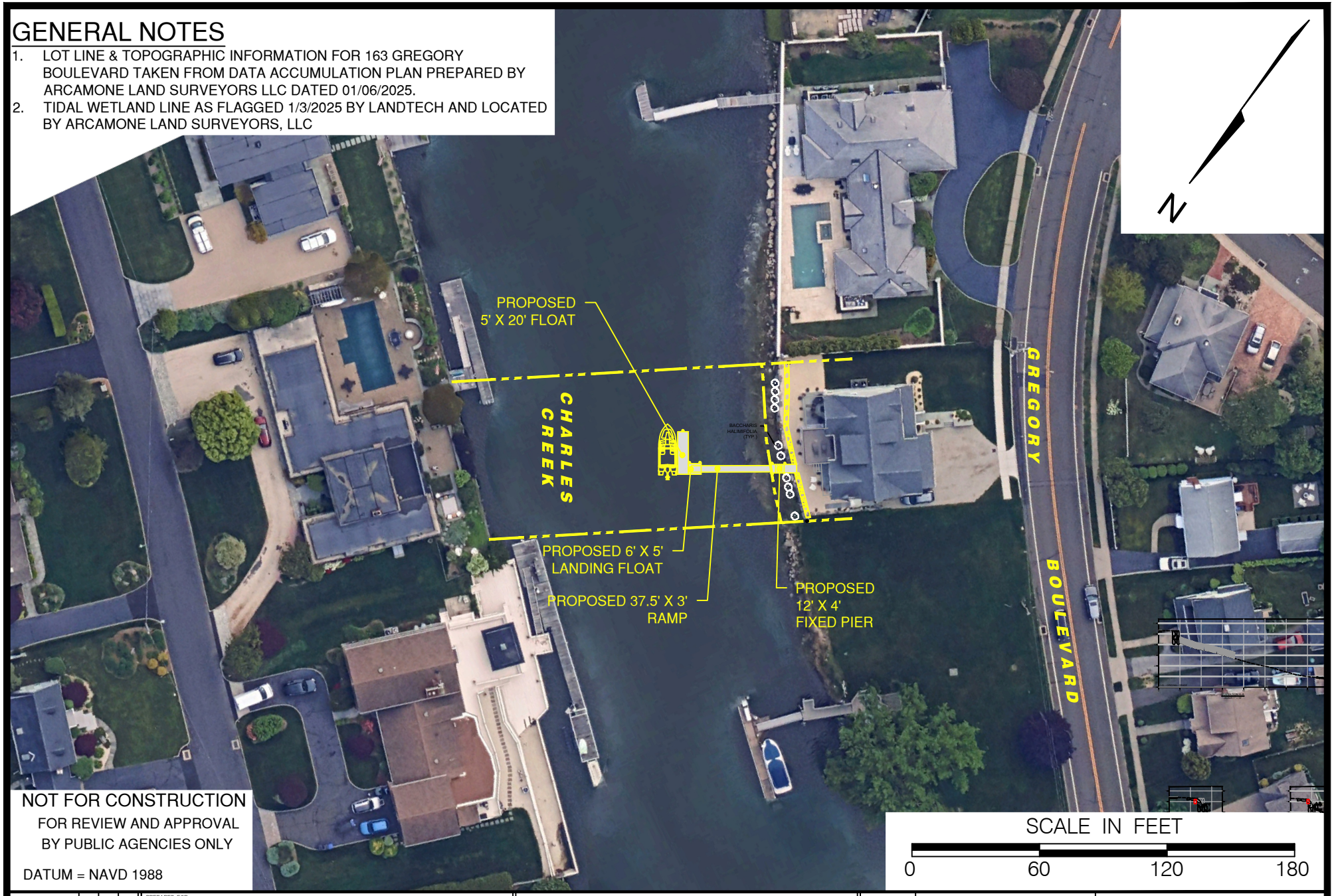
TITLE: PROPOSED IMPROVEMENTS FOR A NEW DOCK AND WALL COMPLIANCE - PLANTING NOTES

LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS
10/8/25	REVISED PER DEEP COMMENTS
7/22/25	REVISED DOCK LAYOUT

GENERAL NOTES

1. LOT LINE & TOPOGRAPHIC INFORMATION FOR 163 GREGORY BOULEVARD TAKEN FROM DATA ACCUMULATION PLAN PREPARED BY ARCAMONE LAND SURVEYORS LLC DATED 01/06/2025.
2. TIDAL WETLAND LINE AS FLAGGED 1/3/2025 BY LANDTECH AND LOCATED BY ARCAMONE LAND SURVEYORS, LLC



NOT FOR CONSTRUCTION
FOR REVIEW AND APPROVAL
BY PUBLIC AGENCIES ONLY

DATUM = NAVD 1988

FIG-9

DRAWN BY:	SM
CHECKED BY:	TR
SCALE	1" = 60'
DATE	1/8/2025
PROJECT No.	25000-01

PREPARED FOR:
PETER COTALING

PROJECT LOCATION:
163 GREGORY BOULEVARD
NORWALK, CT

TITLE:
PROPOSED IMPROVEMENTS FOR A NEW DOCK
AERIAL VIEW

LANDTECH
Civil Engineering•Site Planning
Environmental Science & Engineering
Structural Engineering•Land Surveying
Permit Coordinating & Management
Construction Management & Financing
518 Riverside Avenue • Westport, Connecticut 06880 • 203-454-2110 • info@landtechconsult.com

REVISION DATE	ISSUE
2/6/2026	REVISED PROPOSED WALL MODIFICATIONS
7/22/25	REVISED DOCK LAYOUT

T:\1 ACTIVE PROJECTS\25000-01 COTALING - 163 GREGORY BLVD, NORWALK\DRAWINGS\163 GREGORY BLVD - DOCK FIGURES.DWG

December 17, 2021

Peter Cotaling
142 East Avenue Unit 203A
Norwalk, CT 06851

Peter Cotaling
163 Gregory Boulevard
Norwalk, CT 06855

RE: Certificate of Occupancy, 163 Gregory Boulevard

Dear Mr. Cotaling:

This office has received a request to obtain a certificate of occupancy (CO) for the construction of a new single-family dwelling at the referenced property. After inspecting the site and reviewing the as-built survey prepared by Arcamone Land Surveying, dated 11.2.21, site work has occurred, beyond what was approved as part of your CAM application. Specifically, a retaining wall and grading occurred beyond what was permitted.

To rectify this matter, you must file an 'after the fact' Coastal Site Plan Review application and provide plans that accurately depict existing site conditions and proposed site conditions. After reviewing the matter with CT DEEP, it is our understanding they will be taking enforcement action because they consider the wall, as constructed, to be an unpermitted flood & erosion control structure. Therefore, the City recommends the after-the-fact CSPR include removal of the retaining wall and fill, as well as use of 'living shoreline" design approaches.

Should you have any questions or need additional information please let me know.

Sincerely,

Steven Kleppin, AICP
Planning and Zoning Director

c/ M. Balint, Sr. Coastal Planner, CT DEEP

Williams, Amelia

From: Kleppin, Steven
Sent: Friday, December 17, 2021 10:28 AM
To: dpcotaling@aol.com
Cc: tomlamco@aol.com; Williams, Amelia
Subject: CO for 163 Gregory Blvd.
Attachments: 163 Gregory CSPR 12.17.21.pdf

Ms. Cotaling,

Please see the attached.

Feel free to reach out to me or Amelia with any questions.

Steve

Williams, Amelia

From: DIANA COTALING <dpcotaling@aol.com>
Sent: Tuesday, January 4, 2022 7:55 PM
To: Williams, Amelia
Subject: Re: 163 Gregory Blvd

CAUTION: EXTERNAL Email: Don't open links or attachments from untrusted senders

See you tomorrow

Sent from my iPad

> On Jan 4, 2022, at 3:55 PM, Williams, Amelia <Amelia.Williams@norwalkct.org> wrote:
>
> Hi Diana,
>
> Yes, we are still on for tomorrow at 9:30 in room 129. If you prefer an online meeting or a phone call, just let us know.
>
> See you then,
> Amelia
>
> **Amelia Williams** | Land Use Technician
> City of Norwalk Conservation and Planning & Zoning Room 129
> 125 East Ave Norwalk CT 06851
> (203) 854-7259 | amelia.williams@norwalkct.org
>
> **From:** DIANA COTALING <dpcotaling@aol.com>
> **Sent:** Tuesday, January 4, 2022 1:58 PM
> **To:** Williams, Amelia <Amelia.Williams@norwalkct.org>
> **Subject:** Re: 163 Gregory Blvd
>
> **CAUTION:** EXTERNAL Email: Don't open links or attachments from untrusted senders
>
> Happy New Year! Are we still on for tomorrow at 9:30? Is it still in person? Thanks , Diana Cotaling
>
> Sent from my iPad
>
> > On Dec 22, 2021, at 3:00 PM, Williams, Amelia <Amelia.Williams@norwalkct.org> wrote:
> >
> > Let's do Wednesday January 5th at 9:30 if that works for you.

Have a happy and healthy holiday!
Amelia

Amelia Williams | Land Use Technician
City of Norwalk Conservation and Planning & Zoning Room 129
125 East Ave Norwalk CT 06851
(203) 854-7259 | amelia.williams@norwalkct.org

From: DIANA COTALING <dpcotaling@aol.com>
Sent: Wednesday, December 22, 2021 12:07 PM
To: Williams, Amelia <Amelia.Williams@norwalkct.org>
Subject: Re: 163 Gregory Blvd

CAUTION: EXTERNAL Email: Don't open links or attachments from untrusted senders

First week of January is fine. Just email time and day. Have a Merry Christmas and stay safe.

Sent from my iPad

> On Dec 22, 2021, at 11:07 AM, Williams, Amelia <Amelia.Williams@norwalkct.org> wrote:
>
> Good morning Diana and Peter,
>
> I will be out of the office next week, but I can see if Steve is available on Tuesday if you would still like to meet with him. He is more familiar with this coastal issue and process, but if you can wait, I would be happy to schedule a meeting for the first week of January.
> I do not have much knowledge about the issue, but I understand if you prefer I was at the meeting too as we have been corresponding and I have been out to the property.
> Let me know what you would like to do.
>
> Best,
> Amelia
>
> **Amelia Williams** | Land Use Technician
> City of Norwalk Conservation and Planning & Zoning Room 129
> 125 East Ave Norwalk CT 06851
> (203) 854-7259 | amelia.williams@norwalkct.org
>
> ---
>
> **From:** DIANA COTALING <dpcotaling@aol.com>
> **Sent:** Tuesday, December 21, 2021 4:40 PM
> **To:** Williams, Amelia <Amelia.Williams@norwalkct.org>
> **Subject:** Re: 163 Gregory Blvd

CAUTION: EXTERNAL Email: Don't open links or attachments from untrusted senders

Hi Amelia, thanks for getting back to me. Peter would like to know if next Tuesday is a good day to meet? Please reply with time and we will be there. Thanks again. Diana & Peter Cotaling

Sent from my iPad

On Dec 20, 2021, at 3:15 PM, Williams, Amelia <Amelia.Williams@norwalkct.org> wrote:

Hi Tom and Diana,

I received both of your messages. My Director, Steve, thinks it would be a good idea to meet about this. Are you available this week? We can have an in-person meeting at our office (Room 129) and are also able to set up a zoom or phone call if you prefer. Let me know.

Best,
Amelia

Amelia Williams | Land Use Technician
City of Norwalk Conservation and Planning & Zoning Room 129
125 East Ave Norwalk CT 06851
(203) 854-7259 | amelia.williams@norwalkct.org

Williams, Amelia

From: Tom Ryder <TRyder@landtechconsult.com>
Sent: Tuesday, October 21, 2025 11:57 AM
To: Williams, Amelia
Subject: RE: 163 Gregory Blvd - request for copy of previous permit

CAUTION: EXTERNAL Email: Don't open links or attachments from untrusted senders

Hi Amelia, the wall was on the approved site plan and there is no wording in the permit that calls out the wall as not being approved.

So, it is our opinion that the wall shown on the plans was approved.

Tom

Tom Ryder
Senior Ecologist
Coastal Resource Scientist

518 Riverside Avenue
Westport, CT 06880
203.454.2110 ext. 120 office
tryder@landtechconsult.com
www.landtechconsult.com

From: Williams, Amelia <Amelia.Williams@norwalkct.gov>
Sent: Monday, October 20, 2025 3:46 PM
To: Tom Ryder <TRyder@landtechconsult.com>
Subject: RE: 163 Gregory Blvd - request for copy of previous permit

Please see attached for the house approval- the Commission never approved the wall work.

Best,
Amelia

Amelia Williams | Land Use Planner
City of Norwalk Conservation and Planning & Zoning Room 129
125 East Ave Norwalk CT 06851
(203) 854-7259 | amelia.williams@norwalkct.gov

From: Tom Ryder <TRyder@landtechconsult.com>
Sent: Monday, October 20, 2025 2:52 PM
To: Williams, Amelia <Amelia.Williams@norwalkct.gov>
Subject: RE: 163 Gregory Blvd - request for copy of previous permit

CAUTION: EXTERNAL Email: Don't open links or attachments from untrusted senders

Yup, I have the second letter and that is why I am asking thanks. I was looking for the CAM approval for the house and wall, if you have it.

Thank you,

Tom

Tom Ryder
Senior Ecologist
Coastal Resource Scientist

518 Riverside Avenue
Westport, CT 06880
203.454.2110 ext. 120 office
tryder@landtechconsult.com
www.landtechconsult.com

From: Williams, Amelia <Amelia.Williams@norwalkct.gov>
Sent: Monday, October 20, 2025 2:46 PM
To: Tom Ryder <TRyder@landtechconsult.com>
Subject: RE: 163 Gregory Blvd - request for copy of previous permit

Hi Tom,

Attached is a copy of the zoning permit, as well as a letter from the file indicating what needs to be done to close the permit (in case that's relevant for you).

Best,
amelia

Amelia Williams | Land Use Planner
City of Norwalk Conservation and Planning & Zoning Room 129
125 East Ave Norwalk CT 06851
(203) 854-7259 | amelia.williams@norwalkct.gov

From: Tom Ryder <TRyder@landtechconsult.com>
Sent: Monday, October 20, 2025 10:58 AM
To: Williams, Amelia <Amelia.Williams@norwalkct.gov>
Subject: 163 Gregory Blvd - request for copy of previous permit

CAUTION: EXTERNAL Email: Don't open links or attachments from untrusted senders

Hi Amelia, could you send me the P&Z permit for the site development at 163 Gregory Blvd from several years ago? I cannot seem to locate it.

Thank you,

Tom

Tom Ryder
Senior Ecologist
Coastal Resource Scientist

518 Riverside Avenue
Westport, CT 06880
203.454.2110 ext. 120 office
tryder@landtechconsult.com
www.landtechconsult.com

163 Gregory Blvd, Norwalk

Wall and Dock Permitting Chronology

Sept 21, 2020 – Permit was issued by Planning and Zoning Commission to develop property with single family house and retaining wall along shoreline.

Sept 1, 2021 - Bill Ireland conducted final building inspection of the house. Mr. Ireland told Mr. Cotaling that he saw no issues and that they just need to get approval from P&Z to finalize the process.

After the final signoff from Bill Ireland, LAMCO Construction, the site contractor, informed Mr. and Mrs. Cotaling that they were all set and can move in.

November 2, 2021 – Final as-built of property was prepared.

December 16, 2021 - City called DEEP and informed them that the wall was not constructed in accordance with approved plan.

December 17, 2021 – Letter from Steve Kleppin sent to home owners stating wall was not constructed according to approved plan and that he expects that DEEP will be taking action to have it corrected. The letter required an "after the fact" Coastal Site Plan Review to correct the issue.

January 3, 2022 - Email from Alexis Cherichetti to DEEP providing a summary of the site development application which included comment of the retaining wall.

January 5, 2022 – Peter Cotaling and LandTech met with Steve Kleppin to discuss the wall. They went over the approval, Mr. Kleppin stated that an application to P&Z was needed to correct wall issue.

January 24, 2022 – DEEP conducted a site inspection. DEEP inspected the wall, reviewed approved site plan and as-built. DEEP determined that the wall was landward of the CJL, that the CJL line did not move waterward as a result of the wall and that no section of the wall nor fill was placed waterward of the CJL. They noted that they did not think any work was done within tidal wetlands. They did not see an issue from the DEEP's perspective. Field memo states that the issue was closed on Feb 1, 2022.

February 2, 2022 – DEEP sent email to Alexis Cherichetti stating that the DEEP has closed the complaint as it was determined that the wall and associated work had been conducted landward of the CJL and outside the location of the tidal wetlands.

Note: Based on the DEEP findings, the Home Owners thought that the wall was not a major issue. They knew that they had to still file an after the fact CAM permit application with

Norwalk, however, they were also starting to think about getting a dock permitted. Since a dock would also require a CAM application, the Cotalings decided to combine the CAM application for the wall and the CAM application for the dock and permit both at once.

2023 – Meetings with LandTech occurred to discuss dock options, wall resolution, permitting needs and how to proceed.

September 9, 2024 – LandTech met with Cotalings to discuss proposed location and options for dock.

January 6, 2025 – Bathymetric survey showing shoreline and creek contours was prepared.

August 11, 2025 – Application for a dock was submitted to DEEP and U.S. Army Corps of Engineers. Coordination with DEEP and Army Corps is needed prior to submitting to City of Norwalk to make sure DEEP and Army Corps are ok with the design and location.

November 7, 2025 – Received Army Corps Permit.

November 10, 2025 – Submitted CAM application to P&Z. The Cotalings had to wait until DEEP had completed their review and were ready to send the application to Pubic Notice.

December 17, 2021

Peter Cotaling
142 East Avenue Unit 203A
Norwalk, CT 06851

Peter Cotaling
163 Gregory Boulevard
Norwalk, CT 06855

RE: Certificate of Occupancy, 163 Gregory Boulevard

Dear Mr. Cotaling:

This office has received a request to obtain a certificate of occupancy (CO) for the construction of a new single-family dwelling at the referenced property. After inspecting the site and reviewing the as-built survey prepared by Arcamone Land Surveying, dated 11.2.21, site work has occurred, beyond what was approved as part of your CAM application. Specifically, a retaining wall and grading occurred beyond what was permitted.

To rectify this matter, you must file an 'after the fact' Coastal Site Plan Review application and provide plans that accurately depict existing site conditions and proposed site conditions. After reviewing the matter with CT DEEP, it is our understanding they will be taking enforcement action because they consider the wall, as constructed, to be an unpermitted flood & erosion control structure. Therefore, the City recommends the after-the-fact CSPR include removal of the retaining wall and fill, as well as use of 'living shoreline" design approaches.

Should you have any questions or need additional information please let me know.

Sincerely,

Steven Kleppin, AICP
Planning and Zoning Director

c/ M. Balint, Sr. Coastal Planner, CT DEEP

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

OFFICE OF LONG ISLAND SOUND PROGRAMS
Complaint Form

Date Complaint Received: December 16, 2021		Complaint taken by: Brian Golembiewski	
Site Location:	163 Gregory Boulevard	Town: Norwalk	
Activity:	New unauthorized seawall.		
Activity Type:	A. Currently constructing solid fill or flood & erosion control structure below HTL or in tidal wetlands	Inspection Priority A = same or next day B = 2 weeks C = 1 month	
Alleged Violator:	Peter Cotaling	Phone Number: 203-856-9408	

Public information not stored in database:

Complainant: Amelia Williams	Phone Number: (203) 854 7259	E-mail: Amelia.Williams@norwalkct.org

Upon completing the above information send form as an e-mail attachment (high priority) to the Permitting & Enforcement Supervisor and both East & West Region Enforcement Leads

Assigned Staff: Kevin Zawoy	Complaint #: 2021-4437

Once the Complaint Entry Form is completed in Access enter the Complaint # generated by the database above.

Inspector: Kevin Zawoy	Date of Inspection: 1-24-2022	Finding: ☐ VI ☑ NV

Assigned Staff: Record Complaint # and inspection information above and complete the Inspection Report on page 2 **(Required).** Attach any supplemental information (e.g. labeled photographs) to the double-sided hard copy.

For finding of NV, Staff signs and dates the completed hard copy and forwards it with any attachments to the Enforcement Clerical for data entry and closure.

For finding of VI, Staff completes the Summary and NOV. Staff obtains Supervisor's signature on the NOV and closes the complaint by signing the hard copy with the NOV issue date. Then forward the entire file to the Enforcement Clerical for processing and closure of the Complaint in Access.

For a finding of a violation (VI) that should not be pursued (NP), consult with the Supervising Analyst prior to closing with NP status.

Status: ☑ C ☐ NP Date of Closure: _2-1-2022____Analyst's Signature: _Kevin Zawoy_____

Site Report:

Description of Site/Activity: The property at 163 Gregory Blvd. was not previously developed prior to 2020. The adjacent property at #165 has a high wall since the 1990s. Prior to the installation of a stone seawall at the site, the shoreline contained a loose boulder revetment that has been there for years, but when the property was developed in 2020, the property owners constructed a boulder retaining wall. The development went through the CAM approval process in 2020, however the proposed project was not properly referred for review by the Department. A low retaining wall at the top of the existing slope was proposed, however the as-built survey indicates a taller large boulder wall much closer to the CJL was constructed. The property owner's Compliance Certificate has not been issued due to the construction of the wall. The Cities solution is to have the property owner submit an after the fact CAM application. On January 24, 2022, Brian Golembiewski and I conducted a site inspection and met with both property owners. The property owners were able to share both the approved site drawings for the property and a mylar as-built site survey. I was able to overlay the mylar sheet over the approved City plan and based upon doing that I was able to determine that the new wall appears to be completely landward of the CJL, although it is very close. I was also able to determine that CJL line did not move waterward of the pre-work line. It appears no section of the wall or filling occurred as a result of the wall construction waterward of the CJL. Similarly, we do not anticipate that any work was conducted within tidal wetlands.

Waterbody: Charles Creek	Finding based on: ☑ HTL identified ☑ wrack line ☑ vegetation ☑ aerial photos ☑ Other (specify): Site surveys
Was the activity still in progress? ☑ No ☐ Yes	Photos taken? ☐ No ☑ Yes (if yes, label and attach)
If unable to make a finding, indicate reason:	

If a violation was identified complete this section.

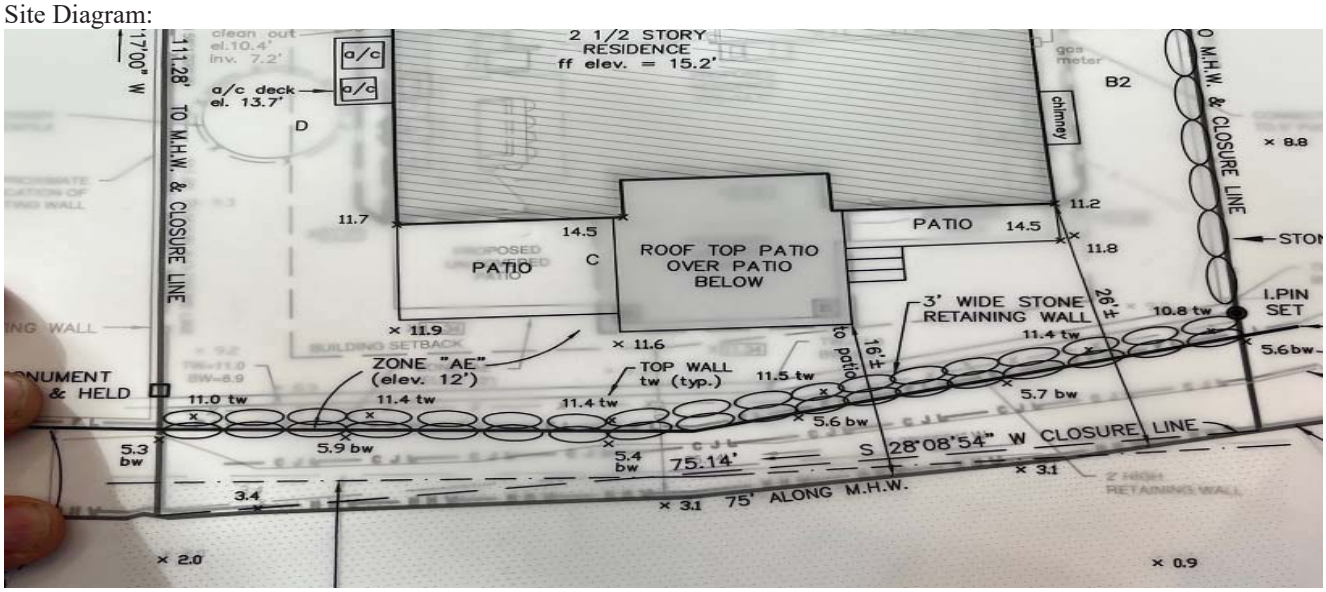
Action taken on-site: ☐ Field NOV ☐ Stop-work Advisory ☐ Other (specify):

Is there a pending application? ☑ No ☐ Yes Application or permit #

Is there a previous permit? ☑ No ☐ Yes Permit Authority: ☐ SDF ☐ TWSD

Property Owner: Peter Cotaling	Mailing Address:

Site Diagram:



In this overlay, you can see the pre-work CJL (dotted line with CJL on it) is waterward of the entire wall. The post work CJL is actually landward (pushed in) suggesting excavation rather than filling.

Follow up:

☐ Re-inspection required. Suggested date/tidal cycle for re-inspection:

☑ Referred to another program (specify): DEEP Coastal Programs for CSPR Date referred: 2-2-22

From: Zawoy, Kevin <Kevin.Zawoy@ct.gov>
To: dpcotaling@aol.com <dpcotaling@aol.com>
Sent: Wed, Feb 2, 2022 11:55 am
Subject: FW: 163 Gregory Blvd, Norwalk

FYI

From: Zawoy, Kevin
Sent: Wednesday, February 2, 2022 11:36 AM
To: Cherichetti, Alexis <ACherichetti@norwalkct.org>
Cc: pcotaling@aol.com; Golembiewski, Brian <Brian.Golembiewski@ct.gov>; Balint, Marcy <Marcy.Balint@ct.gov>
Subject: RE: 163 Gregory Blvd, Norwalk
Importance: Low

Hi Alexis, the Department has closed out this complaint as it has been determined that the wall and associated work has been conducted landward of the CJL and outside the location of tidal wetlands. The CAM application should be sent up to the Department for review and comment. Thanks, Kevin

From: Cherichetti, Alexis <ACherichetti@norwalkct.org>
Sent: Monday, January 3, 2022 11:29 AM
To: Zawoy, Kevin <Kevin.Zawoy@ct.gov>
Subject: RE: 163 Gregory Blvd, Norwalk

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good morning and happy New Year, Kevin.

Sorry for the delayed response…I got slammed by Covid and am just now tenuously returning to work.

The property at 163 Gregory Blvd. was not previously developed prior to 2020. The adjacent property at #165 has had a high wall since the 1990's, in the site photos, it is the property with the boulders and pea stone. Below are 2019 aerial photos of the

property at #163…there is a bit of a loose boulder revetment that has been there for years, but when the property was developed in 2020, the property owners constructed a boulder retaining wall. The development went through the CAM approval process in 2020, however the proposed project was not properly referred for review by DEEP. A low retaining wall at the top of the existing slope was proposed, however the as-built survey indicates a taller wall much closer to the CJL was constructed. See attached email for various plans and surveys of the property.

We did send the property owners a letter stating we could not sign off on their Compliance Certificate due to the construction of the wall (I think Marcy was cc'ed). Our solution was to have them submit an after the fact CAM application – "To rectify this matter, you must file an 'after the fact' Coastal Site Plan Review application and provide plans that accurately depict existing site conditions and proposed site conditions. After reviewing the matter with CT DEEP, it is our understanding they will be taking enforcement action because they consider the wall, as constructed, to be an unpermitted flood & erosion control structure. Therefore, the City recommends the after-the-fact CSPR include removal of the retaining wall and fill, as well as use of 'living shoreline" design approaches. "

Hopefully this helps. Feel free to email or call (203-854-7769) to discuss.

Alexis

Alexis Cherichetti | Senior Environmental Officer | City of Norwalk

125 East Avenue, Room 129, PO Box 5125, Norwalk, CT 06856-5125 | phone:203 854 7744

CITY OF NORWALK
Planning & Zoning Commission
Norwalk City Hall, Room 129
125 East Avenue,
Norwalk, CT 06856-5125

MEMORANDUM February 12th, 2026

TO: Planning and Zoning Commission – Chapin Bryce, Chair

FROM: Amelia Williams, Land Use Planner

SUBJECT: #2025-84 CSPR – LandTech – 163 Gregory Boulevard – Retain a Shoreline Flood and Erosion Control Structure that was built without permits and construct a new residential dock.

District: 3 **Block:** 75 **Lot:** 35 **Zone:** CD-1S **Flood Zone:** VE-14

ZONING HISTORY:

This .19 acre property contains a single family residence that was constructed in 2021. A Coastal Site Plan (colloquially known as a CAM) application was approved in 2020. A zoning permit, that aligned with the Commission approved plans, was issued the same year. In late 2021 our office received an inspection request to close the zoning permit and issue a Certificate of Zoning Compliance (COZC). Around the same time, our Assistant Director received an inquiry from DEEP about a recently constructed, large seawall that had not been referred to them. This is when DEEP informed our office that local review and regulation is needed for Shoreline Flood and Erosion Control Structures (SFECS) that are located, even partially, landward of the reach of Mean High Water. This is why the Commission has seen more applications for SFECS in recent years.

While a retaining wall was depicted on the proposed plans, it was never addressed in the CSPR or zoning approval. However, the wall that was constructed was discovered to be well beyond what was depicted on those plans. The final as-built survey shows the wall was constructed closer to the Coastal Jurisdiction Line and much taller than proposed. The proposed wall was only two feet tall, and it was constructed to range from five to six feet in height.

While technically a wall was approved as a part of application #05-20, it was not approved to be that tall or in its current location.

The Planning and Zoning Director sent a letter to the property owners in December 2021 advising them that a COZC/CO would not be issued until the change in scope of seawall work was approved.

In August 2025, the owners applied to DEEP for a dock and DEEP cited the unresolved wall issue. Engineers hired by the property owners reached out to Staff in October 2025 to rectify the issue and were forwarded a copy of the letter that states a CSPR approval must be obtained.

As a reminder, any activities involving SFECS cannot be exempt from Coastal Site Plan Review. The changes to the wall require approval from the P&Z Commission with a referral to DEEP. As indicated in the December 2021 letter, Staff strongly recommend the property owners implement a less environmentally damaging alternative to a wall, such as a living shoreline design.

PROPOSED STRUCTURE:
The applicant proposes to retain the wall, which is a SFECS, and construct a new residential dock.

SIGN-OFFS:
DEEP found that there are significant coastal management concerns regarding this proposal which are outlined in their letter of January 5th, 2026. The Harbor Management Commission found the proposal consistent with the Harbor Management Plan.

ZONING BOARD OF APPEALS:
A variance is not needed for this wall.

VIOLATIONS:
Aside from non-compliance with the zoning approval, there are no known zoning violations currently on the property.

STAFF COMMENTS:
Per CGS Section 22a-109(a), a coastal site plan for a shoreline flood and erosion structure must be approved **ONLY** if the record demonstrates and the commission makes specific written findings that:

1. The shoreline flood and erosion control structure is **necessary** and **unavoidable** for the protection of infrastructural facilities, water-dependent uses, commercial and residential structures and substantial appurtenances attached or integral thereto constructed as of January 1, 1995, or a cemetery or burial grounds, **AND**
2. There is no feasible, less environmentally-damaging alternative, **AND**
3. All reasonable mitigation measures and techniques are implemented to minimize adverse environmental impacts.

As the structure was built in 2021, the first finding would not apply to this proposal and does not warrant the Commission to approve it.
However, as the SFECS was inadvertently approved in 2020, the property owners cannot be required to remove it entirely. Staff would highly encourage a living shoreline design in place of any wall, but a denial of the application can only require the wall be restored to the previously "approved" conditions. The decision to be made relates to the expansion/relocation of the wall that deviates from the 2020 plans, and for that change to be approved there must be a clear and compelling demonstration that there is a threat to the use or structure from erosion or flooding, and that there are no feasible, less environmentally damaging alternatives, and that all reasonable mitigation measures and techniques have been provided to minimize adverse environmental impacts. Staff believe the wall, as constructed, is not consistent with CCMA goals and policies and it should be reverted to the conditions shown on the #05-20 CAM plans.
The applicant recently provided a revised proposal to lower the wall and a narrative outlining multiple compliance options which can be found on the application webpage and as a part of the agenda package.

The following resolutions are offered:

DRAFT RESOLUTION TO DENY

BE IT RESOLVED that application #2025 – 84 CSPR – LandTech – 163 Gregory Boulevard – Retain a Flood and Erosion Control Structure that was constructed without permits and construct a new residential dock as shown on the as-built survey dated 7/2/2020 and revised 11/02/2021 prepared Arcamone Land Surveyors LLC, Norwalk, CT, be **DENIED** subject to the following reasons:

1. The proposal is inconsistent with CCMA goals and policies to
    a. Discourage uses which do not permit continued natural rates of erosion [CGS Section 22a-92(b)(2)(A)].
    b. Promote nonstructural solutions to flood and erosion problems except in those instances where structural alternatives prove unavoidable and necessary to protect infrastructural facilities, water-dependent uses, commercial and residential structures and substantial appurtenances attached or integral thereto constructed as of January 1, 1995, or a cemetery or burial grounds [CGS Section 22a-92(b)(2)(F)].
    c. Maintain the natural relationship between eroding and depositional coastal landforms [CGS Section 22a-92(b)(2)(J)].
    d. Minimize the adverse impacts of erosion and sedimentation on coastal land uses through the promotion of nonstructural mitigation measures [CGS Section 22a-92(b)(2)(J)].

The SFECS must be restored to conditions shown on the site plan dated 7/31/2020 prepared by LandTech, Westport, CT, approved as a part of CAM application #05-20.

BE IT FURTHER RESOLVED that the effective date of this denial shall be February 27th, 2026.

DRAFT RESOLUTIONS TO APPROVE

BE IT RESOLVED that application #2025 – 84 CSPR – LandTech – 163 Gregory Boulevard – Retain a Flood and Erosion Control Structure that was constructed without permits and construct a new residential dock be **APPROVED** subject to the following conditions:

1. That the building and site will be occupied in accordance with the following plans:
    a. Per proposed improvement plans dated 1/8/2025 and revised 2/6/2026 prepared LandTech, Westport, CT; and

2. That any modifications to the approved plan be reviewed and approved by City Staff prior to implementing; and

3. That all required soil sedimentation and erosion controls are in place prior to the start of any construction; and

4. That any additional needed soil sedimentation and erosion controls be installed at the direction of the Staff; and

5. That nothing in this permit shall obviate the requirements for the applicant to obtain any other assents, permits or licenses required by law or regulation by the City of Norwalk, State of Connecticut, or the Government of the United States, including any approval required by the Connecticut Department of Environmental Protection and U.S. Army Corps of Engineers- obtaining such assents, permits or licenses is the sole responsibility of the applicant; and

BE IT FURTHER RESOLVED that this proposal complies with all applicable sections of the Zoning Regulations for the City of Norwalk; and

BE IT FURTHER RESOLVED that these preceding conditions and modifications of this application are integral to the Commission's approval because, if not for those conditions and modifications, the Commission would have denied this application.

BE IT FURTHER RESOLVED that the effective date of this approval shall be February 27th, 2026.

You must obtain a zoning approval prior to any work on the site.

FYE 2027 OPERATING BUDGET

City of Norwalk, CT

TABLE OF CONTENTS

Capital Projects **6**
ARTS COMMISSION 12
ARTS IN PUBLIC PLACES PROGRAM 13
PUBLIC ART INVENTORY 14
BOARD OF EDUCATION 15
BAND INSTRUMENTS REPLACEMENTS 16
BOE ASBESTOS ABATEMENT PROGRAM 17
BOE CAPITAL REPAIRS & REPLACEMENT 18
DISTRICT VEHICLES 19
ENHANCEMENT TO SCHOOL SECURITY 20
HIGH SCHOOL MATH CURRICULUM 21
INSTRUCTIONAL TECHNOLOGY 22
K-12 LITERARY CURRICULUM & TEXTBOOKS 24
NARAMAKE IMPROVEMENTS 26
NHS/PTECH CONSTRUCTION 27
ROOF REPLACEMENT STUDY 28
SCHOOL DISTRICT PAVING & ADA COMPLIANCE 29
SCHOOL PROJECTS & EQUIPMENT 30
SCIENCE & SOCIAL STUDIES CURRICULUM 31
STUDENT TECHNOLOGY 32
WEST ROCKS CONSTRUCTION 33
WEST ROCKS SCHOOL- DRAINAGE STUDY/IMPROVEMENTS 34
BUILDING MANAGEMENT 35
BEN FRANKLIN - VARIOUS REPAIRS 36
BRANCH LIBRARY IMPROVEMENTS 37
CITY HALL REPAIRS & IMPROVEMENTS 38
ELECTRIC VEH/SUSTAINABILITY PROJS 40
ELECTRICAL SYSTEMS SURVEYS 41
FIRE HEADQUARTERS 42
HEALTH DEPARTMENT 43
MAIN LIBRARY 44
MATHEWS PARK 46
NATHANIEL ELY IMPROVEMENTS 47
POLICE FACILITIES 48
PUBLIC WORKS CENTER 50
ROOSEVELT CENTER IMPROVEMENTS 52
SIDEWALK & CURB BLDG MGMT 53
VAR BLDGS-ENVIRONMENTAL REMEDIATION 54
VARIOUS CITY BLDGS REPAIRS 55
BUSINESS DEVELOPMENT & TOURISM 56
NORWALK SPECIAL EVENTS 57
SMALL BUSINESS/MAIN ST. PROGRAM 59
CENTRALIZED FLEET MAINTENANCE 60
CENTRALIZED FLEET MAINTENANCE 61
CHIEF OF COMMUN DEVELOP 62
ONLINE PERMITTING 63
CODE ENFORCEMENT 64

STREETSCAPE IMPROVEMENTS ... 65
COMMUNITY SERVICES ... 66
ADA TRANSITION PLAN IMPLEMENTATION CAPITAL PROGRAM ... 67
ENGINEERING ... 71
BRIDGE REPAIR ... 72
COASTAL RESILIENCY ... 73
CONVERSION OF AERIAL TO UNDERGROUND UTILITIES ... 74
DREDGING MARINAS AND EASEMENTS ... 75
EAST AVE RECONSTRUCTION ... 76
ELIZABETH ST STREETSCAPE & UNDERGROUD UTIL ... 77
FOOTPATH REPLACEMENT ... 78
GENERAL DRAINAGE ... 79
GLENDENNING STREET AND CANNON STREET AREA STORM DRAINAGE ... 80
GLENWOOD AVE AREA STORM DRAINAGE IMPROVEMENTS ... 81
GRANT LOCAL MATCHING FUNDS ... 82
GREEN INFRASTRUCTURE ... 83
INFRASTRUCTURE REINVESTMENT (CAPITAL RESERVE) ... 84
LAWRENCE ST STORM DRAINAGE ... 85
NEW CANAAN AVE/PONUS STORM DRAIN ... 86
NORWALK RIVER FLOOD CONTROL ... 87
PAVEMENT MANAGEMENT PROGRAM ... 88
SIDEWALKS & CURBS ... 89
STATE NON-PARTICIPANT CITY STANDARD AMENITIES ... 91
STORMWATER MGMT PLAN ... 92
STRUCTURAL INSPECTION/REPAIRS ... 93
TREE PLANTING-DPW ... 94
WATERCOURSE MAINTENANCE ... 95
FINANCE-BUDGET & SYSTEMS ... 96
CLEARGOV OPERATIONAL BUDGETING ... 97
FIRE DEPARTMENT ... 98
APPARATUS REFURBISHMENT & UPGRADE - TACTICAL SUPPORT 3 ... 99
APPARATUS REPLACEMENT PLAN - ENGINE ... 100
APPARATUS REPLACEMENT PLAN - TRUCK ... 101
FIRE DEPARTMENT BUILDING REPAIRS - CITYWIDE ... 102
STATION 1 WINDOW REPLACEMENT ... 103
STATION APPARATUS EXHAUST SYSTEM REPLACEMENT ... 106
VEHICLE REPLACEMENT PLAN - ADMINISTRATION ... 108
HISTORICAL COMMISSION ... 109
ADA ACCESS MILL HILL ... 110
CEMETERY SITE WORK ... 111
L-M MANSION CODE & REPAIRS ... 112
LOCKWOOD HOUSE ADA ... 114
SMITH STREET BUILDINGS ... 115
INFORMATION TECHNOLOGY ... 116
CONTINUING TECHNOLOGY REFRESH ... 117
CYBERSECURITY INITIATIVE: MANAGED DETECTION & RESPONSE (MDR) ... 118
FIBER EXTENSION TO SENIOR CENTER ... 119
POLICE MOBILE DATA TERMINALS IN PATROL VEHICLES ... 120
LIBRARY ... 121

NORWALK NEWSPAPER DIGITIZATION . . . 122
SELF-CHECKOUT MAINTENANCE REPLACEMENT PROJECT . . . 123
PLANNING & ZONING . . . 125
LAND USE DOCUMENT SCANNING . . . 126
OPEN SPACE FUND . . . 127
POLICE DEPARTMENT . . . 128
ARMORED RESCUE RESPONSE VEHICLE . . . 129
ESU REPLACEMENT FIREARMS . . . 130
EVIDENCE PROCESSING HARDWARE . . . 131
FEMALE LOCKER ROOM UPGRADE . . . 132
FLEET MODEMS . . . 133
MARINE UNIT . . . 134
POLICE CARS & VANS . . . 135
POLICE DEPARTMENT GROUNDS IMPROVEMENTS . . . 137
SCUBA TEAM COMMUNICATIONS EQUIPMENT . . . 138
SECURITY CAMERAS . . . 139
TRT BALLISTIC BODY ARMOR . . . 140
PUBLIC WORKS-OPERATIONS . . . 141
ELECTRICAL UPGRADES/EV CHARGING . . . 142
FLEET REPLACEMENT . . . 143
PUBLIC WORKS-SOLID WASTE COLLE . . . 144
TRANSFER STATION IMPROVEMENTS . . . 145
PUBLIC WORKS-TREATMENT PLANT . . . 146
COLLECTION SYSTEM REHABILITATION . . . 147
PUMP STATION UPGRADE/REPLACEMENT . . . 148
WWTP REHABILITATION/IMPROVEMENT . . . 149
RECREATION & PARKS . . . 150
ADA PROJECTS . . . 151
ATHLETIC FIELDS . . . 152
BACKSTOPS & FENCING . . . 154
BASKETBALL & TENNIS COURTS . . . 155
BRIEN MCMAHON HIGH SCHOOL FIELD (CASAGRANDE) LIGHT REPLACEMENT . . . 156
CALF PASTURE BEACH . . . 157
CRANBURY PARK . . . 158
IRRIGATION INSTALLATION AND MAINTENANCE . . . 159
MALMQUIST FIELD/CITY HALL FIELD UPGRADE . . . 160
OYSTER SHELL PARK . . . 161
PARK SIGNAGE . . . 162
PARKS GARAGE REPAIRS . . . 163
PAVING & SIDEWALK PROJECTS . . . 164
ROWAYTON COMMUNITY DOCKS . . . 165
SCHOOLS AND PARK PLAYGROUNDS . . . 166
SWIMMING POOL . . . 167
TAYLOR FARM WATERLINE . . . 168
TREE PLANTING & MAINTENANCE . . . 169
VEHICLES RECS & PARKS . . . 170
WOODS POND . . . 171
REDEVELOPMENT AGENCY . . . 172
MLK CORRIDOR EQUITABLE MOBILITY ENHANCMENT PROJECT SUPPLEMENTAL FUNDING . . . 173

REGISTRAR OF VOTERS 175
POLL PADS 176
TRANSP MOBILITY & PARKING 177
CALF PASTURE BEACH ROAD COMPLETE STREET 178
EAST NORWALK TOD STREETSCAPE AND BEAUTIFICATION PLAN 179
LINDEN STREET SIDEWALKS 180
NEW SIDEWALK CONSTRUCTION 181
NORTH MAIN STREET CORRIDOR IMPROVEMENTS 184
NORWALK RIVER VALLEY TRAIL 185
PARKING GARAGES (Parking Authority Request) 186
PAVEMENT MARKINGS & SIGNAGE 187
PEDESTRIAN CROSSWALK - 40 CROSS ST. 188
ROADWAY DESIGN & RECONSTRUCTION 189
ROWAYTON VILLAGE MOBILITY AND SAFETY ENHANCEMENTS 194
SAFE ROUTES TO SCHOOL 195
SEAVIEW AVENUE CORRIDOR IMPROVEMENTS 197
STREET LIGHTS 198
TRAFFIC SIGNAL BUCKET TRUCK 199
TRAFFIC SIGNALS EQUIPMENT 200
TRAFFIC SYSTEM ENHANCEMENT 202
WALL ST CORRID IMPROV-PHASE1,II,III 203
WASHINGTON STREET STREETSCAPE IMPROVEMENTS 206

Capital Projects

Capital Projects

Project No. / Project Name		Years	Departments	Type	Total
C0521	ADA ACCESS MILL HILL	2027 - 2030	HISTORICAL COMMISSION	Other Improvements	$325,000
NEW	ADA PROJECTS	2027 - 2029	RECREATION & PARKS	Building and Facilities	$900,000
NEW	ADA TRANSITION PLAN IMPLEMENTATION CAPITAL PROGRAM	2027 - 2028	COMMUNITY SERVICES	Building and Facilities	$630,000
NEW	APPARATUS REFURBISHMENT & UPGRADE - TACTICAL SUPPORT 3	2027	FIRE DEPARTMENT	Vehicles and Wheeled Equipment	$100,000
NEW	APPARATUS REPLACEMENT PLAN - ENGINE	2027 - 2028	FIRE DEPARTMENT	Other Equipment	$4,529,800
C0729	APPARATUS REPLACEMENT PLAN - TRUCK	2028	FIRE DEPARTMENT	Other Equipment	$3,250,000
NEW	ARMORED RESCUE RESPONSE VEHICLE	2027 - 2028	POLICE DEPARTMENT	Vehicles and Wheeled Equipment	$300,000
C0804	ARTS IN PUBLIC PLACES PROGRAM	2027 - 2030	ARTS COMMISSION	Other Improvements	$600,000
C0771	ATHLETIC FIELDS.	2027 - 2030	RECREATION & PARKS	Building and Facilities	$6,400,000
C0131	BACKSTOPS & FENCING	2027 - 2031	RECREATION & PARKS	Building and Facilities	$414,000
C0685	BAND INSTRUMENTS REPLACEMENTS	2027 - 2028	BOARD OF EDUCATION	Other Equipment	$500,000
C0321	BASKETBALL & TENNIS COURTS.	2027 - 2031	RECREATION & PARKS	Building and Facilities	$1,030,000
C0295	BEN FRANKLIN - VARIOUS REPAIRS	2027	BUILDING MANAGEMENT	Building and Facilities	$65,000
C0595	BOE ASBESTOS ABATEMENT PROGRAM	2027 - 2029	BOARD OF EDUCATION	Building and Facilities	$1,600,000
C0587	BOE CAPITAL REPAIRS & REPLACEMENT	2027 - 2031	BOARD OF EDUCATION	Building and Facilities	$1,250,000
C0644	BRANCH LIBRARY IMPROVEMENTS	2027 - 2029	BUILDING MANAGEMENT	Other Improvements	$80,000
C0315	BRIDGE REPAIR	2027 - 2031	ENGINEERING	Other Improvements	$3,400,000
C0820	BRIEN MCMAHON HIGH SCHOOL FIELD (CASAGRANDE) LIGHT REPLACEMENT	2027	RECREATION & PARKS	Building and Facilities	$400,000
NEW	CALF PASTURE BEACH ROAD COMPLETE STREET	2027 - 2029	TRANSP MOBILITY & PARKING	Roadways	$700,000
C0365	CALF PASTURE BEACH.	2027 - 2028	RECREATION & PARKS	Building and Facilities	$2,250,000
C0294	CEMETERY SITE WORK	2027 - 2030	HISTORICAL COMMISSION	Other Improvements	$155,000
C0716	CENTRALIZED FLEET MAINTENANCE	2027 - 2030	CENTRALIZED FLEET MAINTENANCE	Vehicles and Wheeled Equipment	$800,000

Project No. / Project Name		Years	Departments	Type	Total
C0439	CITY HALL REPAIRS & IMPROVEMENTS	2027 - 2030	BUILDING MANAGEMENT	Building and Facilities	$3,542,000
NEW	CLEARGOV OPERATIONAL BUDGETING	2027	FINANCE-BUDGET & SYSTEMS	Computer Software	$50,000
NEW	COASTAL RESILIENCY	2027 - 2031	ENGINEERING	Other Improvements	$1,450,000
C0361	COLLECTION SYSTEM REHABILITATION	2028 - 2031	PUBLIC WORKS-TREATMENT PLANT	Water and Sewer	$28,000,000
NEW	CONTINUING TECHNOLOGY REFRESH	2027 - 2031	INFORMATION TECHNOLOGY	Computers and Related Equipment	$1,500,000
NEW	CONVERSION OF AERIAL TO UNDERGROUND UTILITIES	2027 - 2031	ENGINEERING	Other Improvements	$5,500,000
C0366	CRANBURY PARK.	2027 - 2029	RECREATION & PARKS	Building and Facilities	$2,718,000
NEW	CYBERSECURITY INITIATIVE: MANAGED DETECTION & RESPONSE (MDR)	2027	INFORMATION TECHNOLOGY	Computer Software	$75,000
C0623	DISTRICT VEHICLES	2027	BOARD OF EDUCATION	Vehicles and Wheeled Equipment	$150,000
C0281	DREDGING MARINAS AND EASEMENTS	2027 - 2028	ENGINEERING	Other Improvements	$1,000,000
C0471	EAST AVE RECONSTRUCTION	2027 - 2029	ENGINEERING	Other Improvements	$3,000,000
NEW	EAST NORWALK TOD STREETSCAPE AND BEAUTIFICATION PLAN	2028	TRANSP MOBILITY & PARKING	Roadways	$250,000
C0718	ELECTRIC VEH/SUSTAINABILITY PROJS	2027 - 2031	BUILDING MANAGEMENT	Other Equipment	$750,000
C0736	ELECTRICAL SYSTEMS SURVEYS	2027 - 2030	BUILDING MANAGEMENT	Building and Facilities	$200,000
C0681	ELECTRICAL UPGRADES/EV CHARGING	2027 - 2028	PUBLIC WORKS-OPERATIONS	Other Equipment	$60,000
C0819	ELIZABETH ST STREETSCAPE & UNDERGROUD UTIL	2027 - 2028	ENGINEERING	Other Improvements	$2,500,000
C0537	ENHANCEMENT TO SCHOOL SECURITY	2027 - 2031	BOARD OF EDUCATION	Other Equipment	$1,560,000
NEW	ESU REPLACEMENT FIREARMS	2028	POLICE DEPARTMENT	Other Equipment	$75,000
NEW	EVIDENCE PROCESSING HARDWARE	2027	POLICE DEPARTMENT	Computers and Related Equipment	$23,000
NEW	FEMALE LOCKER ROOM UPGRADE	2029	POLICE DEPARTMENT	Building and Facilities	$140,000
NEW	FIBER EXTENSION TO SENIOR CENTER	2027	INFORMATION TECHNOLOGY	Building and Facilities	$85,000
C0385	FIRE DEPARTMENT BUILDING REPAIRS - CITYWIDE	2027	FIRE DEPARTMENT	Building and Facilities	$50,000
C0735	FIRE HEADQUARTERS	2027 - 2028	BUILDING MANAGEMENT	Building and Facilities	$392,188
NEW	FLEET MODEMS	2028	POLICE DEPARTMENT	Computers and Related Equipment	$192,115
C0313	FLEET REPLACEMENT	2027 - 2031	PUBLIC WORKS-OPERATIONS	Vehicles and Wheeled Equipment	$5,197,000
C0503	FOOTPATH REPLACEMENT	2027 - 2031	ENGINEERING	Other Improvements	$1,500,000
C0302	GENERAL DRAINAGE	2027 - 2030	ENGINEERING	Roadways	$2,400,000
C0713	GLENDENNING STREET AND CANNON STREET AREA STORM	2027	ENGINEERING	Other Improvements	$500,000

Project No. / Project Name		Years	Departments	Type	Total
	DRAINAGE				
NEW	GLENWOOD AVE AREA STORM DRAINAGE IMPROVEMENTS	2027 - 2028	ENGINEERING	Other Improvements	$3,000,000
C0816	GRANT LOCAL MATCHING FUNDS	2027 - 2030	ENGINEERING	Roadways	$1,800,000
C0715	GREEN INFRASTRUCTURE	2027 - 2031	ENGINEERING	Water and Sewer	$650,000
C0645	HEALTH DEPARTMENT	2028 - 2029	BUILDING MANAGEMENT	Building and Facilities	$250,000
C609	HIGH SCHOOL MATH CURRICULUM	2028 - 2029	BOARD OF EDUCATION	Other Equipment	$400,000
C0817	INFRASTRUCTURE REINVESTMENT (CAPITAL RESERVE)	2028 - 2031	ENGINEERING	Other Improvements	$1,600,000
C0112	INSTRUCTIONAL TECHNOLOGY	2027 - 2031	BOARD OF EDUCATION	Computers and Related Equipment	$11,134,247
NEW	IRRIGATION INSTALLATION AND MAINTENANCE	2027 - 2029	RECREATION & PARKS	Building and Facilities	$1,200,000
C0738	K-12 LITERARY CURRICULUM & TEXTBOOKS	2027 - 2029	BOARD OF EDUCATION	Other Equipment	$900,000
C0186	L-M MANSION CODE & REPAIRS	2027 - 2030	HISTORICAL COMMISSION	Other Improvements	$2,400,000
C0732	LAND USE DOCUMENT SCANNING	2027 - 2030	PLANNING & ZONING	Computers and Related Equipment	$480,000
C0714	LAWRENCE ST STORM DRAINAGE	2027 - 2029	ENGINEERING	Water and Sewer	$6,000,000
NEW	LINDEN STREET SIDEWALKS	2027 - 2028	TRANSP MOBILITY & PARKING	Roadways	$750,000
C0549	LOCKWOOD HOUSE ADA	2027 - 2028	HISTORICAL COMMISSION	Other Improvements	$500,000
C0133	MAIN LIBRARY	2028 - 2029	BUILDING MANAGEMENT	Building and Facilities	$990,000
NEW	MALMQUIST FIELD/CITY HALL FIELD UPGRADE	2027	RECREATION & PARKS	Building and Facilities	$1,000,000
NEW	MARINE UNIT	2028 - 2029	POLICE DEPARTMENT	Building and Facilities	$1,500,000
C0717	MATHEWS PARK	2027 - 2028	BUILDING MANAGEMENT	Other Improvements	$120,000
NEW	MLK CORRIDOR EQUITABLE MOBILITY ENHANCMENT PROJECT SUPPLEMENTAL FUNDING	2027	REDEVELOPMENT AGENCY	Roadways	$500,000
NEW	NARAMAKE IMPROVEMENTS	2028 - 2029	BOARD OF EDUCATION	Building and Facilities	$4,300,000
C0266	NATHANIEL ELY IMPROVEMENTS	2027 - 2028	BUILDING MANAGEMENT	Other Improvements	$951,000
C0712	NEW CANAAN AVE/PONUS STORM DRAIN	2027 - 2029	ENGINEERING	Other Improvements	$8,000,000
C0649	NEW SIDEWALK CONSTRUCTION	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$15,220,000
C0878	NHS/PTECH CONSTRUCTION	2027	BOARD OF EDUCATION	Building and Facilities	$22,000,000
NEW	NORTH MAIN STREET CORRIDOR IMPROVEMENTS	2027 - 2028	TRANSP MOBILITY & PARKING	Roadways	$350,000
C0548	NORWALK NEWSPAPER DIGITIZATION	2027	LIBRARY	Computer Software	$23,456
C0643	NORWALK RIVER FLOOD CONTROL.	2027 - 2031	ENGINEERING	Other Improvements	$300,000

Project No. / Project Name		Years	Departments	Type	Total
C0777	NORWALK RIVER VALLEY TRAIL	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$650,000
C0680	NORWALK SPECIAL EVENTS	2027 - 2031	BUSINESS DEVELOPMENT & TOURISM	Other Improvements	$1,250,000
C0731	ONLINE PERMITTING *(Denied)*	2027 - 2031	CHIEF OF COMMUN DEVELOP	Other Improvements	$750,000
C0372	OPEN SPACE FUND	2027 - 2031	PLANNING & ZONING	Other Improvements	$250,000
C0821	OYSTER SHELL PARK.	2027 - 2028	RECREATION & PARKS	Water and Sewer	$175,000
C0737	PARK SIGNAGE	2027 - 2028	RECREATION & PARKS	Building and Facilities	$200,000
C0303	PARKING GARAGES (Parking Authority Request)	2027 - 2031	TRANSP MOBILITY & PARKING	Building and Facilities	$7,750,000
C0472	PARKS GARAGE REPAIRS.	2027 - 2031	RECREATION & PARKS	Building and Facilities	$450,000
C0021	PAVEMENT MANAGEMENT PROGRAM	2027 - 2031	ENGINEERING	Other Improvements	$42,500,000
C0562	PAVEMENT MARKINGS & SIGNAGE	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$1,250,000
C0588	PAVING & SIDEWALK PROJECTS	2027 - 2031	RECREATION & PARKS	Building and Facilities	$375,000
C0823	PEDESTRIAN CROSSWALK - 40 CROSS ST.	2027	TRANSP MOBILITY & PARKING	Roadways	$275,000
C0665	POLICE CARS & VANS	2027 - 2028	POLICE DEPARTMENT	Vehicles and Wheeled Equipment	$1,900,000
NEW	POLICE DEPARTMENT GROUNDS IMPROVEMENTS	2027	POLICE DEPARTMENT	Building and Facilities	$325,000
C0137	POLICE FACILITIES	2027 - 2029	BUILDING MANAGEMENT	Building and Facilities	$1,319,329
NEW	POLICE MOBILE DATA TERMINALS IN PATROL VEHICLES	2027 - 2031	INFORMATION TECHNOLOGY	Computers and Related Equipment	$525,000
NEW	POLL PADS	2027	REGISTRAR OF VOTERS	Computer Software	$81,950
NEW	PUBLIC ART INVENTORY	2027	ARTS COMMISSION	Other Improvements	$268,265
C0119	PUBLIC WORKS CENTER	2027 - 2029	BUILDING MANAGEMENT	Building and Facilities	$1,852,500
C0360	PUMP STATION UPGRADE/REPLACEMENT	2027 - 2030	PUBLIC WORKS-TREATMENT PLANT	Water and Sewer	$8,250,000
C0824	ROADWAY DESIGN & RECONSTRUCTION	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$5,320,000
NEW	ROOF REPLACEMENT STUDY	2028	BOARD OF EDUCATION	Other Improvements	$200,000
C0683	ROOSEVELT CENTER IMPROVEMENTS	2029	BUILDING MANAGEMENT	Building and Facilities	$100,000
C0575	ROWAYTON COMMUNITY DOCKS	2027 - 2028	RECREATION & PARKS	Building and Facilities	$1,950,000
NEW	ROWAYTON VILLAGE MOBILITY AND SAFETY ENHANCEMENTS	2028 - 2029	TRANSP MOBILITY & PARKING	Roadways	$500,000
C0441	SAFE ROUTES TO SCHOOL	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$2,750,000
C0516	SCHOOL DISTRICT PAVING & ADA COMPLIANCE	2027 - 2030	BOARD OF EDUCATION	Roadways	$4,400,000
C0687	SCHOOL PROJECTS & EQUIPMENT	2027	BOARD OF EDUCATION	Building and Facilities	$240,000
C0364	SCHOOLS AND PARK PLAYGROUNDS	2027 - 2031	RECREATION & PARKS	Building and Facilities	$1,100,000

Project No. / Project Name		Years	Departments	Type	Total
C0609	SCIENCE & SOCIAL STUDIES CURRICULUM	2027 - 2028	BOARD OF EDUCATION	Other Equipment	$700,000
NEW	SCUBA TEAM COMMUNICATIONS EQUIPMENT	2027	POLICE DEPARTMENT	Other Equipment	$34,542
C0599	SEAVIEW AVENUE CORRIDOR IMPROVEMENTS	2027 - 2028	TRANSP MOBILITY & PARKING	Roadways	$850,000
NEW	SECURITY CAMERAS	2027 - 2028	POLICE DEPARTMENT	Other Equipment	$130,000
NEW	SELF-CHECKOUT MAINTENANCE REPLACEMENT PROJECT	2027	LIBRARY	Other Equipment	$60,000
C0583	SIDEWALK & CURB BLDG MGMT	2027 - 2030	BUILDING MANAGEMENT	Building and Facilities	$200,000
C0318	SIDEWALKS & CURBS	2027 - 2031	ENGINEERING	Roadways	$42,500,000
C0773	SMALL BUSINESS/MAIN ST. PROGRAM	2027 - 2031	BUSINESS DEVELOPMENT & TOURISM	Other Improvements	$1,000,000
C0430	SMITH STREET BUILDINGS	2027 - 2030	HISTORICAL COMMISSION	Other Improvements	$1,400,000
C0818	STATE NON-PARTICIPANT CITY STANDARD AMENITIES	2027 - 2031	ENGINEERING	Other Improvements	$2,250,000
NEW	STATION 1 WINDOW REPLACEMENT	2028	FIRE DEPARTMENT	Building and Facilities	$667,000
NEW	STATION APPARATUS EXHAUST SYSTEM REPLACEMENT	2027	FIRE DEPARTMENT	Other Improvements	$430,000
C0425	STORMWATER MGMT PLAN	2027 - 2031	ENGINEERING	Other Improvements	$2,250,000
C0679	STREET LIGHTS	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$375,000
C0806	STREETSCAPE IMPROVEMENTS	2027 - 2031	CODE ENFORCEMENT	Other Improvements	$750,000
C0617	STRUCTURAL INSPECTION/REPAIRS	2027 - 2031	ENGINEERING	Other Improvements	$400,000
C0740	STUDENT TECHNOLOGY	2027 - 2031	BOARD OF EDUCATION	Computer Software	$3,107,250
NEW	SWIMMING POOL	2027	RECREATION & PARKS	Other Improvements	$75,000
NEW	TAYLOR FARM WATERLINE	2027 - 2028	RECREATION & PARKS	Water and Sewer	$100,000
NEW	TRAFFIC SIGNAL BUCKET TRUCK	2027	TRANSP MOBILITY & PARKING	Vehicles and Wheeled Equipment	$185,000
C0232	TRAFFIC SIGNALS EQUIPMENT	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$2,250,000
C0528	TRAFFIC SYSTEM ENHANCEMENT	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$800,000
C0711	TRANSFER STATION IMPROVEMENTS	2027 - 2028	PUBLIC WORKS-SOLID WASTE COLLE	Building and Facilities	$400,000
C0370	TREE PLANTING & MAINTENANCE	2027 - 2031	RECREATION & PARKS	Other Improvements	$375,000
C0233	TREE PLANTING-DPW	2027 - 2031	ENGINEERING	Other Improvements	$1,000,000
NEW	TRT BALLISTIC BODY ARMOR	2027	POLICE DEPARTMENT	Other Equipment	$79,000
C0543	VAR BLDGS-ENVIRONMENTAL REMEDIATION	2027 - 2031	BUILDING MANAGEMENT	Building and Facilities	$100,000
C0476	VARIOUS CITY BLDGS REPAIRS	2027 - 2031	BUILDING MANAGEMENT	Building and Facilities	$300,000

Project No. / Project Name		Years	Departments	Type	Total
NEW	VEHICLE REPLACEMENT PLAN - ADMINISTRATION	2027	FIRE DEPARTMENT	Vehicles and Wheeled Equipment	$201,000
C0486	VEHICLES RECS & PARKS	2027 - 2031	RECREATION & PARKS	Other Improvements	$1,145,000
C0800	WALL ST CORRID IMPROV-PHASE1,II,III	2027 - 2031	TRANSP MOBILITY & PARKING	Roadways	$18,600,000
NEW	WASHINGTON STREET STREETSCAPE IMPROVEMENTS	2028	TRANSP MOBILITY & PARKING	Roadways	$250,000
C0440	WATERCOURSE MAINTENANCE	2027 - 2031	ENGINEERING	Water and Sewer	$13,500,000
NEW	WEST ROCKS CONSTRUCTION	2028	BOARD OF EDUCATION	Building and Facilities	$125,000,000
NEW	WEST ROCKS SCHOOL-DRAINAGE STUDY/IMPROVEMENTS	2028 - 2029	BOARD OF EDUCATION	Building and Facilities	$2,400,000
NEW	WOODS POND	2027 - 2031	RECREATION & PARKS	Other Improvements	$1,172,000
C0791	WWTP REHABILITATION/IMPROVEMENT	2027	PUBLIC WORKS-TREATMENT PLANT	Water and Sewer	$10,000,000

ARTS COMMISSION

ARTS IN PUBLIC PLACES PROGRAM

Overview

Request Owner	Sabrina Godeski, Director of Business Development
Department	ARTS COMMISSION
Type	Capital Improvement
Project Number	C0804

Description

The Art in Public Places Program will support the curation and commissioning of public art. Funding will be used for curation, materials, installation, and maintenance of new public art. Investing in public art has benefits both economically and socially and this program will support this and the POCD goal to create consistent funding for public art. In FY2027, the Arts and Cultural Commission will install signage for public art trails and placards for existing installations.

Details

POCD CODE: 6.2.A.III Inventory the arts and culture community in Norwalk

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$750K**	**$750K**

PUBLIC ART INVENTORY

Overview

Request Owner Sabrina Godeski, Director of Business Development

Department ARTS COMMISSION

Type Capital Improvement

Project Number NEW

Project Location

Description

The Commission is seeking capital funding to develop a comprehensive Public Art Inventory that will document, assess, and map all public artworks located on municipal property and within the public right-of-way. This initiative will create an accurate, centralized record of the City's sculptures, murals, monuments, installations, and other cultural assets, many of which have been accumulated over decades without a unified tracking system.

Funding will support professional documentation, condition assessments, GIS mapping, photography, and data entry into a standardized asset management platform. The inventory will also identify maintenance needs, estimate long-term preservation costs, and guide future investments in care, conservation, and new public art.

A modernized, reliable inventory is essential for asset stewardship, risk management, planning, and grant eligibility. It will allow the City to proactively maintain its cultural infrastructure, support public art as an economic and community development tool, and enhance transparency and accessibility for residents, visitors, and artists. This one-time capital investment provides the foundation for a sustainable public art program and ensures the long-term protection of the City's cultural heritage.

Details

Type of Project: Other improvement

POCD CODE: 6.2.A.III Inventory the arts and culture community in Norwalk

Supplemental Attachments

Norwalk Public Art Inventory Proposal

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$268K	**$268K**	**$268K**

BOARD OF EDUCATION

BAND INSTRUMENTS REPLACEMENTS

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Number	C0685

Description

Overview

This project replaces aging musical instruments to support high-quality music education across the district.

Description

Many string instruments in the district's inventory exceed 20 years of age, double the typical 10-year life expectancy for school-owned instruments. With fewer families able to rent or purchase instruments, district-supplied equipment is essential to maintaining equitable access. Norwalk's music programs have a strong legacy, and updated instruments will ensure students receive exceptional music education.

Details

New Purchase or Replacement: Replacement

POCD CODE: 5.1.A.IV Explore creation of new educational programs

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$300K	**$500K**	**$500K**

BOE ASBESTOS ABATEMENT PROGRAM

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	C0595

Description

Overview
This ongoing program addresses the removal of hazardous asbestos materials to maintain safe instructional environments.

Description
FY27 – Naramake Elementary, $600,000
Removal and replacement of asbestos floor and ceiling tiles and associated lighting.

FY28 – Tracey School, $400,000
Removal and replacement of existing asbestos floor tiles.

FY29 – Marvin School, $600,000
Districtwide continuation of asbestos tile abatement and replacement.

Details

Type of Project: Other

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$600K	**$1.6M**	**$1.6M**

BOE CAPITAL REPAIRS & REPLACEMENT

Overview

Request Owner Lunda Asmani, CHIEF FINANCIAL OFFICER BOE

Department BOARD OF EDUCATION

Type Capital Improvement

Project Number C0587

Description

Frequent unplanned repairs and replacements are necessary to effectively operate a large district of this size, which includes upwards of 23 sites. This encompasses essential building systems that must be addressed on an emergency basis.

Details

Type of Project: Other

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$1.25M**	**$1.25M**

DISTRICT VEHICLES

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	C0623

Description

Overview

These projects support essential facilities and grounds operations by replacing aging equipment and adding specialized vehicles to ensure safe, efficient snow removal and campus maintenance district-wide.

- **Pickup Truck Replacement, $100,000**
  The district's current pickup truck with attached snowplow has reached the end of its 21-year service life and is no longer road-safe. Replacement is necessary to maintain safe snow removal and grounds operations.
- **Utility Vehicle with Snowplow — Brien McMahon High School, $50,000**
  The extensive acreage at Brien McMahon requires a dedicated utility vehicle to support snow-plowing and grounds maintenance. A similar vehicle at Norwalk High School has improved operational efficiency and safety.

Details

New Purchase or Replacement: Replacement

New or Used Vehicle: New Vehicle

Useful Life: 10 or more years

POCD CODE: 8.1.A.IV Replace city vehicles incrementally with electric or hybrid vehicles

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$150K**	**$150K**

ENHANCEMENT TO SCHOOL SECURITY

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Number	C0537

Description

- **Overview**
  This request strengthens perimeter security and controlled access at district schools.
- **Description**
  Fencing (FY27 & FY28), $30,000 per year
  Installation of secure perimeter fencing around playgrounds and key exterior areas is essential for protecting students, staff, and property. Fencing helps prevent unauthorized entry, manage student movement, and reduce risks related to trespassing, theft, and accidents.
- **Secure Entrances (FY27–FY29), $300,000 per year**
  Funding supports the design and installation of modern secure entrances featuring controlled access points, interlocking doors, and visitor verification protocols. These measures reduce potential threats and enhance overall school safety.

Details

New Purchase or Replacement: Replacement

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$330K	**$1.56M**	**$1.56M**

HIGH SCHOOL MATH CURRICULUM

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Number	C609

Description

Overview
This request supports the adoption of a new high school math curriculum to strengthen instructional quality and improve student outcomes. District performance data has remained largely stagnant, and high school administrators and instructional leaders have identified the need for updated, research-aligned curriculum resources for core math courses.

Description
FY27 – High School Math Curriculum Pilot, $200,000
One comprehensive high school will pilot a new math curriculum for core subjects. The pilot will assess curriculum effectiveness, alignment to district learning goals, and impact on student growth.

FY28 – High School Math Curriculum Implementation, $200,000
Following evaluation of the pilot, a second high school will implement the adopted curriculum to ensure a consistent instructional program across sites.

Details

POCD CODE: 5.1.A.IV Explore creation of new educational programs

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$400K**	**$400K**

INSTRUCTIONAL TECHNOLOGY

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Type	Computers and Related Equipment
Project Number	C0112

Description

Overview

This request funds classroom hardware, infrastructure, instructional software, assessment platforms, digital productivity tools, library systems, and security solutions necessary to support high-quality instruction and operational reliability.

Description (FY27–FY31)

- Classroom hardware upgrades (teacher devices, instructional panels, staff and operational desktops)
- Network infrastructure (switches, access points)
- AI and productivity tools for staff and students
- Library and student information systems
- Security systems including Ambient.AI and Mutual Link

FY27

- **Classroom Hardware — $589,000**
- **Network Infrastructure — $254,000**
- **Instructional Software — $339,530**
- **Assessment Platforms — $240,000**
- **AI and Digital Productivity Tools — $260,000**
- **Library and Information Systems — $283,000**
- **Security Systems — $203,400**

FY27 Total = $2,215,930

FY28

- **Classroom Hardware — $599,000**
- **Network Infrastructure — $85,000**
- **Instructional Software — $1,189,095.90**
- **Assessment Platforms — $180,250**

- **Security Systems — $213,570**

FY28 Total = $2,266,915.90

FY29

- **Classroom Hardware — $614,000**
- **Network Infrastructure — $85,000**
- **Instructional Software — $1,215,241.98**
- **Assessment Platforms — $185,657.50**
- **Security Systems — $223,998.50**

FY29 Total = $2,323,897.98

FY30

- **Classroom Hardware — $629,000**
- **Network Infrastructure — $85,000**
- **Instructional Software — $1,241,981.90**
- **Assessment Platforms — $191,227.23**

FY30 Total = $2,147,209.13

FY31

- **Classroom Hardware — $629,000**
- **Network Infrastructure — $85,000**
- **Instructional Software — $1,269,329.67**
- **Assessment Platforms — $196,964.04**

FY31 Total = $2,180,293.72

Details

New Purchase or Replacement: Replacement

POCD CODE: 5.1.A.IV Explore creation of new educational programs

---

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$2.22M	**$11.1M**	**$11.1M**

K-12 LITERARY CURRICULUM & TEXTBOOKS

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Number	C0738

Description

- **Overview**
  This request supports continued implementation of the district's comprehensive literacy vision grounded in high-quality instructional materials and the Science of Reading.
- **Description**
  The district has made significant progress in implementing a PreK–12 literacy framework. Continued investment is essential to sustain momentum, expand access to updated resources, close achievement gaps, and ensure all students graduate with strong reading and writing skills.

- **FY27: K–12 Literacy Curriculum Resources — $300,000**
- The district has implemented a comprehensive PreK–12 literacy vision grounded in high-quality instructional materials and evidence-based practices aligned to Common Core Standards and the Science of Reading. To sustain and expand this progress, capital investment is required to ensure all schools have the technology and resources necessary to deliver high-quality instruction. Funding in FY27 will support updated materials, digital tools, and resources that foster strong reading and writing skills for all students. These investments are essential to maintaining momentum, closing achievement gaps, and ensuring students graduate with the literacy skills and confidence needed for future success. This phase focuses on Grades 6–12.

- **FY28: K–12 Literacy Curriculum Resources — $300,000**
- The district's PreK–12 literacy vision continues to rely on high-quality, evidence-based instructional materials. To build on the progress made to date, the district requires continued capital funding to provide updated materials, digital tools, and instructional resources. These investments ensure consistent delivery of high-quality literacy instruction and help sustain efforts to reduce achievement gaps. FY28 funding supports curriculum updates and resource expansion for Grades PreK–5.

- **FY29: K–12 Literacy Curriculum Resources — $300,000**Ongoing investment in updated PreK–12 literacy resources remains essential to fully implementing and sustaining the district's comprehensive literacy vision. Capital funding in FY29 will provide continued support for updated curriculum materials and digital tools that strengthen reading and writing instruction. These resources help maintain districtwide progress, promote equitable literacy outcomes, and

ensure all students develop the foundational skills necessary for academic success. This phase also focuses on Grades PreK–5.

Details

New Purchase or Replacement: New

POCD CODE: 5.1.A.IV Explore creation of new educational programs

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$300K	**$900K**	**$900K**

NARAMAKE IMPROVEMENTS

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2025
Estimated Completion Date	06/30/2026

Description

Overview
Naramake Elementary School requires critical facility upgrades to improve safety, energy efficiency, and student experience.

Description

- **FY27 – Bathroom Renovations, $800,000**
  All bathrooms are original to the building and require replacement of plumbing fixtures, lighting, and flooring to meet modern standards.
- **FY28 – Exterior Window and Door Replacement; Secure Entrance, $3,500,000**
  Existing exterior windows and doors are original and energy-inefficient, resulting in significant air infiltration and elevated utility costs. Replacements will improve energy performance and enhance safety.
  A new secure entrance will be constructed to align with school safety best practices.

Details

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$4.3M**	**$4.3M**

NHS/PTECH CONSTRUCTION

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	C0878
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

Overview
This request supports the completion of previously phased components of the Norwalk High School project.

Description
Several elements of the original project scope were intentionally phased due to the long construction timeline. In addition, significant contaminated soil remediation has depleted the contingency allowance. The requested funds will allow the district to bid and complete remaining work, including site concrete, furniture/fixtures and equipment (FF&E), grandstand bleachers, and tennis courts, while restoring essential contingency capacity.

Upon completion, the City intends to pursue legislative approval to incorporate these additional costs into the overall project budget, making them eligible for up to 80 percent state reimbursement.

Details

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$22M	**$22M**	**$22M**

ROOF REPLACEMENT STUDY

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

Overview
This study will evaluate the condition of school roofs district-wide to support long-term planning and solar installation goals.

Description
The City has expressed strong interest in installing solar panels on all school buildings. However, many roofs are aging and approaching end-of-life, as documented in the 2021 Facilities Assessment Report. A comprehensive evaluation by a qualified roofing professional is necessary to determine replacement needs and support future solar readiness.

The study will include all schools except Jefferson, Cranbury, CMS, SONO, WRMS, and NHS, which already have new or recently upgraded roofs.

Details

Type of Project: New Construction

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$200K**	**$200K**

SCHOOL DISTRICT PAVING & ADA COMPLIANCE

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	C0516

Description

Overview
This project funds pavement and sidewalk rehabilitation across district schools in alignment with the Facilities Master Plan.

Description
FY27 and FY30 – Driveway Paving and Sidewalk Refurbishment
Work includes resurfacing driveways, repairing sidewalks, and ensuring compliance with ADA accessibility requirements to maintain safe and functional campus environments.

Details

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$400K	**$4.4M**	**$4.4M**

SCHOOL PROJECTS & EQUIPMENT

Overview

Request Owner Lunda Asmani, CHIEF FINANCIAL OFFICER BOE

Department BOARD OF EDUCATION

Type Capital Improvement

Project Number C0687

Description

Overview

This multi-school request addresses essential safety, operational, and equipment needs.

Description

- **Rowayton Elementary – Rear Double Door Replacement, $40,000**
  Existing doors, installed in the 1970s, have exceeded their life expectancy and pose safety concerns.
- **Silvermine & Fox Run – Fire Alarm Panel Replacement, $100,000**
  Original fire alarm panels have begun sending false alarms, requiring updated, reliable systems.
- **Districtwide – Floor Scrubbers, $100,000**
  Two ride-on and two push-behind floor scrubbers are needed to properly maintain flooring across schools, including the addition of South Norwalk School.

Details

Type of Project: Replacement

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$240K	**$240K**	**$240K**

SCIENCE & SOCIAL STUDIES CURRICULUM

Overview

Request Owner Lunda Asmani, CHIEF FINANCIAL OFFICER BOE

Department BOARD OF EDUCATION

Type Capital Equipment

Project Number C0609

Description

Overview

This request supports districtwide updates to K–5 science curriculum and the implementation of new state-mandated social studies standards.

Description

FY27 – Elementary Science Curriculum, $400,000

Current materials have been sunset by the publisher and are no longer instructionally aligned. Pilots began in six schools in FY25–26. Funding will expand implementation across all K–5 schools.

FY28 – Science Curriculum Expansion, $300,000

Supports full rollout of remaining units districtwide.

Details

New Purchase or Replacement: Replacement

POCD CODE: 5.1.A.IV Explore creation of new educational programs

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$400K	**$700K**	**$700K**

STUDENT TECHNOLOGY

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Equipment
Project Type	Computer Software
Project Number	C0740

Description

Overview
This request funds technology resources that support digital learning, AI literacy, and the district's device refresh cycle.

Description
The request includes online instructional resources, AI education tools, learning environment assessments, and licensing for teachers and students. Funds also support the replacement of student devices in alignment with the district's established refresh schedule.

FY27 Requests

- Grade 1: 800 Chromebooks — $304,000
- Grade 6: 600 VILS Chromebooks — $228,000
- Kindergarten: 375 iPad/Chrome-pad devices — $131,250
- High School Labs: 40 Apple desktops — $44,000

FY28–FY31
Annual student device replacement: $600,000 per year.

Details

New Purchase or Replacement: New

POCD CODE: 5.1.A.IV Explore creation of new educational programs

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$707K	**$3.11M**	**$3.11M**

WEST ROCKS CONSTRUCTION

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2027
Estimated Completion Date	06/30/2028

Description

Overview

Based on the district's Facility Improvement Study, West Rocks Middle School has been identified as the next school requiring major facility upgrades.

Description

The conceptual plan proposes construction of a new school building on the existing campus, with anticipated completion in 2030. Following occupancy, the existing building will be demolished and site development will be completed by 2031. State reimbursement is preliminarily projected at approximately 60 percent, with the total request subject to refinement following a professional cost estimate.

Details

Type of Project: New Construction

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$125M**	**$125M**

WEST ROCKS SCHOOL- DRAINAGE STUDY/IMPROVEMENTS

Overview

Request Owner	Lunda Asmani, CHIEF FINANCIAL OFFICER BOE
Department	BOARD OF EDUCATION
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2028

Description

Overview
This request addresses longstanding drainage concerns affecting West Rocks Middle School and surrounding neighborhoods.

- **Description**
  FY27 – Drainage Study, $400,000
  A comprehensive watershed study will evaluate stormwater impacts on the adjacent community and assess potential mitigation strategies. Off-site improvements, if recommended, will not qualify for state school construction reimbursement.
- **FY28 – Drainage Improvements, $2,000,000 (Placeholder)**
  Pending study results, this amount serves as a provisional estimate for needed drainage upgrades to mitigate flooding risk and improve overall site function.

Details

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$2.4M**	**$2.4M**

BUILDING MANAGEMENT

BEN FRANKLIN - VARIOUS REPAIRS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0295

Description

Ben Franklin Center perimeter heating system improvements, roof replacement, window replacement, and gym floor replacement.

2027 **Synthetic gym floor $65,000** The synthetic gym floor is heavily used, mostly in winter, and requires repairs and repainting.

2027 **Allerton Compass Software Upgrade $13,788** The existing software is outdated and no longer supported.

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$78.8K	**$78.8K**	**$78.8K**

BRANCH LIBRARY IMPROVEMENTS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0644

Description

2027 **Exterior Door Replacement $30,000** The Washington Street entrance door is original to the building and needs to be replaced.

2028

2029 **Pointing & Caulking $50,000** Building has air and water infiltration which require pointing and caulking to reseal areas.

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$30K	**$80K**	**$80K**

CITY HALL REPAIRS & IMPROVEMENTS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0439

Description

Concert Hall entrance upgrades are needed for accessibility and safety. Carpeting throughout the building has been stained and worn down over the years and requires replacement. Mechanical upgrades. Electric vehicle charging station installations

2026 Fan Coil Unit Upgrades $50,000 The perimeter fan coil unit upgrades
2026 Security Upgrades $20,000 Replace CCTV server and install new cameras
2026 Interior Painting Plan $25,000 Funding is required to continue a five-year painting program to include but not limited to offices, restrooms, hallways, doors and trim, wallpaper, etc.

2027 **Concert Hall Doors Installation $60,000** Concert Hall entrance doors installation of 3 double & 2 single doors.

2027 **Design Service $10,000** Design Service for 2nd floor men's & ladies' bathroom upgrades.

2027 **Bathroom Upgrades $100,000** Upgrades and finishes to the men's & ladies' bathrooms on the 2nd floor.
2027 **Design Service $50,000** Design Service for FCU Replacement.

2027 **Fan Coil Unit Replacement $500,000** The perimeter fan coils are currently 33 years old and are beginning to fail. The units will be replaced with more energy-efficient units and upgraded controls.
2027 **Interior Painting Plan $50,000** for funding required to continue a five-year painting program to include, but not limited to, offices, restrooms, hallways, doors and trim, wallpaper, etc..

2027 **Design Service $12,000** Design Service for the Heating / Cooling plant changeover.

2027 **Mechanical Upgrades $138,000** Heating/ cooling plant change over valves are leaking and require replacement. The expansion tanks are 30 years old and require replacement.

2028 **Fan Coil Unit Replacement $500,000.** The perimeter fan coils are currently 33 years old and are beginning to fail. The units will be replaced with more energy-efficient units and upgraded controls.
2028 **Interior Upgrades $300,000** Building interior finishes and equipment, such as, but not limited to, door hardware, ceiling and floor tiles, wallpaper, and other interior finishes require replacement.
2028 **KMC BACnet Controllers $130,000** Converting the current KMD digital controllers to KMC BACnet Conquest Controllers.
2028 **Interior Painting Plan $50,000** Funding is required to continue a five-year painting program to include, but not limited to, offices, restrooms, hallways, doors and trim, wallpaper, etc.

2028 **Design Service $30,000** Concert Hall Window Replacement.
2028 **Concert Hall Cupola $162,000.00** Cupola plaster repair.

2029 **Concert Hall Window Replacement $650,000** Concert Hall windows are original to the building, the wood frame is deteriorating and not energy efficient.
2029 **Fan Coil Unit Replacement $700,000.** The perimeter fan coils are currently 33 years old and are beginning to fail. The units will be replaced with more energy-efficient units and upgraded controls.
2029 **Interior Painting Plan $50,000** Funding is required to continue a five-year painting program to include, but not limited to, offices, restrooms, hallways, doors and trim, wallpaper, etc.
2030 **Interior Painting Plan $50,000** Funding is required to continue a five-year painting program to include, but not limited t,o offices, restrooms, hallways, doors and trim, wallpaper, etc.

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$920K	**$2.28M**	**$2.28M**

ELECTRIC VEH/SUSTAINABILITY PROJS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Equipment
Project Number	C0718

Description

2026 **Electric Vehicle/Sustainability Projects $75,000** Expansion of charging station installations throughout various city buildings needed for the City of Norwalk's GO GREEN initiative.

2027 **Electric Vehicle/Sustainability Projects $150,000** Expansion of charging station installations throughout various city buildings needed for the City of Norwalk's GO GREEN initiative.

2028 **Electric Vehicle/Sustainability Projects $150,000** Expansion of charging station installations throughout various city buildings needed for the City of Norwalk's GO GREEN initiative.

2029 **Electric Vehicle/Sustainability Projects $150,000** Expansion of charging station installations throughout various city buildings needed for the City of Norwalk's GO GREEN initiative.

2030 **Electric Vehicle/Sustainability Projects $150,000** Expansion of charging station installations throughout various city buildings needed for the City of Norwalk's GO GREEN initiative.

2031 **Electric Vehicle/Sustainability Projects $150,000** Expansion of charging station installations throughout various city buildings needed for the City of Norwalk's GO GREEN initiative.

Details

New Purchase or Replacement: New

POCD CODE: NA

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$750K**	**$750K**

ELECTRICAL SYSTEMS SURVEYS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0736

Description

2026 Electrical line drawings: $50,000. As buildings age and changes/additions are made, it is essential to have electrical line riser diagrams for various projects performed throughout the buildings. The buildings to be inspected will be the Ben Franklin Center, Public Works Center, Nathaniel Ely Center, and the Norwalk Public Library.

2027

2028 **Electrical line drawings: $50,000.** As buildings age and changes/additions are made, it is essential to have electrical line riser diagrams for various projects performed throughout the buildings. The buildings to be inspected will be the Ben Franklin Center, Public Works Center, Nathaniel Ely Center, and the Norwalk Public Library.

2029 **Electrical line drawings: $50,000.** As buildings age and changes/additions are made, it is essential to have electrical line riser diagrams for various projects performed throughout the buildings. The buildings to be inspected will be the Ben Franklin Center, Public Works Center, Nathaniel Ely Center, and the Norwalk Public Library.

2030 **Electrical line drawings: $50,000.** As buildings age and changes/additions are made, it is essential to have electrical line riser diagrams for various projects performed throughout the buildings. The buildings to be inspected will be the Ben Franklin Center, Public Works Center, Nathaniel Ely Center, and the Norwalk Public Library.

2031 **Electrical line drawings: $50,000.** As buildings age and changes/additions are made, it is essential to have electrical line riser diagrams for various projects performed throughout the buildings. The buildings to be inspected will be the Ben Franklin Center, Public Works Center, Nathaniel Ely Center, and the Norwalk Public Library.

Details

Type of Project: Other

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$200K**	**$200K**

FIRE HEADQUARTERS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0735

Description

2027 **Roof Replacement $350,000** Replacement of the roof due to numerous leaks and difficulty in inspecting the cause of leaks due to ballast materials and roof access.

2027 **Alerton Bacnet Software upgrade $12,188** The existing software is outdated and no longer supported.

2028 **Window Setback $30,000** The building was originally designed without a window setback, making it difficult to maintain the roofs and drains.

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$362K	**$392K**	**$392K**

HEALTH DEPARTMENT

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0645

Description

2027

2028 **RTU REPLACEMENT $200,000.00** Units will be 20 years old in 2028.

2029 **Pointing & Caulking $50,000** Building has air and water infiltration which require pointing and caulking to reseal areas.

2030

2031

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$250K**	**$250K**

MAIN LIBRARY

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0133

Description

2026 Design Service $10,000 Design services for roof replacement

2026 Roof Replacement $320,000 Roof is over 20 years old and is experiencing multiple leaks from the roofing system and coping stones.

2026 Design Service $10,000 Design services for elevator cab modernization.

2026 Elevator cab modernization $200,000 The elevator cab will be modernized and upgraded to comply with ADA requirements.

2027

2028 **Design Service $15,000** Design services for mechanical system upgrades.

2028 **Mechanical System Upgrades $405,000** Replacement of the oil/steam system with a natural gas and hydropic system. Currently, the library has limited control over the air conditioning and heating system.

2028 **Design Service $20,000** RTU replacement design.

2028 **RTU replacement $450,000** Units are over 45 years old and need to be replaced with energy-efficient models.
2029 **Pointing & Caulking $100,000** Building has air and water infiltration which require pointing and caulking to reseal areas.

2030

2031

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$990K**	**$990K**

MATHEWS PARK

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0717

Description

2027 **Gatehouse Chimney Repair $20,000** the chimney is constantly leaking and in need of repointing.
2028 **Wood structural removal $100,000.00** Remove wood structure & repair façade.

2029

2030

2031

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$20K	**$120K**	**$120K**

NATHANIEL ELY IMPROVEMENTS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0266

Description

2027 **RTU Replacement $266,000** The 2026 bid project cost for the RTU replacement came in over budget. In need of additional funding for the cost overage.
2027 **Design Service $10,000** Design services for the roof.

2027 **Window replacement $295,000.00** The single-pane windows at the rear of the building are original to the building (1955). They show signs of wear, safety concerns, and are not energy efficient.

2028 **Roof Replacement $380,000** The roof is 25 years old. The warranty has expired.

2029

2030

2031

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$571K	**$951K**	**$951K**

POLICE FACILITIES

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0137

Description

2027 **Design Service $10,000.00** Design services for the rear parking lot paving.
2027 **Rear Parking Lot Paving $350,000.00** The parking lot is 15 yrs old. It has multiple cracks & potholes.
2027 **Interior Painting Program $100,000.00** Funding is requested to begin a five-year painting plan to include but not limited to offices, restrooms, hallways, doors and trim, wall paper, window sills etc...
2027 **KMC BACnet Controls Upgrade $144,329.00** The existing software is outdated and no longer supported.
2027 **Window Caulking $150,000.00** Windows have air and water infiltration which require caulking to reseal areas.
2028 **Hot water boilers $150,000.00** The hot water boilers are nearing their end of life (17 yrs.) and have been plagued with repairs over the last few years.
2028 **Design Service $10,000.00** Design services for BACnet Controllers project.
2028 **KMC BACnet Conquest Controllers $155,000.00** "Existing DDC (Direct Digital Control) Building Automation System, installed in 2005, is becoming antiquated and parts may become unavailable. New BACnet communication protocol and equipment will replace DDC system. Approximately 35% of the building is "alr"

2028 **Overhead Door Replacements $150,000** Overhead doors are over 18 years old and require frequent repairs.
2029 **Pointing & Caulking $100,000** Building has air and water infiltration which require pointing and caulking to reseal areas.

2030

2031

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$754K	**$1.32M**	**$1.32M**

PUBLIC WORKS CENTER

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0119

Description

2026 Outer Door Replacements — $20,000 OSHA requirement
2026 Salt Shed Structural Design — $50,000 Phase II — Design Services for Salt Shed Improvements
2026 Salt Shed Structural Improvements — $200,000 Phase II — Salt Shed requires structural improvements
2026 Supervisor / Weighmaster Building Flooring — $12,000 — Flooring needs to be replaced

2027 **Salt Shed Exterior Repairs $486,000.00** The concrete is deteriorating and in need of reinforcement/repairs

2027 **Administration Bldg. Roof Coating $445,500** The building's current roofing membrane is approaching its life expectancy. Recently, we have experienced several leaks in the building. The roof will need to be coated with an elastomeric roofing membrane.

2027 **Dispatch Bldg. Roof Coating $176,000** The building's current roofing membrane is approaching its life expectancy. Recently, we have experienced several leaks in the building. The roof will need to be coated with an elastomeric roofing membrane.

2027 **Garage Overhead Fans $30,000.00** OSHA requirement. Replace residential fans with commercial fans
2027 **Paving $ 200,000** Phase III
2027 **Weighmaster's Building Door Replacement $20,000** Door Frame needs to be replaced.
2027 **Design Service $5,000** Energy-efficient mechanical equipment installation project.

2027 **Mechanical Equipment Upgrade $90,000**: Install new energy-efficient mechanical equipment
2027 **Siding Panel & Trim Replacement $80,000.** Replacement of the corrugated siding panels that have been damaged over the years.

2028 **Overhead Doors Replacements $160,000** The doors are over 40 years old and need replacing
2029 **Overhead Doors Replacements $160,000** The doors are over 40 years old and need replacing

2030

2031

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1.53M	**$1.85M**	**$1.85M**

ROOSEVELT CENTER IMPROVEMENTS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0683

Description

2027

2028

2029 **Pointing & Caulking $100,000** Building has air and water infiltration which require pointing and caulking to reseal areas.

2030

2031

Details

POCD CODE: 5.2.A Implement the facilities improvement plan over time

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$100K**	**$100K**

SIDEWALK & CURB BLDG MGMT

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0583

Description

2026 Sidewalks and Curbing $50,000 The proposed funding will provide for only the most critical of sidewalk repairs at City facilities.

2027

2028 **Sidewalks and Curbing $50,000** The proposed funding will provide for only the most critical of sidewalk repairs at City facilities.

2029 **Sidewalks and Curbing $50,000** The proposed funding will provide for only the most critical of sidewalk repairs at City facilities.

2030 **Sidewalks and Curbing $50,000** The proposed funding will provide for only the most critical of sidewalk repairs at City facilities.

2031 **Sidewalks and Curbing $50,000** The proposed funding will provide for only the most critical of sidewalk repairs at City facilities.

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$200K**	**$200K**

VAR BLDGS-ENVIRONMENTAL REMEDIATION

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0543

Description

2026 Environmental Remediation $20,000 Funds required for unforeseen environmental testing and abatement at City buildings.

2027 **Environmental Remediation $20,000** Funds required for unforeseen environmental testing and abatement at City buildings.

2028 **Environmental Remediation $20,000** Funds required for unforeseen environmental testing and abatement at City buildings.

2029 **Environmental Remediation $20,000** Funds required for unforeseen environmental testing and abatement at City buildings.

2030 **Environmental Remediation $20,000** Funds required for unforeseen environmental testing and abatement at City buildings.

2031 **Environmental Remediation $20,000** Funds required for unforeseen environmental testing and abatement at City buildings.

Details

Type of Project: Other

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$20K	**$100K**	**$100K**

VARIOUS CITY BLDGS REPAIRS

Overview

Request Owner	Glendaly Padilla, Clerk
Department	BUILDING MANAGEMENT
Type	Capital Improvement
Project Number	C0476

Description

2026 **Various capital replacements and repairs $60,000** Capital replacements and repairs to infrastructure at City buildings.

2027 **Various capital replacements and repairs $60,000** Capital replacements and repairs to infrastructure at City buildings.

2028 **Various capital replacements and repairs $60,000** Capital replacements and repairs to infrastructure at City buildings.

2029 **Various capital replacements and repairs $60,000** Capital replacements and repairs to infrastructure at City buildings.

2030 **Various capital replacements and repairs $60,000** Capital replacements and repairs to infrastructure at City buildings.

2031 **Various capital replacements and repairs $60,000** Capital replacements and repairs to infrastructure at City buildings.

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$60K	**$300K**	**$300K**

BUSINESS DEVELOPMENT & TOURISM

NORWALK SPECIAL EVENTS

Overview

Request Owner	Sabrina Godeski, Director of Business Development
Department	BUSINESS DEVELOPMENT & TOURISM
Type	Capital Improvement
Project Number	C0680
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

The BDT Department is requesting capital funding to support the essential contracted services required to safely and successfully execute municipal special events. As the City's event portfolio continues to expand—specifically the Holiday Extravaganza, The Melt on River Street, the River Street Sunset Markets, and the SoNo Saturday Markets—reliable professional services are critical to delivering high-quality, compliant, and well-managed programming.

This capital request will fund key third-party services, including EMS standby coverage, licensed entertainment, staging and lighting providers, sound and technical production, fencing and crowd-control services, restroom rentals, power distribution, vendor outsourcing, and other specialized event operations. These contracted services are fundamental to meeting safety standards, maintaining accessibility, and creating polished, engaging public events.

Investing in these essential services through the capital budget ensures the City can host safe, well-coordinated, and scalable events without placing additional strain on departmental operating budgets. This funding strengthens signature community events such as the Holiday Extravaganza, The Melt, the Sunset Markets, and SoNo Saturday Markets, all of which support local businesses, boost tourism, and enhance cultural vibrancy.

By securing resources for these core event services, the City ensures continuity, safety, and professional-quality experiences for residents and visitors year-round.

Details

Type of Project: Other improvement

POCD CODE: 3.3.A.III Explore strengthening Norwalk Center's Main St Program to manage programs and events for a portion of the Wall St area

Supplemental Attachments

Special Events Line Item Spends

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$1.25M**	**$1.25M**

SMALL BUSINESS/MAIN ST. PROGRAM

Overview

Request Owner	Jay Habansky, Chief Econ & Comm Dvlp
Department	BUSINESS DEVELOPMENT & TOURISM
Type	Capital Improvement
Project Number	C0773
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

Economic and Community Development Program to support small businesses and main street improvements. Project will improve streetscapes to enhance the vitality and quality of life in the city. Funding will support projects such as the Storefront Improvement Program, a new brand building program, and the Norwalk Innovations Initiative. The goal of the funding is to support placemaking and business support enhancements. This will also support matching funds for a $1,000,000 Community Investment Fund grant.

Details

Type of Project: Other improvement

POCD CODE: 3.3.A Enhance business attraction and expansion tools in urban core areas

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$200K	**$1M**	**$1M**

CENTRALIZED FLEET MAINTENANCE

CENTRALIZED FLEET MAINTENANCE

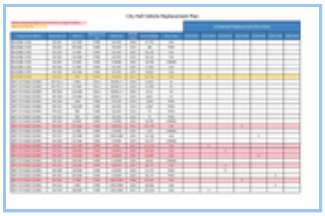
Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	CENTRALIZED FLEET MAINTENANCE
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	C0716

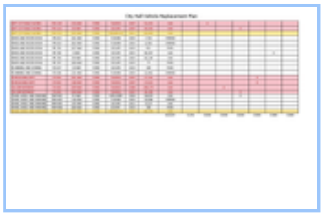
Description

GAS VEHICLES TO BE REPLACED WITH HYBRID OR EV VEHICLES

Images



26-27 City Car Replacment Plan__Page_1.jpg



26-27 City Car Replacment Plan__Page_2.jpg

Details

New Purchase or Replacement: New

New or Used Vehicle: New Vehicle

Useful Life: 10 or more years

POCD CODE: 8.1.A.IV Replace city vehicles incrementally with electric or hybrid vehicles

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$200K	**$800K**	**$800K**

CHIEF OF COMMUN DEVELOP

ONLINE PERMITTING

Denied

Overview

Request Owner	Maritza Alvarado, Executive Secretary
Department	CHIEF OF COMMUN DEVELOP
Type	Capital Improvement
Project Number	C0731
Estimated Start Date	07/1/2026

Description

Recurring subscription fee for online permitting. The subscription fee covers the continued maintenance of the city-wide online permitting and licensing system.

Details

JUSTIFICATION: Subscription fee covers the continued maintenance of the city-wide online permitting and licensing system.

Type of Project: Other improvement

POCD CODE: 3.1.A

Supplemental Attachments

4435 City of Norwalk CD RFP

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$750K**	**$750K**

CODE ENFORCEMENT

STREETSCAPE IMPROVEMENTS

Overview

Request Owner	Jay Habansky, Chief Econ & Comm Dvlp
Department	CODE ENFORCEMENT
Type	Capital Improvement
Project Number	C0806

Description

Streetscape improvements, including but not limited to plantings, street urns, light pole baskets, median landscaping, and general area landscaping in the urban core. Funding will also support holiday decorations in the urban core, including but not limited to lighting and wreaths. This funding request was transferred from the Redevelopment Agency to the Neighborhood Improvement Team (Building and Code Enforcement).

Details

POCD CODE: 12.2.A Support local centers of activity in neighborhoods

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$750K**	**$750K**

COMMUNITY SERVICES

ADA TRANSITION PLAN IMPLEMENTATION CAPITAL PROGRAM

Overview

Request Owner	Lamond Daniels, Chief of Community Services
Department	COMMUNITY SERVICES
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

Accessibility Infrastructure Improvement Program – Capital Budget Request

This request outlines priority capital investments needed to advance the City's draft ADA Transition Plan and ensure compliance with the **Americans with Disabilities Act Standards for Accessible Design**. The following projects focus on removing architectural barriers, improving public access, and supporting equitable use of City facilities.

1. Benjamin Franklin Community Center – Family & Children's Agency (165 Flax Hill Rd)

Total Request: $80,000

The facility currently provides elevator access via the rear parking lot entrance. Recent site improvements, including full parking lot repaving and striping by **DPW**, have enhanced access to the ADA entrance ramp. The following upgrades are required to bring interior and exterior access into full compliance:

- **Power door openers for main entrance doors** – **$15,000**
- **Upgrades to three ADA-accessible single-user restrooms** – **$15,000**
- **Powered door openers with electronic locking for restrooms** (required for compliance) – **$35,000**
- **ADA-compliant signage for all permanent rooms, restrooms, and exits** – **$15,000**

Total Estimated Cost: $80,000

2. Norwalk Senior Center – Accessible Patio/Courtyard Access

Estimated Request: $150,000

The patio/courtyard is scheduled for reconstruction in **Spring 2026**, as the area has been unsafe and unusable for several years. Under ADA requirements, alterations to a primary function area must include an accessible route.

The project scope includes:

- Construction of an **ADA-compliant ramp** and accessible path of travel
- **Doorway upgrades**, including **powered door openers**
- Improvements to support **accessible emergency egress**

This investment will restore functionality of the courtyard for events, meals, and programming while establishing the required accessible access route.

Estimated Cost: $150,000

---

3. Gallaher Mansion – Elevator Installation & Accessibility Upgrades (Cranbury Park)

Estimated Request: $400,000
(Phasing possible: $250,000 Year One / $150,000 Year Two)

A recently completed **$5 million** infrastructure upgrade program addressed plumbing, septic, electrical, and mechanical systems at the Mansion. The next critical step is restoring accessibility in alignment with historic preservation requirements.

Key project elements:

- The Mansion contains an **existing elevator shaft** from its original 1931 construction.
- A written quote from **Bullock Access Co.** estimates **$155,000** for elevator car installation.
- Following consultation, architect **Aidan Migani (O'Riordan Migani Associates)** projects a **total project cost of $400,000**, including architectural, engineering, and construction work.
- Work aligns with requirements of the **Connecticut State Historic Preservation Office (SHPO)**; Migani has extensive experience with SHPO and major historic properties, including the Lockwood-Matthews Mansion.

This project is strongly supported by internal stakeholders including **Recreation & Parks**, the **Chief Building Official**. Installing the elevator **prior** to interior rehabilitation will prevent damage and ensure long-term accessibility.

Restoring elevator access will:

- Make the Mansion inclusive for all ages and abilities
- Increase opportunities for public use, educational programming, and event rentals
- Preserve and reactivate a historically significant City asset

Estimated Cost: $400,000
Proposed phasing:

- **Year 1:** $250,000 – architectural/engineering and pre-installation work
- **Year 2:** $150,000 – final build-out and installation

Total Capital Request Across All Projects: $630,000

These investments will significantly advance the City's ADA Transition Plan, improve public access across multiple high-demand facilities, and address long-standing compliance needs in a strategic, phased manner.

Images

Benjamin Franklin Community Center

ADA Compliant ramp to entrance doors. Power door openers should be added for greater accessibility. Per 1105.1.1 CT Building Code

Benjamin Franklin Community Center

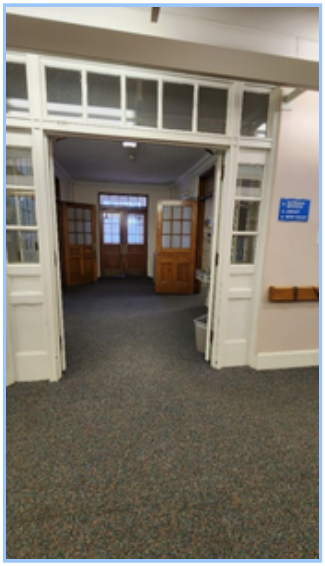
Single User ADA restrooms lack compliant and safe grab bars required per the building code and ADA Standards. The bars that were installed are very lightweight and not firmly secured to the wall. Heavier gauge grab bars need to be professionally installed. Restrooms all have incorrectly installed dispensers that are too large and impede access. Paper dispensers are too large and need to be replaced with smaller units that do not impede access.

Benjamin Franklin Community Center

Building code requirements for grab bars

Benjamin Franklin Community Center

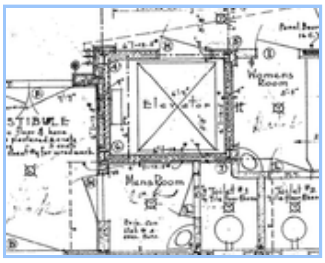
Some rooms on the 3rd fl have older compliant signage, but most are not compliant per 703 in the building code and ADA Standards which require raised characters, font size, high contrast, non-glare finish, braille, etc. Wayfinding and exit signage is also required to meet compliance standards.



Gallaher Mansion Cranbury Park

Norwalk Senior Center-Access to Patio/Courtyard

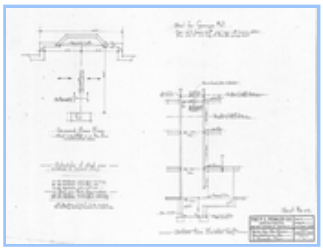
Interior view of doors to courtyard



Gallaher Mansion Cranbury Park

Norwalk Senior Center-Access to Patio/Courtyard

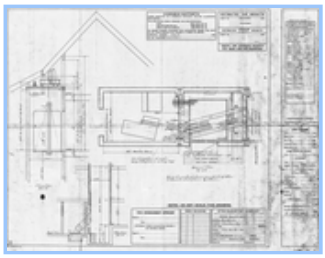
Exterior doors to courtyard



Gallaher Mansion Cranbury Park

Norwalk Senior Center-Access to Patio/Courtyard

Courtyard has been in disrepair



Gallaher Mansion Cranbury Park

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Supplemental Attachments

2026-27 ADA Capital Budget

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$480K	**$630K**	**$630K**

ENGINEERING

BRIDGE REPAIR

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0315
Estimated Start Date	01/1/2016
Estimated Completion Date	12/31/2031

Description

DESIGN AND CONSTRUCTION OF REPAIRS TO LOCAL BRIDGES LESS THAN 20 FT. LONG BASED UPON INSPECTIONS (SEE ATTACHMENT),

Details

JUSTIFICATION: INSPECTION OF LOCAL BRIDGES LESS THAN 20FT LONG. REPAIRS BASED UPON PRIOR 2019 INSPECTION RECOMMENDATIONS

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

A1 1 2019 Bridge Inspection Results - No Totals.pdf

A1 2 Bridge Account Request Worksheet - FY 2026-2027.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1.4M	**$3.4M**	**$3.4M**

COASTAL RESILIENCY

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	NEW

Description

PROJECTS TO PROTECT VULNERABLE COASTAL AREAS FROM FLOODING AND BEACH EROSION DAMAGE RESULTING FROM MORE FREQUENT AND POWERFUL STORMS RESULTING FROM CLIMATE CHANGE.

Details

JUSTIFICATION: PROJECTS TO PROTECT VULNERABLE COASTAL AREAS FROM FLOODING AND BEACH EROSION DAMAGE RESULTING FROM MORE FREQUENT AND POWERFUL STORMS RESULTING FROM CLIMATE CHANGE.

Type of Project: Other improvement

POCD CODE: 9.5.B Implement commitments in the Regional Hazard Mitigation Plan and take additional steps to enhance resiliency

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$1.45M**	**$1.45M**

CONVERSION OF AERIAL TO UNDERGROUND UTILITIES

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	NEW

Description

STUDY, DESIGN AND PERFORM UNDERGROUNDING OF AERIAL UTILITIES IN CERTAIN NEIGHBORHOODS.

Details

JUSTIFICATION: STUDY, DESIGN AND PERFORM UNDERGROUNDING OF AERIAL UTILITIES IN CERTAIN NEIGHBORHOODS.

Type of Project: Other improvement

POCD CODE: 9.5.A Prepare a Climate Change Vulnerability Assessment and plan for future adaptation

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$5.5M**	**$5.5M**

DREDGING MARINAS AND EASEMENTS

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0281

Description

DREDGING DEPOSITED SEDIMENT FROM MARINAS AND EASEMENTS THAT CITY IS RESPONSIBLE FOR MAINTAINING

Details

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C2 1 Vol 1061 Pg 160-166 - Easement Deed - Maintenance Agreement.pdf

C2 2 160 Water St, Dredging-PLAN - PROFILE 8.5x11.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$500K	**$1M**	**$1M**

EAST AVE RECONSTRUCTION

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0471

Description

ANTICIPATED NON-PARTICIPATING STREETSCAPE IMPROVEMENT FEATURES AND UNDERGROUND UTILITIES

Details

JUSTIFICATION: ANTICIPATED NON-PARTICIPATING STREETSCAPE IMPROVEMENT FEATURES AND UNDERGROUND UTILITIES

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1.5M	**$3M**	**$3M**

ELIZABETH ST STREETSCAPE & UNDERGROUD UTIL

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0819

Description

DESIGN AND INSTALLATION OF A STREETSCAPE PROJECT INCLUDING THE UNDERGROUNDING OF EXISTING OVERHEAD UTILITY INFRASTRUCTURE ON ELIZABETH STREET.

Details

JUSTIFICATION: CONSTRUCTION OF THE ELIZABETH STREETSCAPE AND UNDERGROUND UTILITY INFRASTRUCTURE PROJECT.

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

E6 Elizabeth St Utility Undergrounding Map.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$2M	**$2.5M**	**$2.5M**

FOOTPATH REPLACEMENT

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0503

Description

ENABLE PEDESTRIAN MOBILITY AND PROMOTE PEDESTRIAN ACCESS TO SCHOOL FACILITIES UTILIZING OVER 43 MILES OF EXISTING FOOTPATHS.

Details

JUSTIFICATION: ENABLE PEDESTRIAN MOBILITY AND PROMOTE PEDESTRIAN ACCESS TO SCHOOL FACILITIES UTILIZING OVER 43 MILES OF EXISTING FOOTPATHS.

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

Norwalk - Foot Paths 24x36.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$300K	**$1.5M**	**$1.5M**

GENERAL DRAINAGE

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0302

Description

REPAIR/INSTALL MINOR TO MID-SIZED DRAINAGE SYSTEMS WITHIN COORDINATION WITH THE PAVING PROGRAM

Details

Type of Project: Resurface Current Road

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Benefit to Community

REPAIR/INSTALL MINOR TO MID-SIZED DRAINAGE SYSTEMS WITHIN COORDINATION WITH THE PAVING PROGRAM

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$600K	**$2.4M**	**$2.4M**

Operational Costs

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$1.8M**	**$1.8M**

GLENDENNING STREET AND CANNON STREET AREA STORM DRAINAGE

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0713

Description

CONSTRUCTION OF INFRASTRUCTURE UPGRADES RECOMMENDED IN PREVIOUS FLOOD STUDY TO MITIGATE SIGNIFICANT FREQUENT FLOODING EXPERIENCED IN THE AREA.

Details

JUSTIFICATION: CONSTRUCTION OF INFRASTRUCTURE UPGRADES RECOMMENDED IN PREVIOUS FLOOD STUDY TO MITIGATE SIGNIFICANT FREQUENT FLOODING EXPERIENCED IN THE AREA.

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C7 Glendenning Street Area Storm Drainage Construction Cost - Alternative 2-1.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$500K	**$500K**	**$500K**

GLENWOOD AVE AREA STORM DRAINAGE IMPROVEMENTS

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	NEW

Description

FREQUENT FLOODING HAS BEEN EXPERIENCED IN THIS AREA. FLOOD STUDY HAS RECOMMENDED INFRASTRUCTURE UPDGRADES TO MITIGATE THE FLOODING.

Details

JUSTIFICATION: DESIGN OF INFRASTRUCTURE UPGRADES RECOMMENDED IN PREVIOUS FLOOD STUDY TO MITIGATE FREQUENT FLOODING EXPERIENCED IN THE AREA. / CONSTRUCTION OF INFRASTRUCTURE UPGRADES RECOMMENDED IN PREVIOUS FLOOD STUDY TO MITIGATE FREQUENT FLOODING EXPERIENCED IN THE AREA.

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C9 Glenwood Avenue 2026-2027.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$3M**	**$3M**

GRANT LOCAL MATCHING FUNDS

Overview

Request Owner Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS

Department ENGINEERING

Type Capital Improvement

Project Number C0816

Description

VARIOUS GRANTS THROUGH CTDOT AND WESTCOG AND OTHER ENTITITES THAT MAKE FUNDING AVAILABLE ANNUALLY THROUGH VARIOUS PROGRAMS TO COVER STUDIES, ROW ACQUISITIONS, DESIGN / CONSTRUCTION COSTS FOR ROADWAYS (NON-PARTICIPATING ITEMS)

Details

Type of Project: Other

POCD CODE: 12.1.A Adopt principles to guide land use decision making

Benefit to Community

VARIOUS GRANTS THROUGH CTDOT AND WESTCOG AND OTHER ENTITITES THAT MAKE FUNDING AVAILABLE ANNUALLY THROUGH VARIOUS PROGRAMS TO COVER STUDIES, ROW ACQUISITIONS, DESIGN / CONSTRUCTION COSTS FOR ROADWAYS (NON-PARTICIPATING ITEMS)

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$450K	**$2.25M**	**$2.25M**

Operational Costs

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$1.8M**	**$1.8M**

GREEN INFRASTRUCTURE

Overview

Request Owner Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS

Department ENGINEERING

Type Capital Improvement

Project Number C0715

Description

DESIGN AND CONSTRUCT GREEN INFRASTRUCTURE TO IMPROVE WATER QUALITY, REDUCE STORMWATER RUNOFF, AND OFFSET HEAT ISLAND IMPACTS OF DEVELOPMENT

Details

Type of Project: Improvement

POCD CODE: 9.5.B Implement commitments in the regional Hazard Mitigation Plan and take additional steps to enhance resilience

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$100K	**$650K**	**$650K**

INFRASTRUCTURE REINVESTMENT (CAPITAL RESERVE)

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0817

Description

FUNDING A CAPITAL RESERVE DEDICATED TO THE REPLACEMENT OF DETERIORATING CRITICAL INFRASTRUCTURE REQUIRED TO PROVIDE A SAFE LIVING ENVIRONMENT FOR THE CITIZENS OF NORWALK.

Details

JUSTIFICATION: FUNDING A CAPITAL RESERVE DEDICATED TO THE REPLACEMENT OF DETERIORATING CRITICAL INFRASTRUCTURE REQUIRED TO PROVIDE A SAFE LIVING ENVIRONMENT FOR THE CITIZENS OF NORWALK.

Type of Project: Refurbishment

POCD CODE: 12.1.A Adopt principles to guide land use decision making

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$1.6M**	**$1.6M**

LAWRENCE ST STORM DRAINAGE

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0714

Description

UPDATE STUDY TO EVALUATE NECESSITY FOR NEW PUMP STATION TO MITIGATE TIDAL FLOODING ON ROADS.

Details

Type of Project: Improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C8 01 Summary Report Project Area 4 - Lawrence Street Area 12-3-13 - Pump Station.pdf

C8 02 LAWRENCE STREET STORM WATER PUMP HISTORICAL INFLATION DATA.pdf

C8 03 LAWRENCE STREET STORM WATER PUMP STATION INFLATED COST.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$500K	**$6M**	**$6M**

NEW CANAAN AVE/PONUS STORM DRAIN

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0712

Description

SIGNIFICANT FLOODING OCCURS IN THIS AREA FREQUENTLY. FLOOD STUDY HAS RECOMMENDED INFRASTRUCTURE UPGRADES TO HELP MITIGATE THE FLOODING.

Details

JUSTIFICATION: SIGNIFICANT FLOODING OCCURS IN THIS AREA FREQUENTLY. FLOOD STUDY HAS RECOMMENDED INFRASTRUCTURE UPGRADES TO HELP MITIGATE THE FLOODING.

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C6 New Canaan Avenue Map 1 - FY 2026 - 2027.pdf

C6 New Canaan Avenue Map 2 - FY 2026 - 2027.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$3M	**$8M**	**$8M**

NORWALK RIVER FLOOD CONTROL.

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0643

Description

NORWALK RIVER FLOOD DAMAGE REDUCTION SYSTEM DEFICIENCY REPAIRS - PERRY AVENUE AREA (RESTORATION AND MAINTENANCE BASED UPON USACOE ANNUAL INSPECTIONS)

Details

JUSTIFICATION: NORWALK RIVER FLOOD DAMAGE REDUCTION SYSTEM DEFICIENCY REPAIRS - PERRY AVENUE AREA (RESTORATION AND MAINTENANCE BASED UPON USACOE ANNUAL INSPECTIONS)

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C4 - Damaged Piping - Levee.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$300K**	**$300K**

PAVEMENT MANAGEMENT PROGRAM

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0021

Description

IMPROVING THE CONDITION OF CITY STREETS AND ROADS TO SUSTAIN OR IMPROVE THE AVERAGE PAVEMENT CONDITION INDEX (PCI)

Details

JUSTIFICATION: IMPROVING THE CONDITION OF CITY STREETS AND ROADS TO SUSTAIN OR IMPROVE THE AVERAGE PAVEMENT CONDITION INDEX (PCI)

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

PAVING FY 26-27.pdf

Road Segments Detailed_Prop fy2026-27_Corrected.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$8.5M	**$42.5M**	**$42.5M**

SIDEWALKS & CURBS

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0318

Description

ENABLE SAFE PEDESTRIAN MOBILITY, COMPLIANCE WITH FEDERAL ADA STANDARDS, APPROPRIATE CURB REVEAL AND ESTABLISHMENT OF PROFILE FOR PROPER DRAINAGE CONCURRENT WITH PAVING

Details

Type of Project: Other

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Benefit to Community

ENABLE SAFE PEDESTRIAN MOBILITY, COMPLIANCE WITH FEDERAL ADA STANDARDS, APPROPRIATE CURB REVEAL AND ESTABLISHMENT OF PROFILE FOR PROPER DRAINAGE CONCURRENT WITH PAVING

Supplemental Attachments

SIDEWALK FY 26-27.pdf

Road Segments Detailed_Prop fy2026-27_Corrected.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$8.5M	**$42.5M**	**$42.5M**

Operational Costs

FY2027 Budget	Total Budget (all years)	Project Total
$8.5M	**$42.5M**	**$42.5M**

STATE NON-PARTICIPANT CITY STANDARD AMENITIES

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0818

Description

PROVIDE FUNDING FOR CT DOT PROJECTS TO COVER COSTS OF CITY STANDARD AMENITIES THAT ARE NON-PARTICIPATING ITEMS BY STATE AND/OR FEDERAL FUNDING SOURCES.

Details

JUSTIFICATION: PROVIDE FUNDING FOR CT DOT PROJECTS TO COVER COSTS OF CITY STANDARD AMENITIES THAT ARE NON-PARTICIPATING ITEMS BY STATE AND/OR FEDERAL FUNDING SOURCES.

Type of Project: Other improvement

POCD CODE: 12.1.A Adopt principles to guide land use decision making

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$2.25M**	**$2.25M**

STORMWATER MGMT PLAN

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0425

Description

DEVELOP STORMWATER MANAGEMENT PLAN FOR MS4 COMPLIANCE

Details

JUSTIFICATION: MAINTAIN STORMWATER MANAGEMENT PLAN FOR MS4 COMPLIANCE

Type of Project: Refurbishment

POCD CODE: 8.3.A Incorporate green infrastructure and non-structural solutions to manage stormwater to improve water quality and quantity

Supplemental Attachments

STORMWATER.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$450K	**$2.25M**	**$2.25M**

STRUCTURAL INSPECTION/REPAIRS

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0617

Description

STRUCTURAL INSPECTION / REPAIRS FOR INFRASTRUCTURE DUE TO LACK OF STRUCTURAL ENGINEER (EMERGENCY WALL STREET RETAINING WALL ABATEMENT) PREVIOUSLY USED FOR RETAINING WALL REPAIRS, WASHINGTON ST. AND WALL ST. SIDEWALK VAULT INSPECTIONS / REPAIRS

Details

JUSTIFICATION: INSPECTION/REPAIRS FOR INFRASTRUCTURE DUE TO LACK OF A STRUCTURAL ENGINEER. PREVIOUSLY USED FOR EMERGENCY WALL STREET RETAINING WALL ABATEMENT, RETAINING WALL REPAIRS AT VARIOUS LOCATIONS AND WASHINGTON STREET AND WALL STREET SIDEWALK VAULT INSPECTION AND REPAIRS.

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

A2 - COUNTY - SEABREEZE COMBINED REV.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$50K	**$400K**	**$400K**

TREE PLANTING-DPW

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0233

Description

REPLACE DYING TREES AND TREES LOST TO STORM RELATED WEATHER

Details

JUSTIFICATION: DEVELOPMENT OF ANNUAL STATE OF THE FOREST REPORT AND REPLACED DYING TREES AND TREES LOST DUE TO STORM RELATED WEATHER

Type of Project: New Construction

POCD CODE: 8.3.D Continue to maintain and increase the shade tree canopy in Norwalk

Supplemental Attachments

Tree.pdf

30 Year Planting Strategy for Norwalk Urban Forestry .pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$200K	**$1M**	**$1M**

WATERCOURSE MAINTENANCE

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	ENGINEERING
Type	Capital Improvement
Project Number	C0440

Description

MAINTENANCE OF WATERCOURSES AND DRAINAGE INFRASTRUCTURE TO MITIGATE FLOODING, DESIGN AND CONSTRUCTION OF STORM SEWER IMPROVEMENTS

Details

Type of Project: Improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

C1 FY 2026-2027 Proposed drainage work in Ponus area.pdf

C1 FY 2026-2027 Reported Flooding Events.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$2.5M	**$13.5M**	**$13.5M**

FINANCE-BUDGET & SYSTEMS

CLEARGOV OPERATIONAL BUDGETING

Overview

Request Owner	Tom Ellis, Director of Management & Budgets
Department	FINANCE-BUDGET & SYSTEMS
Type	Capital Equipment
Project Type	Computer Software
Project Number	NEW

Description

Simplify the process for department heads with a cloud-based request system. It provides visual breakdowns of historical budgets vs actuals and lets them communicate, justify, and attach supporting documents.

Gives the City the ability to create and track multiple versions of the budget as it progresses through the budgeting process, gain complete visibility into changes with a full audit trail, and take advantage of enhanced reporting capabilities.

Details

New Purchase or Replacement: Upgrade

POCD CODE: 11.1.B Continue to update, modernize, and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$50K	**$50K**	**$50K**

FIRE DEPARTMENT

APPARATUS REFURBISHMENT & UPGRADE - TACTICAL SUPPORT 3

Overview

Request Owner	Mark Conte, Assistant Fire Chief
Department	FIRE DEPARTMENT
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	NEW

Description

The Fire Department is requesting funding to refurbish and upgrade the high-water tactical support vehicle (Tac 3). The apparatus is a 1995 LMTV M-1078 Army surplus vehicle. This vehicle is used for rescue and support during flood and storm conditions. It will be located at Station 5 on Meadow Street. This district is prone to flooding and will enable on-duty personnel to respond immediately, as needed. The vehicle requires modifications and upgrades to allow for the safe transport of evacuees and the current radio communications equipment.

Details

New Purchase or Replacement: Replacement

New or Used Vehicle: Used Vehicle

Useful Life: 10 or more years

POCD CODE: NA

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$100K	**$100K**	**$100K**

APPARATUS REPLACEMENT PLAN - ENGINE

Overview

Request Owner Mark Conte, Assistant Fire Chief

Department FIRE DEPARTMENT

Type Capital Equipment

Project Number NEW

Description

Replace two Engines from 2014 as primary apparatus and allow them to replace two 2001 Engines as reserve apparatus. The current delivery time for new apparatus is approximately four years after the order is placed. The Department's replacement goal is to replace a primary Engine after twelve years and retire a reserve Engine after seventeen years.

Details

New Purchase or Replacement: Replacement

POCD CODE: NA

Supplemental Attachments

Norwalk Fire- Apparatus Replacement Schedule - 26-27.pdf

Apparatus Replacement Plan Breakdown - Engine.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$2.93M	**$4.53M**	**$4.53M**

APPARATUS REPLACEMENT PLAN - TRUCK

Overview

Request Owner Mark Conte, Assistant Fire Chief

Department FIRE DEPARTMENT

Type Capital Equipment

Project Number C0729

Description

Replace Truck 1 with a new 100' ladder truck. This will allow the current 2009 100' ladder truck to be reassigned as the reserve truck, and enable the Department to retire the current 1995 65' ladder truck. The current delivery time for new apparatus is approximately three to four years after the order is placed. The Department's replacement goal is to replace a primary Truck after fifteen years and retire a reserve Truck after twenty years.

Details

New Purchase or Replacement: New

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$7.55M**	**$7.55M**

FIRE DEPARTMENT BUILDING REPAIRS - CITYWIDE

Overview

Request Owner	Mark Conte, Assistant Fire Chief
Department	FIRE DEPARTMENT
Type	Capital Improvement
Project Number	C0385

Description

This funding allows the Fire Department to perform mild-to-moderate building repairs on all facilities. The facilities include: Station 1 - 90 New Canaan Avenue, Station 2 - 121 Connecticut Avenue, Station 3 - 56 Van Zant Street, Station 4 - 180 Westport Avenue, Station 5 - 23 Meadow Street, Station 6/Maintenance Division - 100 Fairfield Avenue, Training Tower - 15 South Smith Street.

Details

Type of Project: New Construction

POCD CODE: 8.1.A.VII Establish a clear policy that all City building repairs, retrofits, and new construction will incorporate LEED (Leadership in Energy and Environmental Design) Silver standards, equivalent or successor standards, at a minimum.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$50K	**$250K**	**$250K**

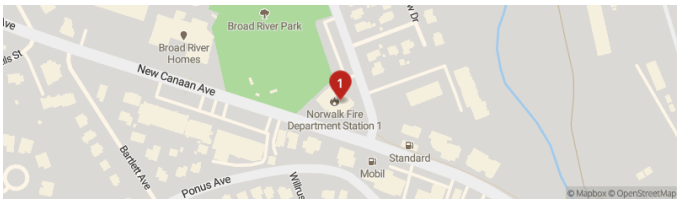
STATION 1 WINDOW REPLACEMENT

Overview

Request Owner	Mark Conte, Assistant Fire Chief
Department	FIRE DEPARTMENT
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	03/1/2027
Estimated Completion Date	06/1/2027

Project Location

90 New Canaan Avenue



Description

The Norwalk Fire Department is requesting $667,000.00 to replace the exterior windows on Station 1, located at 90 New Canaan Avenue. The building was built in 1961 and contains the original windows and panels. The existing panels do not provide adequate R-Value, according to current insulation codes and many of the windows are broken or do not seal properly. Replacing the windows will drastically increase the R-Value of the building. The roof insulation was replaced in 2022 and 2025 as part of the interior renovation and apparatus floor replacement projects. Full renovation drawings for the project were obtained by the Fire Department in 2016. During that process, it was discovered that PCB caulking was present around the window panels. That portion of the project was delayed and only the interior renovation was completed. The Fire Department is requesting to complete this phase of the project.

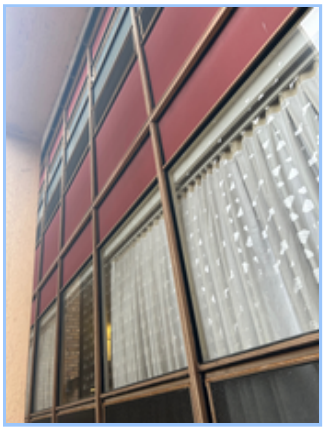
Images

IMG_5494.JPG

IMG_5498.JPG

IMG_5506.JPG

IMG_5503.JPG


IMG_5501.JPG

IMG_5505.JPG

IMG_5496.JPG

IMG_5500.JPG

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Supplemental Attachments

NFD - Station 1 Window Replacement Description - 2025-11-19.pdf

Window Replacement Plans.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$667K**	**$667K**

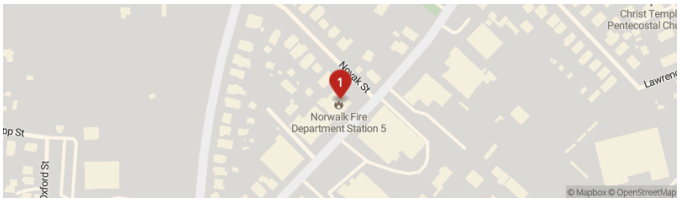
STATION APPARATUS EXHAUST SYSTEM REPLACEMENT

Overview

Request Owner	Mark Conte, Assistant Fire Chief
Department	FIRE DEPARTMENT
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	10/1/2026

Project Location

56 Van Zant Street



Description

The Fire Department is requesting to replace and upgrade the existing apparatus exhaust systems located in all six stations. These systems attach to the exhaust pipe of the apparatus, allowing for direct capture of the exhaust. The exhaust is then expelled from the building through an exhaust fan. The original exhaust system is over twenty-five years old. The system has remained in service through repairs, and several modifications have been made to keep the equipment operable. The original installation only treated the primary apparatus bays. The new system will treat all bays, including the mechanics' bays, allowing them to service equipment safely. NFPA 1500: Standard on Fire Department Occupational Safety, Health, and Wellness Program mandates that all fire departments contain all vehicle exhaust emissions to a level of no less than 100% effective capture. This new system is designed to achieve that goal.

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Supplemental Attachments

NFD - Apparatus Exhaust Replacement Quote- 2025-11-18.pdf

NFD - Apparatus Exhaust Replacement Description - 2025-11-18.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$430K	**$430K**	**$430K**

VEHICLE REPLACEMENT PLAN - ADMINISTRATION

Overview

Request Owner	Mark Conte, Assistant Fire Chief
Department	FIRE DEPARTMENT
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	NEW

Description

The Fire Department is requesting the replacement of one 2007 and two 2012 Ford Explorers. These vehicles are used by administrative and emergency response personnel. The 2012 vehicles will become reserve vehicles, and the Department will retire the 2007 Ford Explorer and one 2013 Ford Escape.

Details

New Purchase or Replacement: Replacement

New or Used Vehicle: New Vehicle

Useful Life: 10 or more years

POCD CODE: NA

Supplemental Attachments

Vehicle Replacement Breakdown - Ford Explorers.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$201K	**$201K**	**$201K**

HISTORICAL COMMISSION

ADA ACCESS MILL HILL

Overview

Request Owner	David Westmoreland, Historic District Commission
Department	HISTORICAL COMMISSION
Type	Capital Improvement
Project Number	C0521

Description

2027 Sidewalks & Parking lot designs. Redesign and replace failing front steps, sidewalks, and poorly designed parking lot. $75,000

2028 Sidewalks and parking lot construction $200,000

2029 $ 0

2030 Schoolhouse and Fitch roof $50,000

Details

JUSTIFICATION: Redesign and replace failing front steps, sidewalks, and poorly designed parking lot.

Type of Project: Other improvement

POCD CODE: 6.1.A.I Continue the successful maintenance and management of city-owned historic properties

Supplemental Attachments

Mill Hill ADA master plan .pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$325K**	**$325K**

CEMETERY SITE WORK

Overview

Request Owner	David Westmoreland, Historic District Commission
Department	HISTORICAL COMMISSION
Type	Capital Improvement
Project Number	C0294

Description

2027 Ongoing restoration-repairs $10,000 — Provide funding for ongoing restoration repairs work

2028 Pine Island Restoration $125,000 - Complete Pine Island Tombstone conservation

2029 Ongoing restoration - repairs $10,000 - Provide funding for ongoing restoration repairs work

2030 Ongoing restoration - repairs $10,000 — Provide funding for ongoing restoration repairs work

Details

Type of Project: Other improvement

POCD CODE: 6.1.A.I Continue the successful maintenance and management of city-owned historic properties

Supplemental Attachments

Cemeteries .pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$10K	**$155K**	**$155K**

L-M MANSION CODE & REPAIRS

Overview

Request Owner	David Westmoreland, Historic District Commission
Department	HISTORICAL COMMISSION
Type	Capital Improvement
Project Number	C0186
Estimated Start Date	07/1/2026
Estimated Completion Date	07/31/2027

Description

2027 Master Plan Implementation - $450,000 Exterior Restoration

2028 Master Plan Implementation - $1.75mil conservatory restoration

2029 Master Plan Implementation - $100,000 Mansion and Carriage House Restoration

2030 Master Plan Implementation - $100,000 Mansion and Carriage House Restoration

Details

JUSTIFICATION: Conservatory is in danger of imminent collapse. The three main supports are rotted and plastic panels that were used to replace glass in the 1970s are failing. Structure and new glass panels need to be restored to replace failing existing structure.

POCD CODE: 6.1.A.I Continue the successful maintenance and management of city-owned historic properties

Supplemental Attachments

Lockwood Mathews Code and repairs .pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1.75M	**$2.4M**	**$2.4M**

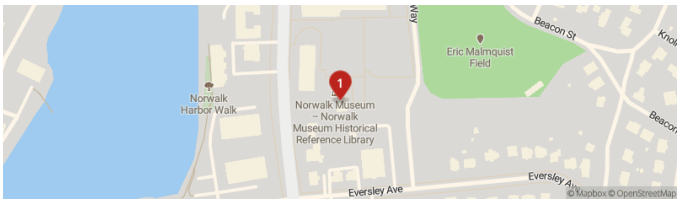
LOCKWOOD HOUSE ADA

Overview

Request Owner	David Westmoreland, Historic District Commission
Department	HISTORICAL COMMISSION
Type	Capital Improvement
Project Number	C0549
Estimated Start Date	12/25/2025
Estimated Completion Date	01/31/2027

Project Location

141 East Avenue



Description

Training and education rooms and basement renovation. This will allow for education/ lecture space at the museum.

Details

JUSTIFICATION: Additional funding for increased costs for museum basement renovation. Adding new exterior access to basement level and creating educational/ lecture space and exhibit space.

Type of Project: Other improvement

POCD CODE: 6.1.A.I Continue the successful maintenance and management of city-owned historic properties

Supplemental Attachments

Lockwood House ADA pics .pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$200K	**$500K**	**$500K**

SMITH STREET BUILDINGS

Overview

Request Owner	David Westmoreland, Historic District Commission
Department	HISTORICAL COMMISSION
Type	Capital Improvement
Project Number	C0430

Description

2027 Interior restoration $150,000 - Complete interior walls, floors, ceiling. Pottery and Jail exhibit installation.
2028 Architectural plans for reconstruction of 1840 DPW Barn for Norwalk Indian $ 225,000 - Working with the State & DOT to develop museum that tells the story of the Norwalk Indian Fort Site and houses the artifacts from the dig.
2029 Reconstruction of the 1840 DPW Barn $825,000 - Renovate the barn to become climate controlled exhibit space
2030 Museum of the Norwalk Indian exhibit development $200,000 - Develop exhibits telling the story of the Norwalk Indians, the Indian Fort Site, and artifact displays.

Details

POCD CODE: 6.1.A.I Continue the successful maintenance and management of city-owned historic properties

Supplemental Attachments

Smith Street Buildings.pdf

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$1.4M**	**$1.4M**

INFORMATION TECHNOLOGY

CONTINUING TECHNOLOGY REFRESH

Overview

Request Owner	Joyce Liu, Director of Infor. Technology
Department	INFORMATION TECHNOLOGY
Type	Capital Equipment
Project Type	Computers and Related Equipment
Project Number	NEW

Description

This request supports the City's ongoing effort to refresh servers, desktops, and essential IT equipment on a 5-year lifecycle to ensure a stable, secure, and efficient technology environment.

Aging servers, desktops, and library devices are increasingly unstable, no longer supported by vendors, and unable to keep pace with current software, security tools, and community needs. Upgrading the City's servers will enhance performance for critical systems such as Munis, public safety applications, permitting, GIS, and email, while strengthening cybersecurity and disaster recovery. Refreshing staff desktops will replace outdated devices that cannot adequately support Windows 11 or essential business applications, improving productivity and reducing downtime. Updating library technology will modernize public access to online services, digital learning, job search tools, and community programs.

This investment ensures the City continues to maintain a secure, modern, and reliable technology foundation that supports daily operations, public safety, staff efficiency, and equitable digital access for all residents.

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$290K	**$1.5M**	**$1.5M**

CYBERSECURITY INITIATIVE: MANAGED DETECTION & RESPONSE (MDR)

Overview

Request Owner	Joyce Liu, Director of Infor. Technology
Department	INFORMATION TECHNOLOGY
Type	Capital Equipment
Project Type	Computer Software
Project Number	NEW

Description

The City of Norwalk's cybersecurity risk profile continues to evolve as cyberattacks targeting municipalities increase in frequency, sophistication, and financial impact. To safeguard critical city operations, protect resident data, and ensure continuity of government services, the IT Department is requesting capital funding for a Managed Detection & Response (MDR) solution.

MDR is a 24/7 managed cybersecurity service that provides continuous threat monitoring, advanced detection analytics, and real-time incident response by a dedicated team of security analysts. This level of coverage is not achievable with existing IT staffing or tools.

Details

New Purchase or Replacement: New

POCD CODE: 11.1.B Continue to update, modernize, and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$150K**	**$150K**

FIBER EXTENSION TO SENIOR CENTER

Overview

Request Owner	Joyce Liu, Director of Infor. Technology
Department	INFORMATION TECHNOLOGY
Type	Capital Improvement
Project Number	NEW

Description

The City-owned facility at 11 Allen Road, home to the Senior Center, a daycare program, Parks & Recreation activities, and Building Management's security monitoring system—currently relies on Optimum Online for its internet connection. This commercial service does not provide the reliability, bandwidth, or security needed to support the building's growing operational demands, resulting in frequent slowdowns and limitations for staff, program participants, and security systems. Extending the City's fiber network to this location will deliver a secure, high-speed, and highly reliable connection that supports modern applications, enhances security camera monitoring, improves service delivery for seniors and families, and ensures long-term scalability. This investment aligns with the City's ongoing efforts to replace third-party internet services with City-owned fiber across all municipal facilities.

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$85K	**$85K**	**$85K**

POLICE MOBILE DATA TERMINALS IN PATROL VEHICLES

Overview

Request Owner	Joyce Liu, Director of Infor. Technology
Department	INFORMATION TECHNOLOGY
Type	Capital Equipment
Project Type	Computers and Related Equipment
Project Number	NEW

Description

The Police Department requires to be updated mobile data terminal (MDT) equipment and mobile printers for up to 12 patrol vehicles to ensure reliable and efficient field operations. The current MDT units and in-car printers are aging, increasingly unreliable, and no longer compatible with the latest versions of CAD, RMS, GPS mapping, electronic ticketing, and digital evidence applications. Officers are experiencing hardware failures, slow performance, and printer malfunctions that hinder their ability to work effectively in the field.

Replacing this equipment will provide officers with modern, secure, and durable technology that supports real-time information access, CJIS-compliant security, and mobile printing for citations, reports, and warnings. New MDTs and printers will improve situational awareness, reduce manual processes, and enhance both officer safety and operational efficiency.

This investment is essential to maintain dependable technology in 10 to 12 frontline police vehicles and support the department's ability to respond quickly and accurately to the needs of the community.

Details

POCD CODE: 10.1.E Integrate emerging mobility technology into transportation planning and preserve flexibility to respond to future changes

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$95K	**$525K**	**$525K**

LIBRARY

NORWALK NEWSPAPER DIGITIZATION

Overview

Request Owner	Lamond Daniels, Chief of Community Services
Department	LIBRARY
Type	Capital Equipment
Project Type	Computer Software
Project Number	C0548

Description

Our request to provide digital access to "The Hour's" missing years, 1971–2006, will provide a searchable index that can be accessed on our website 24/7. The remaining 35 non-digitized years are critical to Norwalk's history. We get many requests that fall into the missing years. 1970, our last digitized year of "The Hour", is more than 50 years old. The project was approved FYE 2024 as a multi-year project. $52.10 is the account. We deducted the amount from the FYE 2026 cost.

Details

New Purchase or Replacement: New

POCD CODE: 6.1.F Expand public awareness of Norwalk's historic heritage, character and resources

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$23.5K	**$23.5K**	**$23.5K**

SELF-CHECKOUT MAINTENANCE REPLACEMENT PROJECT

Overview

Request Owner	Lamond Daniels, Chief of Community Services
Department	LIBRARY
Type	Capital Equipment
Project Number	NEW

Description

The Library is requesting funding to replace three (3) self-check machines that are 12 years old and at the end of their service life. The current units present significant operational, financial, security and patron-experience risks due to outdated hardware, obsolete software, and limited vendor support. Replacement parts are now scarce and costly, resulting in extended downtime and service interruptions.

Outdated equipment also contributes to slower transaction processing, increased staff time spent on troubleshooting, and longer wait times at public service desks. In addition, the current machines no longer meet ADA accessibility standards for height, reach and assistive technology integration, creating barriers for many patrons.

Security risks are also increasing. The machines run on unsupported operating systems (Windows 7) with unhatched vulnerabilities and may no longer meet PCI compliance standards for credit card transactions. Newer self-check systems offer improved encryption, data protection, and secure payment processing.

This request will fund three new self-check stations running Windows 11 with modern touchscreen interfaces, integrated barcode scanners, paper receipt printers, multi-language support, ADA compliant design, and optional mounted payment devices. The new units will integrate with the Library's ILS, support SMS receipts, and include built-in return functionality to streamline workflows.

By replacing the outdated machines, the Library will improve patron independence, enhance accessibility, reduce operational inefficiencies, strengthen cybersecurity, and ensure continuity of services. This investment modernized core library operations and supports the city's commitment to delivering safe, efficient, and equitable services for all residents.

Details

New Purchase or Replacement: Replacement

Short Form: 1

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$60K	**$60K**	**$60K**

PLANNING & ZONING

LAND USE DOCUMENT SCANNING

Overview

Request Owner	Jay Habansky, Chief Econ & Comm Dvlp
Department	PLANNING & ZONING
Type	Capital Equipment
Project Type	Computers and Related Equipment
Project Number	C0732

Description

Several years ago, P&Z received $150,000 of capital funds (0922-3730-5777-C0801) to begin scanning historic zoning permit files and the City's historic tax assessment field cards. Our historic zoning and building permit files are stored in the basement and must be brought upstairs via a courier after a paper request is made. These records are requested daily by attorneys, architects, engineers, surveyors, contractors and homeowners, looking for past information on their property.

Details

New Purchase or Replacement: New

POCD CODE: 13.3.A.V Make the city's eGovernment strategy and permit streamlining more public friendly

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$120K	**$480K**	**$480K**

OPEN SPACE FUND

Overview

Request Owner	Jay Habansky, Chief Econ & Comm Dvlp
Department	PLANNING & ZONING
Type	Capital Improvement
Project Number	C0372

Description

March 14, 2000 the Common Council adopted an amendment to the Code creating the Open Space Fund.

Details

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$50K	**$250K**	**$250K**

POLICE DEPARTMENT

ARMORED RESCUE RESPONSE VEHICLE

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Equipment

Project Type Vehicles and Wheeled Equipment

Project Number NEW

Description

Mission-specific rescue vehicle used to address an array of tactical,weather,and disaster response scenarios.

Details

POCD CODE: 11.1.B.IV Work with the water and electric utilities to promote renewable energy, water conservation, and environmental best practices.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$300K	**$300K**	**$300K**

ESU REPLACEMENT FIREARMS

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Equipment

Project Number NEW

Description

Geissle quoted 25 of their SUPER DUTY MOD 1 SBRs at $37,375.00. This quote also contains the necessary replacement sights, Trijicon MROs and mounts, and Huxwrx Flow suppressors. Ideally the new rifles should be tuned with new suppressors. The Huzwrx also eliminates the gas blow back (which contains carcinogenic material, improving operator visibility and health. The total for all of these items is $75,000. This is a reasonable number to be reserved for future capital purchase, as we will need new optics and suppressors as well. Also included in this quote are trade in numbers for the current Colts, suppressors, and MROs.

Details

POCD CODE: 11.1.B.VI Consider consolidation of Fire and Police marine divisions in one location

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$75K**	**$75K**

EVIDENCE PROCESSING HARDWARE

Overview

Request Owner	Michael Docimo, ADMINISTRATIVE MANAGER
Department	POLICE DEPARTMENT
Type	Capital Equipment
Project Type	Computers and Related Equipment
Project Number	NEW

Description

Replace the computer hardware utilized by our Technical Investigation Unit, which is responsible for processing electronic evidence, including cellphones and computer hard drives.

Details

New Purchase or Replacement: New

POCD CODE: 10.1.E Integrate emerging mobility technology into transportation planning and preserve flexibility to respond to future changes

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$23K	**$23K**	**$23K**

FEMALE LOCKER ROOM UPGRADE

Overview

Request Owner Michael Docimo,
ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Improvement

Project Number NEW

Description

The Female locker room is (20) years old and is showing signs of aging similar to the men's locker room which was recently updated. The showers leak/drain out to the outer floor in the shower room and there is a need for a privacy inner door to the shower room. Building maintenance states approximately $130,000 for the update and an additional $10,000 for design services.

Details

POCD CODE: 11.1.B.VII Consider consolidation of Fire and Police marine divisions in one location

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$140K**	**$140K**

Operational Costs

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$140K**	**$140K**

FLEET MODEMS

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Equipment

Project Type Computers and Related Equipment

Project Number NEW

Description

Replacement of all the modems in the fleet.

Details

New Purchase or Replacement: Replacement

POCD CODE: 10.1.E Integrate emerging mobility technology into transportation planning and preserve flexibility to respond to future changes

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$192K**	**$192K**

MARINE UNIT

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Improvement

Project Number NEW

Description

To replace Marine Unit Housing.

Details

Type of Project: New Construction

POCD CODE: 11.1.B.VII Consider consolidation of Fire and Police marine divisions in one location

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$1.5M**	**$1.5M**

POLICE CARS & VANS

Overview

Request Owner	Michael Docimo, ADMINISTRATIVE MANAGER
Department	POLICE DEPARTMENT
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	C0665

Description

Purchase & upfit (10) patrol vehicles with upfits, to replace the aging fleet of marked police vehicles that are used to patrol and respond to public safety emergencies. For two fiscal years, the patrol fleet did not receive replacements due to supply chain issues and problems in manufacturing. In January of 2023, we began the process of purging dozens of old marked cruisers with high mileage deemed unsafe for public safety usage. The purchase of 2 electric vehicles to be used for administrativ

FY2026 - 10 marked vehicles @ $61,000 ($610,000), Upfits for 10 marked vehicles @ $29,000 ($290,000).

FY2027 - 8 marked vehicles @ $57,000 ($575,000), upfits for 8 marked vehicles @ $24,000 ($240,000), 2 electric vehicles @ $65,000 ($130,000) to continue fleet maintenance and fleet replacement. Continuance of purchase of renewable energy vehicles.

FY2028 - 8 marked vehicles @ $57,000 ($575,000), upfits for 8 marked vehicles @ $24,000 ($240,000), 2 electric vehicles @ $65,000 ($130,000) to continue fleet maintenance and fleet replacement. Continuance of purchase of renewable energy vehicles.

Details

New Purchase or Replacement: Replacement

POCD CODE: NA

New or Used Vehicle: New Vehicle

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$950K	**$1.9M**	**$1.9M**

POLICE DEPARTMENT GROUNDS IMPROVEMENTS

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Improvement

Project Number NEW

Description

Parameter fencing and gate improvements.

Details

POCD CODE: 11.1.B.VII Consider consolidation of Fire and Police marine divisions in one location

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$325K	**$325K**	**$325K**

Operational Costs

FY2027 Budget	Total Budget (all years)	Project Total
$325K	**$325K**	**$325K**

SCUBA TEAM COMMUNICATIONS EQUIPMENT

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Equipment

Project Number NEW

Description

This new system would allow the divers to be tethered and have hardline communications to the surface.

Details

New Purchase or Replacement: New

POCD CODE: 11.1.B.VI Consider consolidation of Fire and Police marine divisions in one location

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$34.5K	**$34.5K**	**$34.5K**

SECURITY CAMERAS

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Equipment

Project Number NEW

Description

Replace existing security cameras throughout headquarters.

Details

New Purchase or Replacement: Replacement

POCD CODE: 10.1.E Integrate emerging mobility technology into transportation planning and preserve flexibility to respond to future changes

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$130K**	**$130K**

TRT BALLISTIC BODY ARMOR

Overview

Request Owner Michael Docimo, ADMINISTRATIVE MANAGER

Department POLICE DEPARTMENT

Type Capital Equipment

Project Number NEW

Description

Replacing the current setup with a comparable vest and acquiring industry-standard accessories and technology will cost approximately $72,000. This kit would include a plate carrier, IIIA side armor, IIIA plate backers, ICW SAPI or shooter cut rifle plates, and a zip-on rear panel and slim pack (to store breaching tools, FSDDs, technology, etc.). Also required for this upgrade would be new Cobra buckle operator belts (to replace the old Warrior Assault belts), new pouches for rifle and pistol magazines, and Motorola radios. This brings the replacement total to approximately $79,000

Details

New Purchase or Replacement: Replacement

POCD CODE: 11.1.B.VI Consider consolidation of Fire and Police marine divisions in one location

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$79K	**$79K**	**$79K**

PUBLIC WORKS-OPERATIONS

ELECTRICAL UPGRADES/EV CHARGING

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	PUBLIC WORKS-OPERATIONS
Type	Capital Equipment
Project Number	C0681

Description

Electrical upgrades and equipment that includes the installation of two Electric Charging Stations at the Public Works Center to charge Electric Vehicles.

Details

New Purchase or Replacement: New

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$30K	**$60K**	**$60K**

FLEET REPLACEMENT

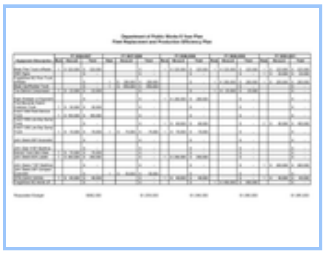
Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	PUBLIC WORKS-OPERATIONS
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	C0313

Description

Replacement of equipment.

Images



26-27 Fleet Cap_.jpg

Details

New Purchase or Replacement: Replacement

New or Used Vehicle: New Vehicle

POCD CODE: 8.1.A Expand sustainability policies and actions for city government and monitor and track progress.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$992K	**$5.2M**	**$5.2M**

PUBLIC WORKS-SOLID WASTE COLLE

TRANSFER STATION IMPROVEMENTS

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	PUBLIC WORKS-SOLID WASTE COLLE
Type	Capital Improvement
Project Number	C0711

Description

The transfer station roof has started to show signs of wear over the past several years. In most recent years, there have been leaks reported in the scale house and portion of the roof over the tipping floor starting to consistently leak. The current internet at the transfer station is received through an antenna on the roof from City Hall. This internet connection has caused lags in the computer software to operate the scale, and can sometimes lead to extended wait times.

Details

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$200K	**$200K**	**$200K**

PUBLIC WORKS-TREATMENT PLANT

COLLECTION SYSTEM REHABILITATION

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	PUBLIC WORKS-TREATMENT PLANT
Type	Capital Improvement
Project Number	C0361

Description

Sewer Capital improvement projects rehabilitating the city's 200 miles of sanitary sewer based on various inspections reviews.

Details

Type of Project: Improvement

POCD CODE: 11.1.A-Establish systems for municipal assets and capital improvements

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$28M**	**$28M**

PUMP STATION UPGRADE/REPLACEMENT

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	PUBLIC WORKS-TREATMENT PLANT
Type	Capital Improvement
Project Number	C0360

Description

Upgrade/Rehabilitation various stations to ensure sanitary sewage is conveyed to WWTP without interruption of service.

Details

Type of Project: Improvement

POCD CODE: 11.1.A-Establish systems for municipal assets and capital improvements

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$8M	**$8.25M**	**$8.25M**

WWTP REHABILITATION/IMPROVEMENT

Overview

Request Owner	Vanessa Valadares, CHIEF OF OPS & PUBLIC WORKS
Department	PUBLIC WORKS-TREATMENT PLANT
Type	Capital Improvement
Project Number	C0791

Description

Implement long-term rehabilitation and improvements at the WWTP.

Details

Type of Project: Improvement

POCD CODE: 11.1.A-Establish systems for municipal assets and capital improvements

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$10M	**$10M**	**$10M**

RECREATION & PARKS

ADA PROJECTS

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	11/18/2026
Estimated Completion Date	11/10/2027

Description

2027 Address ADA deficiencies at various sites per recent ADA study and the Masterplan of Parks.

2028 Address ADA deficiencies at various sites per recent ADA study and the Masterplan of Parks.

2029 Address ADA deficiencies at various sites per recent ADA study and the Masterplan of Parks.

Details

Type of Project: New Construction

POCD CODE: 7.1.A Develop a parks, open space and recreation system plan including a management plan, that emphasizes connectivity and promotes healthy lifestyles

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$300K	**$900K**	**$900K**

ATHLETIC FIELDS.

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0771
Estimated Start Date	08/3/2026
Estimated Completion Date	06/30/2027

Description

2027 Continue with the renovation of our existing clay sports fields. (3) 75K

2028 BMHS football field replacement $ 1,800,000 - Turf field at end of life expectancy, installed 2015, Continue with the renovation of our existing clay sports fields. (3) 75K

2029 Nathan Hale turf replacement, upper and lower - $ 2,500,000 Turf field at end of life expectancy, installed 2016 Continue with the renovation of our existing clay sports fields. (3) 75K

2030 BMHS baseball/soccer turf replacement $ 1,800,000 - Planning for future field replacements, field at end of life expectancy, installed 2017 Continue with the renovation of our existing clay sports fields. (3) 75K

Details

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

ATHLETIC FIELDS.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$6.4M**	**$6.4M**

BACKSTOPS & FENCING

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0131
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

2027 Install new guardrail at Taylor Farm parking lot (17K), install split rail at woods pond (22K) various fencing and backstop repairs throughout the City.

2028-2031, Various fencing and backstop repairs throughout the City

Details

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$114K	**$414K**	**$414K**

BASKETBALL & TENNIS COURTS.

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0321
Estimated Start Date	08/3/2026
Estimated Completion Date	08/2/2027

Description

(2027) Install a new basketball court behind Marvin School (55K), repair/paint various courts throughout the City.

(2028) Install new post tension concrete courts at Veterans Park (600k)

(2028-2031)Repair/paint various courts throughout the City.

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$130K	**$1.03M**	**$1.03M**

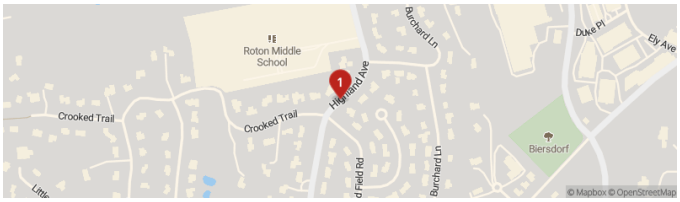
BRIEN MCMAHON HIGH SCHOOL FIELD (CASAGRANDE) LIGHT REPLACEMENT

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0820
Estimated Start Date	11/2/2026
Estimated Completion Date	01/7/2027

Project Location

Highland Avenue



Description

Replace the existing lighting system with the LED Musco System with the Control Link control module. The current fixtures are each 1500W metal halite, and the parks department is responsible for changing the bulbs, which requires an electrician and a lift. The new system comes with a lifetime bulb replacement warranty.

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$400K	**$400K**	**$400K**

CALF PASTURE BEACH.

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0365
Estimated Start Date	11/2/2026
Estimated Completion Date	05/1/2027

Project Location

Description

2027 Continue with the upgrade to the public bathrooms at Calf Pasture and Shady beaches. Includes, but not limited to lighting, plumbing, partitions, flooring, painting and fixtures. Replace existing digital sign at beach entrance (125K) New Band Shell Design, including site location study ($25,000). Design and renovation of existing sailing school building. (250K)

2027 Beach light pole replacement (400K)

2028 Band shell install in out years.

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1.05M	**$2.25M**	**$2.25M**

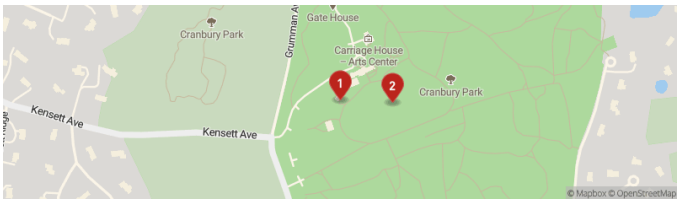
CRANBURY PARK.

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0366
Estimated Start Date	08/3/2026
Estimated Completion Date	10/28/2026

Project Location

300 Grumman Avenue



Description

2027 Separate Cranbury park rental spaces from dog park area with fencing install. (75K)

2027 Additional funding needed to complete trail masterplan (808K)

2028 Exterior painting, all building and window trim (85K)

2028 Continue with building renovations, 750,000

2029 Landscape and garden restorations (250K), Continue with building renovations, 750,000

Details

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$883K	**$2.72M**	**$2.72M**

IRRIGATION INSTALLATION AND MAINTENANCE

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	09/1/2026
Estimated Completion Date	09/1/2027

Description

2027 Maintenance of existing irrigation systems and installation of new systems, including bringing a main waterline into the sites.

2028 Maintenance of existing irrigation systems and installation of new systems, including bringing a main waterline into the sites.

Details

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$400K	**$1.2M**	**$1.2M**

Operational Costs

FY2027 Budget	Total Budget (all years)	Project Total
$8K	**$40K**	**$40K**

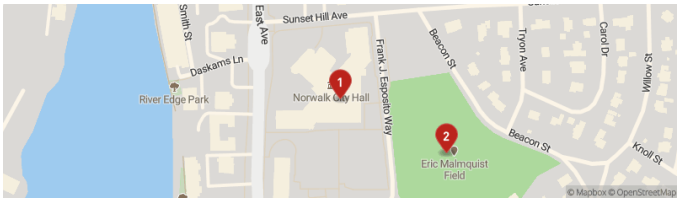
MALMQUIST FIELD/CITY HALL FIELD UPGRADE

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	09/1/2026
Estimated Completion Date	09/1/2027

Project Location

125 East Avenue



Description

Upgrade the existing City Hall Field (Malmquist Field) including a new track, lights and playing surface. This funding will supplement an existing 2.5 million dollar grant.

Details

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1M	**$1M**	**$1M**

OYSTER SHELL PARK.

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0821
Estimated Start Date	10/1/2026
Estimated Completion Date	03/1/2027

Project Location

Description

Install a new waterline into Oyster shell park to service the new dog park area.

Out years, new equipment for dog park.

Details

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$175K**	**$175K**

PARK SIGNAGE

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0737
Estimated Start Date	11/9/2026
Estimated Completion Date	11/8/2027

Description

2027 Continue with the replacement of all Park Signage, per the Parks Signage Master Plan

2028 Continue with the replacement of all Park Signage, per the Parks Signage Master Plan

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$100K	**$200K**	**$200K**

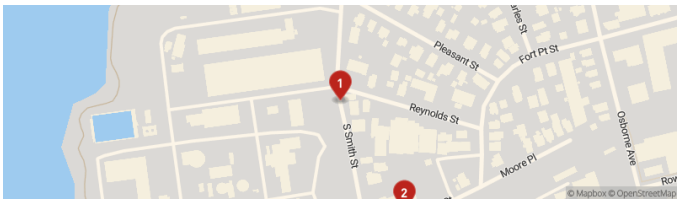
PARKS GARAGE REPAIRS.

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0472
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Project Location

South Smith Street



Description

(2027-2031) Perform repairs needed at 1 South Smith Street, and 10 Tito Court

(2028) Demolish building at 4 Tito Court (300k)

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$25K	**$450K**	**$450K**

PAVING & SIDEWALK PROJECTS

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0588
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2027

Description

(2027-2031) Driveway and sidewalk maintenance, installation and repair on City Park property.

Details

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$375K**	**$375K**

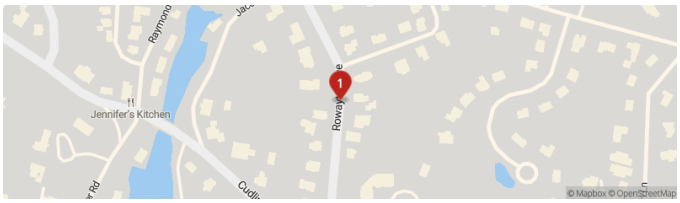
ROWAYTON COMMUNITY DOCKS

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0575
Estimated Start Date	11/2/2026
Estimated Completion Date	11/1/2027

Project Location

Rowayton Avenue



Description

2027 Update existing conceptual drawing to construction drawings for the Rowayton Community Docks. 150k

2028 Implement dock restoration, 1.8 million

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$150K	**$1.95M**	**$1.95M**

SCHOOLS AND PARK PLAYGROUNDS

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0364
Estimated Start Date	11/2/2026
Estimated Completion Date	03/1/2027

Description

(2027) Replace 16 year old playground at Wolfpit School. (160K). Chip replacement at various sites.

(2028-2031) Future years playground and chip replacement.

Details

Type of Project: Replacement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$220K	**$1.1M**	**$1.1M**

SWIMMING POOL

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	08/3/2026
Estimated Completion Date	03/2/2027

Description

(2027) Perform a site study for the possibility of a public swimming pool, including possible property acquisition.

Details

JUSTIFICATION: The Parks Masterplan acknowledges the need for a public swimming pool.

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$75K**	**$75K**

TAYLOR FARM WATERLINE

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	10/1/2026
Estimated Completion Date	04/1/2027

Project Location

Description

(2027) Install a new waterline into Taylor Farm park to install a drinking/dog fountain.

(2028) Out years, new equipment for dog park.

Details

Type of Project: New Construction

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$100K**	**$100K**

TREE PLANTING & MAINTENANCE

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0370
Estimated Start Date	09/1/2026
Estimated Completion Date	05/31/2027

Description

2027-2031, Continue to fulfill the City's tree canopy requirements per the Tree Canopy Masterplan 75k

Details

JUSTIFICATION: Continous tree planting/maintenance is needed to hit canopy goals and secure the health of Norwalks urban forest

Type of Project: Refurbishment

POCD CODE: 8.1.A.XI Continue using Integrated Pest Management, and use organic landscape practices, and native plantings in maintaining city-owned property.

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$375K**	**$375K**

VEHICLES RECS & PARKS

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	C0486
Estimated Start Date	07/1/2026
Estimated Completion Date	07/1/2027

Description

2027 Purchase 2 F250 pickups to replace 10+ year old vehicles (90k), a community center van (60K), a fork lift for the garage ($60K) and a frais mower attachment ($45K), parking Patrol vehicle. Purchase 12 2 way radios for staff communication. (60k)

2028 Purchase 2 F250 pickups, large area Toro mower, community center van (65K)

2029 Purchase 2 mason dump trucks, 3 small area mowers

Details

JUSTIFICATION: Need to continue replacing aging fleet. An additional van is needed to transport people to/from the community center. The parks garage currently does not have a for lift to unload/load trucks. Fraise mower would be used to maintian our ballfields.

Type of Project: Other improvement

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$300K	**$1.15M**	**$1.15M**

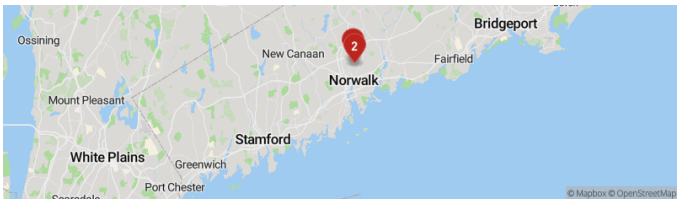
WOODS POND

Overview

Request Owner	Ken Hughes, SUPT OF PUBL. PROP. & PARKS
Department	RECREATION & PARKS
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	10/1/2026
Estimated Completion Date	11/2/2027

Project Location

East Rocks Road



Description

(2027) Perform a revitalization and dredging study for Woods Pond. (60K). Install a split rail fence along neighbor's property to delineate the new trail.

(2028-2029) Continuous Trail maintenance request in the out years (25K)

(2028-2029) Revitalization work per study, 1 million (500k and 500k)

Details

JUSTIFICATION: Woods pond has become overgrown and filled with silt.

Type of Project: Refurbishment

POCD CODE: 11.1.B Continue to update, modernize and maintain Norwalk's infrastructure and city facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$72K	**$1.17M**	**$1.17M**

REDEVELOPMENT AGENCY

MLK CORRIDOR EQUITABLE MOBILITY ENHANCMENT PROJECT SUPPLEMENTAL FUNDING

Overview

Request Owner	Stephen Ivan, Housing Project Manager
Department	REDEVELOPMENT AGENCY
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	12/31/2028

Project Location

Description

In 2024 the Norwalk Redevelopment Agency received notification that the *MLK Corridor Equitable Mobility Enhancement Project* had been selected for $14M of funding through the US DOT Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant. This project will fund the construction of street improvements along approximately 2-miles of Dr. Martin Luther King Jr. (MLK) Drive and to five roadways (Chestnut Street, Henry Street, Franklin Street, Mulvoy Street and Bates Court) in the approximate 33-acre area surrounding the South Norwalk Train Station. The project will include utilizing a comprehensive planning and design phase along with traffic studies and community participation to implement the most efficient and effective improvements to reduce crashes and enhance motor vehicle flow. Efforts will support safety, operations, and community connectivity through roadway design, wayfinding signage, landscaping, drainage, ITS, digital transportation messaging signage with real-time transit information and various streetscape improvements.

After receiving the grant award, Executive Order 14173 was released by the federal government. This executive order directly impacted the funding plan submitted with the RAISE application and has created a need to restructure proposed match funding for the project in order to comply with federal guidelines. The restructuring of match funding has created a gap of $500,000 needed for the project to ensure federal compliance and adhere to the budget presented within the RAISE application. The Redevelopment Agency is requesting $500,000 to fill this gap. The $3M of Community Investment Fund and $6M of Community Challenge Grant funding originally intended to serve as the match for the program will still be utilized for similar improvements within the above-described area, but is no longer eligible to serve as a matching source.

Details

Type of Project: Other

POCD CODE: 10.1.B Provide roads that serve the needs of Norwalk residents and commerce, and the facilitate safe and convenient access to transit, bicycle facilities and pedestrian facilities

Benefit to Community

The primary goal of the project remains to improve safety and the travel experience along the MLK Drive corridor, which currently ranks among the top five most dangerous roadways in the City of Norwalk. Through the impending planning and design phase, the agency will identify the most efficient and effective combination of improvements to reduce serious injuries and fatal crashes while maintaining or enhancing traffic flow and roadway capacity, to improve overall safety and motor vehicle traffic.The two-mile stretch of MLK Drive serves as a key connection and gateway between the South Norwalk neighborhood and train station and the rest of the city, yet it functions today as an arterial roadway with a documented pattern of severe crashes. Between 2015 and 2024, there were 543 reported crashes along the corridor. Two (2) of these crashes were fatal and seven (7) resulted in serious or critical injuries. Preliminary analysis indicated that roadway improvements could achieve a 47% decrease in crashes, representing a substantial improvement in public safety and a reduction in costs associated with property damage, hospitalizations, and lost work time. The agency and City will allow the design process to guide which strategies are most appropriate for the corridor's existing and projected traffic conditions, ensuring improved vehicular traffic and capacity. The project also seeks to benefit the community through equitable streetscape improvements to the area surrounding the train station to increase general walkability and pedestrian safety. The requested $500,000 will preserve access to $14,000,000 of federally funded improvements within a low-income, high-traffic neighborhood that has been identified as a dangerous roadway.

Supplemental Attachments

RAISE Award Letter

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$500K	**$500K**	**$500K**

REGISTRAR OF VOTERS

POLL PADS

Overview

Request Owner	Diana Paladino, Registrar of Voters
Department	REGISTRAR OF VOTERS
Type	Capital Equipment
Project Type	Computer Software
Project Number	NEW

Description

Poll pads would allow the city far greater flexibility in managing voter traffic by enabling **multiple polling locations and annex polling sites** during Early Voting. Because poll pads provide real-time voter check-in and instant updates across locations, voters can be directed to alternate sites without concern for duplicate check-ins or administrative delays. This flexibility would significantly reduce lines, improve accessibility, and ease the physical strain on City Hall and election staff.

Details

New Purchase or Replacement: New

POCD CODE: 11.1.B Continue to update, modernize, and maintain Norwalk's infrastructure and city facilities.

Supplemental Attachments

CT ONGOING POLL PAD FEES

QUOTE LHS ASSOCIATES

JUSTIFICATION

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$82K	**$82K**	**$82K**

TRANSP MOBILITY & PARKING

CALF PASTURE BEACH ROAD COMPLETE STREET

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

To design the Complete Streets approach to Calf Pasture Beach Road, which would include a lane diet, a multi-use center median, multi-use trail, streetscape and lighting, green infrastructure, and undergrounding utilities.

Details

Type of Project: New Road

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$200K	**$700K**	**$700K**

EAST NORWALK TOD STREETSCAPE AND BEAUTIFICATION PLAN

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2028

Description

The project entails a comprehensive review and plan of physical improvements in the neighborhoods surrounding the East Norwalk Train Station.

Details

Type of Project: Other

POCD CODE: 10.1.B Provide roads that serve the needs of Norwalk residents and commerce, and the facilitate safe and convenient access to transit, bicycle facilities and pedestrian facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$250K**	**$250K**

LINDEN STREET SIDEWALKS

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Installation of approximately 3,200 feet of concrete curb/asphalt sidewalks, crosswalks and curb ramps on one side of the street from Main Avenue to West Rocks Road. Preliminary plans were developed and included as part of the most recent Transportation Master Plan.

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$750K**	**$750K**

NEW SIDEWALK CONSTRUCTION

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0649
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

This project entails the installation of sidewalks in areas with high pedestrian activity. The increase in requested funding is to match the City's commitment to improving and installing sidewalks and advanced sidewalk design. The Department recently completed a complete sidewalk inventory and prioritization for new sidewalks.

FY26/27 Projects include:

1. Lexington Avenue Sidewalks (Design) - $250,000 - (2,500,000 Construction Grant Awarded)
2. Chestnut Hill Road Sidewalks (Design & Construction) - $250,000 ($600,000 Construction Grant Awarded)
3. Silvermine Avenue Sidewalks (Design) - $150,000 ($1,500,000 Construction Grant Pending)
4. Winfield Avenue Sidewalks (Design) - $370,000 ($3,700,000 Construction Grant Pending)
5. Taylor Avenue Sidewalk Gap & Retaining Wall (Design & Construction) — $200,000
6. Clerk of the Works (Project Management) — $100,000

Total $1,320,000 Investment Yields $8,300,000 in Grant Funded Construction

Out-year Projections:

2027 Construction $1,260,000 Construct sidewalks in heavy pedestrian volume areas where they don't exist.
2027 Design $140,000 Collect survey and create 100% (Shovel Ready) design plans for sidewalks where they don't exist.

2028 Construction $1,260,000 Construct sidewalks in heavy pedestrian volume areas where they don't exist.
2028 Design $140,000 Collect survey and create 100% (Shovel Ready) design plans for sidewalks where they don't exist.

2029 Construction $1,260,000 Construct sidewalks in heavy pedestrian volume areas where they don't exist.
2029 Design $140,000 Collect survey and create 100% (Shovel Ready) design plans for sidewalks where they don't exist.

2030 Design $140,000 Collect survey and create 100% (Shovel Ready) design plans for sidewalks where they don't exist.
2030 Construction $1,260,000 Construct sidewalks in heavy pedestrian volume areas where they don't exist.

2031 Design $140,000 Collect survey and create 100% (Shovel Ready) design plans for sidewalks where they don't exist.
2031 Construction $1,260,000 Construct sidewalks in heavy pedestrian volume areas where they don't exist.

List of Active Transportation Grant Projects:

1. Silvermine Avenue Sidewalks (Pending Application) - $1,500,000 Construction
2. Winfield Avenue Sidewalks (Pending Application) - $3,700,000 Construction
3. Ward Street Corridor Safety Improvement Project (Pending Application) - $4,000,000 Construction
4. Lexington Avenue Sidewalks (Awarded) - $2,500,000 Construction
5. Chestnut Hill Road Sidewalks (Awarded) - $600,000 Construction
6. Pedestrian Bridge on Route 1 (Awarded) - $1,000,000 Construction
7. George Avenue Sidewalks (Awarded) - $1,000,000 Construction
8. Richards Avenue at West Cedar Street Roundabout (Awarded) - $4,000,000 + 1,000,000 Design & Construction
9. SoNo School Roundabout (Awarded) — $3,000,000 Design & Construction
10. Gregory Boulevard at Fifth Street Roundabout (Design Awarded $400,000, Construction Pending $800,000) — $1,200,000 Total
11. MLK Corridor Funding (Awarded) — $1,375,000 Design & Construction
12. Washington Street Over-height Detection System (Awarded) - $417,000 Construction
13. Norwalk Phase 5 Traffic Signal System Modernization (Awarded) - $3,400,000 Construction
14. Safe Streets For All (Awarded) - $400,000 Planning
15. Reconnecting Communities (Awarded) - $800,000 Planning
16. DEEP Trails Grant - (Pending Application) — $800,000 Design
17. RAISE MLK Corridor (Awarded) — $14,000,000 Design & Construction
18. Wall Street Corridor Improvements (Substantially Awarded) — $30,000,000 Construction

Total Active Departmental Grant Funding (non-exhaustive list) — $74,692,000

Images

Winfield Avenue

Winfield Avenue Sidewalks

Winfield Avenue

Winfield Avenue Sidewalks

Lexington Avenue

Lexington Avenue Sidewalks

Lexington Avenue

Lexington Avenue Sidewalks

Ward Street Corridor

Ward Street Corridor Safety Improvement Project

Ward Street Corridor

Ward Street Corridor Safety Improvement Project

Ward Street Corridor

Ward Street Corridor Safety Improvement Project

Chestnut Hill Road

Chestnut Hill Road Sidewalk

Chestnut Hill Road

Chestnut Hill Road Sidewalk

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget
$1.32M

Total Budget (all years)
$6.92M

Project Total
$6.92M

NORTH MAIN STREET CORRIDOR IMPROVEMENTS

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Complete Streets Streetscape improvements to North Main Street between West Avenue/MLK Boulevard and Washington Street, including, but not limited to, improved sidewalks/streetscape, the addition of bicycle facilities, frequent and safe crosswalks, curb extensions, etc. Improvements include addressing the inability for traffic movement from North Main Street to MLK Drive which focuses that movement to Washington Street identified in the Transportation Master Plan.

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$350K**	**$350K**

NORWALK RIVER VALLEY TRAIL

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0777
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

This project includes the design to complete connections of the NRVT throughout the City in addition to funding in out-years to maintain the trail in a state of good repair and enhance existing features of the trail.

Repair, maintain, and enhance existing trails with benches, landscaping, informational and other signage, repaving, pavement markings and other needed repairs.

FY26/27 Projects include:

1. Route 1 at Belden Avenue Norwalk River Valley Trail (NRVT) (Design) — $150,000
2. Riverside Avenue (Design) — $50,000
3. Ongoing Trail Enhancements — $50,000

Total (Design & Enhancements) = $250,000

Details

Type of Project: Other

POCD CODE: 10.1.D.II Maintain and enhance existing trails and footpaths

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$650K**	**$650K**

PARKING GARAGES (Parking Authority Request)

Overview

Request Owner	Tom Ellis, Director of Management & Budgets
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0303
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Provide a safe, clean and convenient parking experience. Maintain the working integrity of city parking facility assets through upgrades and repairs as recommended in Parking Facility Assessment to provide a safe environment for parkers, extend the useful life of the parking facilities as important city assets and continue to provide public access availability. The NPA now performs a facility assessment every 2 years of the Maritime Garage, Haviland Deck, South Norwalk Railroad Station and the YDG.

FY 26/27 projects include:

Phase I structural/concrete repairs at Maritime Garage and the South Norwalk Train Station Garage.

Details

Type of Project: Refurbishment

POCD CODE: 10.2.A Provide the right amount of motor vehicle and bicycle parking in commercial, employment centers and RR stations

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$1.75M	**$7.75M**	**$7.75M**

PAVEMENT MARKINGS & SIGNAGE

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0562
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

This request is for an on-going program to replace/refresh all existing pavement markings/signage along city roadways not included in the paving program. This also includes the installation of new pavement markings/signage (including artistic crosswalks) for all roadway users including pedestrians and cyclists. TMP created a new street sign style guide FY 22/23. PAVEMENT MARKINGS AND SIGNAGE RETROREFLECTIVITY ARE FEDERALLY MANDATED - CITY IS REQUIRED TO COMPLY WITH RETROREFLECTIVITY.

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$1.25M**	**$1.25M**

PEDESTRIAN CROSSWALK - 40 CROSS ST.

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0823
Estimated Completion Date	06/30/2031

Description

This future project involves the installation of a mid-block protected crosswalk on US Route 1 connecting 2 completed portions of the Harbor Loop Recreational Trail with a completed connection to the Norwalk River Valley Trail.

Details

Type of Project: Other

POCD CODE: 10.1.D.III encourage pedestrian-friendly design features in street improvement projects

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$275K	**$275K**	**$275K**

ROADWAY DESIGN & RECONSTRUCTION

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0824
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

The project will address transportation improvements throughout the City identified in the POCD, the Transportation Master Plan, and as part of Complete Streets Legislation. This promotes multimodal safety and efficiency issues supported by the City's data analysis, citizen inquiries, and elected officials, etc. Additionally, the project provides for staff resources for the planning and design necessary to respond to funding opportunities and construction.

FY26/27 Projects include:

1. Various ADA Compliant Ramps and Sidewalk Gaps (Construction) —$620,000 {1a-1j}
    1. North Main Street at Ann Street — $75,000
    2. New Canaan Avenue at Lloyd Street— $25,000
    3. Sidewalk Gap Fox Run Road at Little Fox Lane/Redcoat Road — $75,000
    4. King Street at Maurice Street ADA Compliant Curb Ramps — $25,000
    5. Bedford Street across from Jefferson School Sidewalk Gap — $50,000
    6. Wilton Avenue at Horton Street Intersection and Sidewalk Enhancements — $100,000
    7. Wilton Avenue at Catherine Street Sidewalk Improvements — $50,000
    8. Fairfield Avenue at Cedar Street — $100,000
    9. Fort Point Street at Osborne Avenue — $100,000
    10. Dry Hill Road at Daphne Drive — $20,000
2. Ward Street Corridor Safety Improvement Project (Design) - $400,000 ($4,000,000 Construction Grant Pending)
3. County Street at Williams Street Intersection Improvements (Design & Construction) — $250,000
4. Connecticut Avenue at Scribner Avenue (Design) — Intersection Improvements — $350,000
5. North Taylor Avenue Sidewalk Gap (Construction) — $200,000
6. Grumman Avenue Sidewalk Extension to Cranberry Park (Design & Construction) — 150,000
7. Roosevelt Street (Construction) — $350,000

Total (Design & Construction) - $2,320,000

Images

North Main Street at Ann Street

North Main at Ann Street

New Canaan Avenue at Lloyd Street

New Canaan Avenue at Lloyd Street

Fox Run Road at Little Fox Lane/Redcoat Road

Sidewalk Gap Fox Run Road at Little Fox Lane/Redcoat Road

Fox Run Road at Little Fox Lane/Redcoat Road

Sidewalk Gap- Fox Run Road at Little Fox Lane/Redcoat Road

Fox Run Road at Little Fox Lane/Redcoat Road

Sidewalk Gap- Fox Run Road at Little Fox Lane/Redcoat Road

King Street at Maurice Street

King Street at Maurice Street - ADA Compliant Curb Ramps

King Street at Maurice Street

King Street at Maurice Street -ADA Compliant Curb Ramps

Bedford Street across from Jefferson School

Bedford Street across from Jefferson School -Sidewalk Gap

Bedford Street across from Jefferson School

Bedford Street across from Jefferson School Sidewalk Gap

Wilton Avenue at Horton Street

Wilton Avenue at Horton Street Intersection- Sidewalk Enhancements

Wilton Avenue at Horton Street

Wilton Avenue at Horton Street Intersection and Sidewalk Enhancements

Wilton Avenue at Catherine Street

Wilton Avenue at Catherine Street -Sidewalk Improvements

Wilton Avenue at Catherine Street

Wilton Avenue at Catherine Street -Sidewalk Improvements

Wilton Avenue at Catherine Street

Wilton Avenue at Catherine Street -Sidewalk Improvements

Fairfield Avenue at Cedar Street

Fairfield Avenue at Cedar Street

Fairfield Avenue at Cedar Street

Fort Point Street at Osborne Avenue

Fort Point Street at Osborne Avenue

Fairfield Avenue at Cedar Street

Fort Point Street at Osborne Avenue

Fort Point Street at Osborne Avenue

Dry Hill Road at Daphne Drive

Dry Hill Road at Daphne Drive

Ward Street Corridor Safety Improvement Project

Ward Street Corridor Safety Improvement Project

Fort Point Street at Osborne Avenue

Fort Point Street at Osborne Avenue

Ward Street Corridor Safety Improvement Project

Ward Street Corridor Safety Improvement Project

Ward Street Corridor Safety Improvement Project

Ward Street Corridor Safety Improvement Project

County Street at Williams Street

County Street at Williams Street Intersection Improvements

County Street at Williams Street

County Street at Williams Street Intersection Improvements

Connecticut Avenue at Scribner Avenue

Connecticut Avenue at Scribner Avenue

Connecticut Avenue at Scribner Avenue

Connecticut Avenue at Scribner Avenue

North Taylor Avenue

North Taylor Avenue Sidewalk Gap

North Taylor Avenue

North Taylor Avenue Sidewalk Gap

North Taylor Avenue

North Taylor Avenue Sidewalk Gap

Grumman Avenue Sidewalk Extension

Grumman Avenue Sidewalk Extension to Cranberry Park

Grumman Avenue Sidewalk Extension

Grumman Avenue Sidewalk Extension to Cranberry Park

Roosevelt Street

Roosevelt Street

Roosevelt Street

Roosevelt Street

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$2.32M	**$5.32M**	**$5.32M**

ROWAYTON VILLAGE MOBILITY AND SAFETY ENHANCEMENTS

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Safety and Mobility improvements for Rowayton Avenue which include gateway improvements to the intersection of Rowayton Avenue/Wilson Avenue to accommodate Wilson Avenue left-turn movements, improve traffic control, pedestrian crosswalks etc.

The project also includes streetscape improvements to Rowayton Avenue south of Wilson Avenue to better accommodate on-street parking and improve street lighting.

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$500K**	**$500K**

SAFE ROUTES TO SCHOOL

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0441
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

This project is the continuation of an existing program to install Safe Routes to Schools. These projects include new sidewalks, new or upgraded crosswalks, and various speed control devices in and around schools.

FY26/27 Projects Include:

1. Wilson Avenue at Roton School Intersection Improvements (Design) — $300,000
2. Lenox and Auburn Sidewalks (Design & Construction) — $250,000
3. Knowalot Lane (Construction) — $200,000

Total (Design and Construction) = $750,000

Images

Wilson Avenue at Roton School Intersection

Wilson Avenue at Roton School Intersection Improvements

Wilson Avenue at Roton School Intersection

Wilson Avenue at Roton School Intersection Improvements

Wilson Avenue at Roton School Intersection

Wilson Avenue at Roton School Intersection Improvements

Lenox and Auburn Sidewalks

Lenox and Auburn Sidewalks

Lenox and Auburn Sidewalks

Lenox and Auburn Sidewalks

Lenox and Auburn Sidewalks

Lenox and Auburn Sidewalks

Knowalot Lane

Knowalot Lane

Knowalot Lane

Knowalot Lane

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget
$750K

Total Budget (all years)
$2.75M

Project Total
$2.75M

SEAVIEW AVENUE CORRIDOR IMPROVEMENTS

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0599
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Completed Concept Design of streetscape improvements on Seaview Avenue from Fort Point Street to First Street. Advancing Plans to 100% Shovel Ready Design Documents for Grant Funding. The project will continue to consist of community outreach and implement Complete Streets design guidance to enhance multi-modal mobility and calm traffic. Out-year funding is for Grant Matching Funds.

Details

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$850K**	**$850K**

STREET LIGHTS

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0679
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Transportation, Mobility and Parking is responsible for the installation, maintenance and repair of both pedestrian level and roadway streetlights throughout the City. There have been a number of repairs needed to address the aging light infrastructure and funds have historically not been allocated for this item. This is very much a safety issue.

Details

Type of Project: Other

POCD CODE: 10.1.B Provide roads that serve the needs of Norwalk residents and commerce, and the facilitate safe and convenient access to transit, bicycle facilities and pedestrian facilities

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$75K	**$375K**	**$375K**

TRAFFIC SIGNAL BUCKET TRUCK

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Equipment
Project Type	Vehicles and Wheeled Equipment
Project Number	NEW

Description

The Traffic Signal Department has only one bucket truck. This current truck is not equipped with a lift for heavy/tall poles. As such we cannot adequately respond to knock-downs or new installations without seeking assistance from a third party vendor. This not only continues to increase our costs but also directly impacts the timing in which these repairs and betterments can be made. For the safety of our crews, we require equipment necessary to maintain signal operations.

Details

New Purchase or Replacement: New

New or Used Vehicle: New Vehicle

Useful Life: 10 or more years

POCD CODE: 10.1.C.VI Optimize traffic flow by using coordinated and synchronized traffic signals

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$185K	**$185K**	**$185K**

TRAFFIC SIGNALS EQUIPMENT

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0232
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

On-going programmed replacement of existing traffic signals, some that are more than 30 years old. We own 96 Signals in the City. The list indicates signals or projects required or signals in need of replacement ranked by age and condition.

1. Strawberry Hill Ave at NHS
2. Grandview Ave at Stuart Ave
3. Flax Hill Rd at Scribner Ave
4. Ely Ave at Roodner Ct
5. Roton Ave at McKinley St
6. Gregory Blvd at First St
7. Calf Pasture Beach Rd at Marvin School
8. Further Enhance Adaptive Traffic Signal Network
9. Strawberry Hill Ave at Walter Ave
10. Rowayton Ave at Rowayton Fire Dept
11. Rowayton Ave at Cudlipp St
12. Westport Ave at Fire Station #4
13. Newton Ave at Allen Rd
14. Cannon St at France St
15. Meadow St at Fire Station #5

Details

Type of Project: Other

POCD CODE: 10.1.C.VI Optimize traffic flow by using coordinated and synchronized traffic signals

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$250K	**$2.25M**	**$2.25M**

TRAFFIC SYSTEM ENHANCEMENT

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0528
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

The City owns and maintains 96 signalized intersections. While the Department has diligently worked to maintain these signals in a State of Good Repair, we have no record of a comprehensive optimization of the entirety of our traffic signal network. This funding would be to optimize/retime all of the city's traffic signals in a coordinated network. The project would seek to gather AADT at every single location measuring throughput of traffic by time of day, as well as travel time through a corridor. This would allow us to develop a coordinated system that is measured and monitored by the speed limit on each given roadway. Signal optimization helps to reduce driver frustration by minimizing arrival on red if you drive the posted speed limit. History has shown that City's with optimized traffic signals have decreased crashes across all modes of travel, with residual benefits of reduced vehicle emissions. **($425,000)**

The project also entails intermediate safety improvements and other repairs to our traffic and transportation system. This project includes the addition or replacement of video detection (monitor traffic), installation of back-up power to traffic signal equipment at critical intersections, No Turn On Red signs, audible pedestrian signals for sight impaired, electronic speed indication signs, weather sensors, fixed VMS, lighted street name signs, and other ITS improvements. **($75,000)**

Details

Type of Project: Other

POCD CODE: 10.1.C.VI Optimize traffic flow by using coordinated and synchronized traffic signals

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$500K	**$800K**	**$800K**

WALL ST CORRID IMPROV-PHASE1,II,III

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	C0800
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Fiscal Year 26/27 Funding Request:

$310,000 Advance Phase II Designs/CCGP Grant Match for $800,000 Construction Funding and **$290,000** 2" Mill and Pave of Wall Street Proper from West Avenue/Belden Avenue to Commerce Street.

-

State, Federal and Parking Authority Project Funding Secured To Date:

State Funding Secured - $13,700,000

Federal Funding Secured - $5,750,000

Parking Authority - $2,000,000

Total Grant Funding - $21,450,000

Wall Street Corridor Improvements Anticipated Total Project Cost = $30,000,000+

-

Wall Street Corridor Improvements Project Phasing Status

Phase Ia: East Wall Street – Landmark Square Safety, Accessibility and Streetscape Improvement (Main Street to Brook Street)

Project Status: Under Construction

Project Schedule: Construction Completion Summer 2026

Committed Funding: $2,438,521.07 State LOTCIP Construction Funding

Phase Ib: Isaacs Street Streetscape Improvements

Project Status: Under Construction

Project Schedule: Construction Completion Summer 2026

Committed Funding: $4,400,000

Phase Ic: Park Norwalk Investment: Yankee Doodle Garage Enhancements

Project Status: Under Construction

Project Schedule: Construction Completion Spring 2026

Committed Funding: $700,000 Park Norwalk

Phase IIa: Belden Avenue/Burnell Boulevard Roadway/Main Street Streetscape

Project Status: Advancing 90% Design

Project Schedule: Anticipated Construction Start - Fall 2026

Committed Funding: $5,500,000 Fiscal Year 23 Community Project Funding (Federal)

Phase IIb: East Wall Street Streetscape Improvements - Brook Street to East Avenue/Park Street/Hubbell's Lane

Project Status: 30% Design Complete

Project Schedule: Anticipated Construction Start - Fall 2026

Committed Grant Funding: $800,000 Community Connectivity Program Grant

Phase III: Wall Street Corridor Improvements (Belden Avenue/West Avenue/Mott Avenue to Main Street)

Project Status: 60% Design Completed

Project Schedule: Anticipated Construction Start - Q2 2028

Committed Funding: $7,000,000 State LOTCIP Funding and $3,500,000 State Urban Action Grant

Phase IV: River Street Festival Street/Commerce Street Streetscape Improvements

Project Status: 60% Design River Street, 30% Design Commerce Street Complete

Project Schedule: TBD

Funding: Seeking Funding

Details

Type of Project: Other

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$600K	**$2.6M**	**$2.6M**

WASHINGTON STREET STREETSCAPE IMPROVEMENTS

Overview

Request Owner	James Travers, Dir Transp. Mobility & Parking
Department	TRANSP MOBILITY & PARKING
Type	Capital Improvement
Project Number	NEW
Estimated Start Date	07/1/2026
Estimated Completion Date	06/30/2031

Description

Safety and Mobility improvements for Washington Street between Water Street/North Water Street and North/South Main Street. Specific goals of this streetscape improvement project are to better delineate the sidewalk/building frontage zones to accommodate local businesses and their activities, create a pedestrian through zone which is accessible and free of obstructions, and define a dedicated zone for streetside.

Details

POCD CODE: 10.1.B.II Design road space for all users as feasible and appropriate for the context

Capital Cost

FY2027 Budget	Total Budget (all years)	Project Total
$0	**$250K**	**$250K**

February 27, 2026

Memorandum
To: Planning & Zoning Commission – Chapin Bryce, Chair
From: Bryan Baker, AICP, Principal Planner
Re: FY 2026-27 Capital Budget

Commissioners,

Below is a draft resolution for the FY 2026-27 Capital Budget:

THEREFORE, BE IT RESOLVED by the Norwalk Planning & Zoning Commission that the FY 2026-27 Capital Budget is consistent with the 2019-2029 Plan of Conservation and Development; and

BE IT FURTHER RESOLVED that notice of this action be forwarded to Mayor Smyth.

Sincerely,

Bryan Baker

Bryan Baker, AICP
Principal Planner
City of Norwalk
203-854-7705
bbaker@norwalkct.gov

CITY OF NORWALK
PLANNING & ZONING COMMISSION MINUTES
February 18, 2026

PRESENT: Chapin Bryce, Chair; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Galen Wells; arriving after the roll call: Harvey Jones; Richard Roina; Jacquen Jordan-Byron

STAFF: Steve Kleppin; Michelle Andrzejewski; Amelia Williams

OTHERS: David Westmoreland; Doug Hempstead; Keith Cavanagh; Tim DeBartolomeo; Tom Ryder; Peter Cotaling; Jessica Norwick; Sean Sheedy; John Steery; Lisa Feinberg; Jake Granoff; Jeff Scher; Colleene Byrne; Vincent Hynes

I. CALL TO ORDER

Mr. Bryce called the meeting to order at 6:02 p.m. It should be noted that this meeting was held on Zoom.com with participants calling in, separately.

II. ROLL CALL & SEATING OF ALTERNATES

Mr. Kleppin called the roll.

Mr. Bryce seated both Ms. Lenkowsky and Ms. Tabachneck for this meeting.

III. REVIEW AND ACTION ON APPLICATIONS

A. #2026-11 SA - City of Norwalk - Special capital appropriation from the Historical Commission for design work for the Conservatory at the Lockwood Mathews Mansion - Report & recommended action

David Westmoreland, from the Historical Commission, discussed the special appropriation for the engineering research to rebuild the conservatory of the Lockwood Mathews Mansion. He said that there were pictures in the packets. They had found leaks in the conservatory while doing mechanicals repairs. There is a concern about it collapsing. There is a capital budget request which is available on July 1, but they were hoping they could get advance money to start the repairs before next winter. The request would be reduced by this amount.

Doug Hempstead said that in the 1970s a tree had fallen on the conservatory. The repairs were done in plastic which is now rotting. There are concerns about the amount of snow that has fallen this winter. He noted that the room must be heated to keep the sprinklers from freezing. There was a discussion about the type of materials that would be used for the repairs. They would work with the state Historic Preservation office since it is on the state's register for their approvals.

**** MR. SCHULMAN MOVED** to **APPROVE #2026-11 SA - City of Norwalk - Special capital appropriation from the Historical Commission for design work for the Conservatory at the Lockwood Mathews Mansion.**

Ms. Lenkowsky seconded.

She suggested that everyone should visit the museum.

Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron approved.
No one opposed.
Harvey Jones abstained.

B. #2026-04 CSPR – Keith & Eileen Cavanagh – 4 ½ Seaside Place – Construct a new single-family residence within the Coastal Area Management boundary - Report & recommended action

Keith Cavanagh, the owner of the property, began the presentation by introducing the project team. He said that the property had been in his family for a long time. He had bought it from another family and then he described the design of the residence. He said that he owned a landscaping company and would also include them as well.

Ms. Williams then oriented the commissioners as to the location of the property on a Google map. She also showed them the site plan for the property as well as a survey of it. It was determined that the property was not on the water.

**** MR. JONES MOVED: THEREFORE, BE IT RESOLVED** that application #2026-04 CSPR – Keith & Eileen Cavanagh – 4 ½ Seaside Place – Construct a new single-family residence within the Coastal Area Management boundary be **APPROVED** subject to the following conditions:

1. That the building and site be developed in accordance with the following plans:

a. Per engineered site plan dated 12/2/2025 prepared by Fairfield County Engineering LLC, Norwalk, CT (received electronically by the Planning and Zoning Office on 2/6/2026)

b. Per architectural plans dated 1/20/2026 prepared by Joseph Matto Architects, Shelton, CT

c. Per zoning location & topographic survey dated 7/3/2025 and revised 12/1/2025 prepared by Seymour Surveying, Darien, CT

d. Per landscape plan dated 1/20/2026 prepared by Joseph Matto Architects, Shelton, CT

2. That all department sign-offs are obtained prior to issuance of any Zoning Permit; and

3. That all required soil sedimentation and erosion controls are in place prior to the start of any construction; and

4. That any additional needed soil sedimentation and erosion controls be installed at the direction of Staff; and

5. That the applicant obtains the legal right to connect a sanitary sewer lateral to the existing private sanitary sewer main extension located on a private road known as Seaside Place Service Road; and

6. That any changes to the plans be reviewed by Staff prior to implementation; and

7. Nothing in this permit shall obviate the requirements for the applicant to obtain any other assents, permits or licenses required by law or regulation by the City of Norwalk, State of Connecticut, or the Government of the United States, including any approval required by the Connecticut Department of Environmental Protection and U.S. Army Corps of Engineers- obtaining such assents, permits or licenses is the sole responsibility of the applicant; and

BE IT FURTHER RESOLVED that this proposal complies with all applicable coastal resource and use policies and with all applicable sections of the Zoning Regulations for the City of Norwalk; and

BE IT FURTHER RESOLVED that these preceding conditions and modifications of this application are integral to the Commission’s approval because, if not for those conditions and modifications, the Commission would have denied this application.

BE IT FURTHER RESOLVED that the effective date of this approval shall be February 27th, 2026.

You must obtain a zoning approval and a building permit prior to any work on the site.

Ms. Wells seconded.

At this point, they reviewed the resolution. Ms. Williams noted that this previously had been an application that would have been done over the counter. She also noted that there had been some questions about the sewer that the house would be connected to. Since it was a private sewer, the applicant would have to obtain the right to connect to it.

Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron; Harvey Jones approved.
No one opposed.
No one abstained.

C. #2026-01 CSPR – Norwalk Cove Marina – 48 Calf Pasture Beach Road – Repair an existing Shoreline Flood and Erosion Control Structure (SFECS) - Report & recommended action

Tim DeBartolomeo began the presentation and explained that this application is for a boat basin and that a bulkhead has failed and they would replace it. The electrical service is not in FEMA compliance. They would replace the wall, install utilities and add landscaping. There would be a boardwalk as well. He shared pictures of the current corroded wall, as well as the current conditions. Things would be removed and replaced. He then shared the proposed plans which included a new anchor system to be installed and new transformer. He showed them designated work areas. There will not be a barge in the basin and they would like to begin the work immediately. They have their permits from Connecticut Department of Energy and Environmental Protection (DEEP) and the Army Corp of Engineers, so they could complete the project before the boating season begins. There would be no change from the original wall to the new one. He then showed them the landscaping plan including pictures of the types of pavers they would use, and the lighting.

There was a discussion about the life span of the new wall. Mr. DeBartolomeo said it could last between 40-50 years. There was also a discussion about public access to the boardwalk. Mr. DeBartolomeo said it would be for anyone using the marina, not the public.

** **MS. LENKOWSKY MOVED: THEREFORE, BE IT RESOLVED** that application #2026-01 CSPR – Norwalk Cove Marina – 48 Calf Pasture Beach Road –

Repair an existing Shoreline Flood and Erosion Control Structure (SFECS) be **APPROVED** subject to the following conditions:

1. That the building and site will be occupied in accordance with the following plans:

a. Per site plan dated 1/2/2026 prepared by Sound Engineering Associates, Fairfield, CT; and

2. That any modifications to the approved plan be reviewed and approved by City Staff prior to implementing; and

3. That all required soil sedimentation and erosion controls (such as turbidity curtains) are in place prior to the start of any construction; and

4. That any additional needed soil sedimentation and erosion controls be installed at the direction of the Staff; and

5. Nothing in this permit shall obviate the requirements for the applicant to obtain any other assents, permits or licenses required by law or regulation by the City of Norwalk, State of Connecticut, or the Government of the United States, including any approval required by the Connecticut Department of Environmental Protection and U.S. Army Corps of Engineers- obtaining such assents, permits or licenses is the sole responsibility of the applicant; and

BE IT FURTHER RESOLVED that this proposal complies with all applicable sections of the Zoning Regulations for the City of Norwalk; and

BE IT FURTHER RESOLVED that these preceding conditions and modifications of this application are integral to the Commission's approval because, if not for those conditions and modifications, the Commission would have denied this application.

BE IT FURTHER RESOLVED that the effective date of this approval shall be February 27th, 2026.

You must obtain a zoning approval prior to any work on the site.

Mr. Roina seconded.

At this point, the commissioners reviewed the resolution. Ms. Williams explained why the application was before the commission.

Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron; Harvey Jones approved.
No one opposed.
No one abstained.

D. #2025-84 CSPR – LandTech – 163 Gregory Boulevard – Retain a Shoreline Flood and Erosion Control Structure that was built without permits and construct a new residential dock - Report & recommended action

Tom Ryder, the ecologist on the project, began the presentation by orienting the commissioners as to the location of the property on an aerial map. There would be a residential dock and a wall would need modifications to be compliant with the zoning regulations. He gave a brief history of the property since the wonders purchased it in 2020. He then showed them the site plan. The owner had received approvals to construct a house, as well as the retaining wall. He also discussed what the as-builts had shown, that the contractor had built it taller. He noted that the application had been submitted to DEEP and the Army Corp of Engineers. They had received approval for the dock and wall from the Army Corp. DEEP has given them a tentative approval. He showed them a cross-section of the wall that had been constructed. He showed them several pictures of the property with the wall that had been constructed.

At this point, Mr. Ryder said that they were trying to have the wall comply with what had been approved. He then described several options, some of which were not practical. They discussed adding more vegetation to the base. However, they didn't want to disturb what was there. Another option would be to move the wall back which would have to be done in sections and a barge brought out to remove boulders. It didn't seem practical to disturb the vegetation to do this. The next option was to remove the wall, although it would still need some type of stabilization.

Mr. Ryder then discussed what was being proposed. He explained how the wall would then be in compliance with the approved plan as well as stabilize the area. They would not need a barge to do the work which would be in the water for a couple of weeks. The wall would be lowered to what had been approved. They would plant some shrubs which would provide a foundation for the soil at the bottom.

There was a discussion about the elevation of the wall. Mr. Ryder explained the reason that the applicant was brought to the Planning & Zoning Commission. He said that DEEP had been on the site, and noticed that the wall was not constructed correctly. They then notified the city to handle the enforcement. They received a letter from Mr. Kleppin that the wall was non-conforming. At this point, there was a discussion of the

commission's options to either approve or deny the application or allow the applicant to leave it as it is. There was also a discussion about the DEEP letter. There was a discussion about the owner's options and the staff's recommendation.

The owners had been notified in 2021 that they would not receive the zoning certificate of compliance because of the situation with the wall, so they would not have been able to receive a certificate of occupancy from the Building Department. Ms. Williams explained why they had not received their zoning certificate of compliance. She did not know whether anyone was living in the house since the certificate of occupancy should not have been issued. There was then a further discussion about the letter from DEEP which said that they could make them take down the wall. Ms. Williams said that the letter indicated that the commission had the authority to enforce however they would like and DEEP would back that up.

At this point, Mr. Ryder was asked whether the family was living in the house. He said that they were although the certificate of occupancy had never been issued. Mr. Ryder did not know why and said that the owners had had trouble logging into the meeting. He also said that they had begun discussing issues to remedy the situation about a year and a half ago when they were going to work on the dock.

There was a discussion about whether the family living in the house was a violation. Mr. Kleppin said that the Building Department could have issued a temporary certificate of occupancy. He also explained how zoning violations were prioritized and that this was not a high priority for enforcement. There was a discussion about postponing the decision on this application. There was also a discussion about whether removing the wall served the public interest.

Peter Cotaling, the owner of 163 Gregory Boulevard, said that he does have a temporary certificate of occupancy so he is allowed to live in the house. He explained how the wall was built and his reaction to the notice of violation. He also said that DEEP had been to the site in November of 2020 and said that the retaining hole was outside the CJL, so there was no violation on his end. He said that he had been to the zoning department about a month later. There was also a discussion about postponing the action on this item, so Mr. Cotaling could bring a detailed timeline to the commission. There was a discussion about whether anyone from Land Tech was at the site when DEEP was. Mr. Ryder said that they were not. The commissioners requested additional documentation for this application as well as an extension of time. Mr. Ryder said that he would authorize an extension of time to the following meeting on March 4.

**** MR. ROINA MOVED** to **continue the application for #2025-84 CSPR – LandTech – 163 Gregory Boulevard – Retain a Shoreline Flood and Erosion Control Structure that was built without permits and construct a new residential dock.**

Mr. Schulman seconded.
Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron; Harvey Jones approved.
No one opposed.
No one abstained.

E. #2026-10 – Norwalk Hospital Association – 34 Maple Street – Modifications to Norwalk Hospital Sign Manual - Report & recommended action

Jessica Norwick, who was representing Norwalk Hospital, introduced the team and began the presentation which would update existing signage and include 3 new ones. She shared the updated sign package for Northwell. The sign at the top of the building would be replaced so that it could be seen at a greater distance. From feedback from patients, they are adding a sign to help patients locate the emergency room. This sound would be reflective and not illuminated. Sean Sheedy said that they had not heard about any problems for patients getting to the birthing center. John Steery said that most expectant parents had come to the birthing center before for a tour so they knew where it was. Ms. Norwick then showed them the sitemap of where all the new signs would be. She then showed them other new signs as well. Mr. Sheedy said that if the current sign was illuminated, it was carried over, and similarly, if it was not illuminated, then the new sign would not be. She continued the presentation by showing them different examples of the new signs.

There was a discussion about the colors of the signs which would be helpful to wayfinding. There was also a discussion about the totem sign to the emergency room.

**** MR. ROINA MOVED: THEREFORE, BE IT RESOLVED** that the request to revise the sign manual for Norwalk Hospital by the Norwalk Planning & Zoning Commission for application 2026-10 – Norwalk Hospital Association – 34 Maple Street – Modifications to Norwalk Hospital Sign Manual be **APPROVED** subject to the following conditions:

1. That all exterior signage will be installed in accordance with the following manual:

a. Per sign manual developed by American/Interstate Sign Crafters for Norwalk Hospital at 34 Maple Street dated 1/23/26; and

2. That a zoning permit for the installation for the signs is obtained prior to installation; and

3. The applicant shall consult with the Norwalk Department of Public Works, Transportation, Mobility, and Parking and CT DOT regarding the adequacy of Norwalk Hospital wayfinding signage specifically for Interstate 95 and the Route 7 interchange;

4. That any changes to the proposal are required to be reviewed by staff prior to implementation; and

BE IT FURTHER RESOLVED that the effective date of this action shall be February 27th, 2026.

Mr. Jones seconded.

At this point, the commissioners reviewed the resolution. Ms. Andrzejewski said that staff did not have any concerns. There was an addition to the resolution for wayfinding from I-95.

Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron; Harvey Jones approved.
No one opposed.
No one abstained.

F. #2025-79 SPR – Lofts M7 LLC – 101-201 Merritt 7 – Conversion of Office Buildings to Residential – Report & recommended action

Lisa Feinberg, who was representing the applicant, began the presentation by introducing the project team. She then oriented the commissioners as to the location of the property on an aerial map. The applicant would like to convert two of the Merritt 7 buildings to residential buildings. She shared a report of office statistics which showed how much office space was vacant. She showed them pictures of the current buildings and then the renderings for the residential buildings. She noted the number of units, affordable housing units, parking spaces, and amenity areas. She said that the applicant would explore having solar panels on the roof even though it was not required because this is not new construction.

Jake Granoff, the architect on the building, explained the previous conversions that his firm had done around the state. He showed them the plans for the amenity space which included a pool, playground, outdoor lounge, etc. They are working with the Fire Department to allow access to 101. He noted that they would lose some parking spaces

due to the pool. There would be some restriping of the spots due to the regulations. He discussed the ramp access as well as landscape renderings which would include an outdoor fireplace. He showed them the materials which would be used to soften the look of the buildings to feel more residential.

Jeff Scher, the landscape architect on the project, discussed the new amenity space in the parking lot. He showed them the existing site plans. He then shared the proposed site plan which included new trees, etc. There would be a circular roundabout for dropoff, additional bike spots. There would be an open space, as well as areas where people could sit on a bench surrounded by trees. He also discussed indoor amenities. He then shared images of the trees, shrubs, grasses etc that would be used on the site. He also discussed the lighting plan which included a photometric study to confirm that light was not being obtrusive.

Collene Byrne, the traffic engineer for the project, explained the traffic analysis and focused on the analysis and findings. She explained the study areas. She also explained that the state DOT has construction projects which will bring improvements to the area. She explained the trip generation methodology as well as the site-generated traffic volumes. She shared the traffic study findings.

Vincent Hynes, the engineer on the project, continued the presentation, by discussing the greenery on the existing site which counts as being impervious. There would be no change to the overall drainage infrastructure. They had received an approval on a minor activity application from the Conservation Department. He discussed sign-offs and comments received from various departments. There had been a request to improve the pedestrian ramps at the access points to the site, as well as making them compliant to today's standards.

Mr. Schulman asked to see the affordable housing units which Mr. Granoff shared with the commissioners. He said that he appreciated the financial analysis that was provided. There was a discussion about pedestrian accommodations at the intersections as well as public access to the river. There was a discussion about the demonstration kitchen for classes or dinners. Some windows in the apartments would open and close. In discussions with the fire department, Ms. Feinberg said that they would have to reinforce the parking deck in front of the building, as well as the ramp.

WHEREAS, Public Act 25-164 was signed into law on July 8, 2025;

WHEREAS, Public Act 25-164 allows the conversion of office to residential provided that:

1. The subject building been vacant, or

2. had an average occupancy rate of less than fifty per cent, over the one-year period immediately preceding the application for such conversion or partial conversion;

WHEREAS, the applicant provided sufficient supporting documentation to meet the vacancy requirements of Public Act 25-164;

WHEREAS, the application is consistent with applicable Site Plan criteria in Article 8.45.

**** MR. SCHULMAN MOVED: THEREFORE, BE IT RESOLVED**, by the Norwalk Planning & Zoning Commission, that #2025-79 SPR – Lofts M7 LLC – 101-201 Merritt 7 – Conversion of Office Buildings to Residential, be APPROVED, subject to the following conditions:

1. The Development be built consistent with the following:

a. Architectural plans prepared by Granoff Architects dated 2.6.26 (all pages)

b. Civil plans prepared by Redniss & Mead with the following plan titles:

i. ZSP-1 Zoning Site Plan 1, dated 9.30.25, and revised to 1.22.26

ii. ZSP-2 Zoning Site Plan 2, dated 9.30.25, and revised to 1.22.26

iii. SE-1 Site Utility Plan, dated 9.30.25, and revised to 1.22.26

iv. SE-2 Notes & Details, dated 9.30.25

v. SE-3 Notes & Details, dated 9.30.25

c. Site Engineering Report prepared by Redniss & Mead dated 9.30.25

d. Landscape plans prepared by Granoff Architects with the following plan titles:

i. L01 Existing Conditions, dated 12.17.25

ii. L02 Landscape Improvements, dated 2.6.26

iii. L03 Site Lighting Improvements, dated 12.17.25

iv. L04 Site Lighting Photometrics, dated 2.6.26.

2. The approved Site Plan (as revised by any conditions of approval) be filed on the Norwalk Land Records prior to the issuance of a Zoning Permit; and

3. Any outstanding CEAC signoffs shall be submitted to staff prior to the issuance of a zoning permit; and

4. The applicant shall make improvements as agreed to with Transportation, Mobility and Parking; and

5. Approved emergency access locations, circulation and maximum load shall be designed as depicted on certain plans prepared by Granoff Architects titled “Emergency Access Plan, Sheets AS24, AS24.1 & AS24.2” dated January 21, 2026 . Prior to issuance of a building permit, the applicant shall submit a structural engineering plan(s) that conform to the Emergency Access Plan and is determined by the City of Norwalk Fire Marshal and Chief Building Official, within their sole discretion, to be acceptable. At the discretion of the Fire Marshal, the applicant may also be required to pay for the City of Norwalk to hire an outside structural engineer of the City’s choosing to conduct a peer review of the submitted plan(s) and either verify compliance or recommend changes to submitted plan(s);

6. Two additional Fire Department Connections (FDC) shall be installed as required by the Fire Marshal; and

7. Any modifications to the approved Site Plan be reviewed and approved by City Staff prior to implementing; and

8. All rooftop mechanical equipment associated with the new development shall be screened with an acoustic and visual barrier, to the height of the equipment.

9. Prior to receipt of the Zoning Certificate of Compliance, a Connecticut licensed engineer shall certify that all required improvements, including any required off-site improvements, were installed to City standards; and

10. The Affordability Plan Declaration shall be filed on the Norwalk Land Records prior to the issuance of a final Certificate of Zoning Compliance; and

11. Should any building façade material become damaged or deteriorated, the applicant and future owners shall repair the damage or deterioration within thirty (30) days’ notice from the City; and

12. That any and all HVAC units shall be located in conformance with the applicable zoning setbacks and appropriately screened; and

BE IT FURTHER RESOLVED that the effective date of this action shall be February 27, 2026

Mr. Roina seconded.

At this point, the commissioners reviewed the resolution. Mr. Kleppin added a condition which Mr. Schulman and Mr. Roina agreed to.

Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron; Harvey Jones approved.
No one opposed.
No one abstained.

IV. ACCEPTANCE OF MINUTES

A. Regular Meeting: February 4, 2026 (Regular and Special Meetings)

**** MR. ROINA MOVED to approve the February 4, 2026 minutes for the Regular and Special meetings.**
Mr. Schulman seconded.
Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina approved.
No one opposed.
Jacquen Jordan-Byron and Harvey Jones abstained.

V. COMMENTS OF DIRECTOR

Mr. Kleppin discussed a proposed amendment to the POCD to include the strategic harbor plan. He said that there would be a combined meeting on Thursday, March 5.

VI. COMMENTS OF COMMISSIONERS

There were no comments from commissioners.

VII. ADJOURNMENT

Mr. Roina made a Motion to Adjourn.
Mr. Schulman seconded.
Chapin Bryce; Galen Wells; Diana Lenkowsky; Louis Schulman; Ana Tabachneck; Richard Roina; Jacquen Jordan-Byron; Harvey Jones approved.
No one opposed.

No one abstained.

The meeting was adjourned at 8:26 pm.

Respectfully submitted,

Diana Palmentiero