

# PZ-SPUSE-23-000010

Menu Reports Help

File Date: [04/21/2023](#)

Application Status: [Pending](#)

Assigned To: [Erin Howard](#)

Description of Work: [Note: This project includes 7 total parcels \(see attachment for detailed parcel, owner, and existing use info which varies by parcel, and agent authorization forms\)Please ensure to notice all parcels in the newspaper. Thank you. Special permit for the construction of a structured parking garage, ground floor retail, and pedestrian walkway connecting to Connecticut Children's. 17 Lincoln Street 15 Lincoln Street 11 Lincoln Street 7 Lincoln Street 5 Lincoln Street 295 Washington Street 289 Washington Street](#)

Application Detail: [Detail](#)

Application Type: [Special Permit](#)

Documents:	File Name	Document Group	Category	Description	Type	Document Status	Document Status Date
	<a href="#">4PARCELS_AA.pdf</a>	PLNG_SITEMIN	Owners Authoriz...	289 Washington; 295...	application/pdf	Uploaded	04/21/2023
	<a href="#">15Lincoln_AA.pdf</a>	PLNG_SITEMIN	Owners Authoriz...	15 Lincoln Owners A...	application/pdf	Uploaded	04/21/2023
	<a href="#">17Lincoln_AA.pdf</a>	PLNG_SITEMIN	Owners Authoriz...	17 Lincoln Owners A...	application/pdf	Uploaded	04/21/2023
	<a href="#">ParcelDetails.xlsx</a>	PLNG_SITEMIN	Other	Please refer to thi...	application/vnd.ms...	Uploaded	04/21/2023
	<a href="#">11-13 Lincoln Owner Au...</a>	PLNG_SITEMIN	Owners Authoriz...		application/pdf	Uploaded	04/26/2023
	<a href="#">Frog Hollow Support Le...</a>	PLNG_SITEMIN	Other Support D...		application/pdf	Uploaded	04/26/2023
	<a href="#">Garage Site Plan &amp; Render</a>	PLNG_SITEMIN	Site Plan		application/pdf	Uploaded	04/26/2023
	<a href="#">Garage Site Plan &amp; Ele...</a>	PLNG_SITEMIN	Site Plan		application/pdf	Uploaded	04/26/2023
	<a href="#">Storm Water Management...</a>	PLNG_SITEMIN	Storm Water Man...		application/pdf	Uploaded	04/26/2023
	<a href="#">Materials Spec Sheet</a>	PLNG_SITEMIN	Other Support D...		application/pdf	Uploaded	04/26/2023

[Show all](#)

Address: [289 WASHINGTON ST, HARTFORD, CT 06106](#)

Owner Name: [LINCOLN REALTY LLC](#)

Owner Address: [16 BAY ROC RD, WETHERSFIELD, CT 06109 393](#)

Application Name:

Parcel No: [227543044](#)

Contact Info:	Name	Organization Name	Contact Type	Contact Primary Address	Status
	<a href="#">Larry Stubbs</a>		Applicant	<a href="#">Mailing_1 Financial P...</a>	Active

Licensed Professionals Info:	Primary	License Number	License Type	Name	Business Name	Business License #

Job Value: [\\$0.00](#)

Total Fee Assessed: [\\$0.00](#)

Total Fee Invoiced: [\\$0.00](#)

Balance: [\\$0.00](#)

Custom Fields: [PLNG\\_SITEMJR\\_CF](#)

GIS Information

Zoning District: [MX-1](#)      Zoning Overlay: -      FEMA Flood Zone: -      Land Use Per Assessor: [AUXILLARY SURFACE PARKING](#)

NRZ: [FROG HOLLOW NRZ](#)      Neighborhood: [BARRY SQUARE](#)      Local Historic District: -

Historic District: -      Historic Landmark/Site: -      State Historic District: -

Dispersion met?: [No](#)      Identify Dispersion: -      National Historic District: -

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General Project Information

Is this application a result of a violation notice?  
[No](#)

Zoning Enforcement Case ID #  
-

Does this project include a demolition?  
[No](#)

Does this project include any tree removal?  
[Yes](#)

Is there an increase of five or more parking spaces?  
[Yes](#)

Does this project include new construction, including additions to a primary structure?  
[Yes](#)

Does this project include new proposed accessory structures?  
[No](#)

Are facade alterations proposed?  
[No](#)

Does this project include any new signage or alteration to existing signage?  
[Yes](#)

Existing Impervious Surface (Sq. Ft)  
-

Proposed Impervious Surface (Sq. Ft)  
-

Total Project Area (Sq. Ft)  
-

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Site Information

Existing Building Type  
[N/A](#)

Proposed Building Type  
[Auto-Oriented Structure](#)

Existing Use  
[Parking as a  
Principal Use](#)

Proposed Use  
[Parking as a  
Principal Use](#)

Fee Use  
-

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Recommendations

Consistency with POCD  
-

Adverse Impacts on Neighboring Lands  
-

Suitability as Presently Zoned  
-

Recommendation  
-

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Other Payment Required

Green Infrastructure Fund      Amount  
-

City Tree Fund                      Amount

Complete Streets Fund Amount

Describe Reason for Payments

Reason for Request

Reason for Request

PLNG\_SITEMJR\_DIGEPLAN  
Enhanced Doc List

Dates and Notices

Application Received

Open Hearing Deadline

Close Hearing Deadline

Decision Deadline

Extensions Requested?

If yes, describe how the dates above have changed

Notice sent to NRZ/CRCOG

Legal Ad #1

Legal Ad #2

Sign Affidavit Received

Certificate of Mailings Returned

Notice of Decision Published

Recordation Date

Approval Expiration Date

Sign Deposit Check #

Sign Deposit Date Received

Sign Deposit Check Amount

Public Hearing Date

Public Hearing Time

Meeting Link or Location

Document Link

Certificate of Compliance

As-Built Drawing Date

Type of Bond

Escrow Account #

Bonding Company Name

Bonding Contact Name

Bonding Primary Phone #

Bonding Email

Drawings Number of Sheets

Drawings Last Revised

Prior Approvals

Type of Permit/Authorization Issued By Issued Date Expiration Date

Resolution Clauses

Type Comment

Workflow Status: Task Assigned To Status Status Date Action By

[Application Intake](#)

Erin Howard

Plans Distribution

Building Review

Engineering Review

Police Review

City Forester Review

Planning and Zoning Re...

Utilities Review

Task	Assigned To	Status	Status Date	Action By
NRZ				
CTDOT Review				
Adjacent Municipalitie...				
Fire Marshal Review				
Staff Report				
Public Notice				
Planning and Zoning Co...				
Notice of Decision				
Appeal Period				
Recordation				
Permit Issuance				
Permit Status				
Certificate of Plannin...				
Case Complete				

**Condition Status:** Name Short Comments Status Apply Date Severity Action By

**Application Comments:** View ID Comment Date

**Initiated by Product:** ACA

**Scheduled/Pending Inspections:** Inspection Type Scheduled Date Inspector Status Comments

**Resulted Inspections:** Inspection Type Inspection Date Inspector Status Comments



LAZ Parking Realty Investors


January 27, 2023


RE: Land Use Applications for Parcels:  
5 Lincoln Street, Hartford (Parcel # 227543045)  
289 Washington Street, Hartford (Parcel # 227543044)  
295 Washington Street, Hartford (Parcel # 227543043)  
7 Lincoln Street, Hartford (Parcel # 227543046)

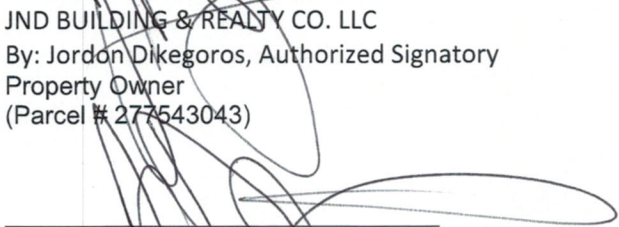
To Whom it May Concerns:

I authorize LAZ Parking Realty Investors to submit land use applications relative to the above referenced property during the period 1/1/23 through 6/30/23. I understand the nature of these applications relates to a proposed structured parking deck.

Sincerely,

  
\_\_\_\_\_  
LINCOLN REALTY LLC  
By: Jordon Dikegoros, Authorized Signatory  
Property Owner  
(Parcel #'s 227543045 & 277543044)

  
\_\_\_\_\_  
JND BUILDING & REALTY CO. LLC  
By: Jordon Dikegoros, Authorized Signatory  
Property Owner  
(Parcel # 277543043)

  
\_\_\_\_\_  
Seven Lincoln, LLC  
By: Jordon Dikegoros, Authorized Signatory  
Property Owner  
(Parcel # 277543046)



LAZ Parking Realty Investors

January 27, 2023

RE: Land Use Applications for 15 Lincoln Street, Hartford (Parcel # 227543048)

To Whom it May Concerns:

I authorize LAZ Parking Realty Investors to submit land use applications relative to the above referenced property during calendar year 2023. I understand the nature of these applications relates to a proposed structured parking deck.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Lloyd A. McKain', is written over a horizontal line.

LLOYD A. MCKAIN  
Property Owner



LAZ Parking Realty Investors

January 27, 2023

RE: Land Use Applications for 17 Lincoln Street, Hartford (Parcel # 227543049)

To Whom it May Concerns:

I authorize LAZ Parking Realty Investors to submit land use applications relative to the above referenced property during calendar year 2023. I understand the nature of these applications relates to a proposed structured parking deck.

Sincerely,

A handwritten signature in black ink, appearing to read 'Manuela Reyes', is written over a horizontal line. The signature is fluid and cursive.

MANUELA REYES  
Property Owner



# Washington & Lincoln Garage

CannonDesign Project Number 006719.04

## Exterior Product Data

6 April 2023

**CannonDesign**

Core & Shell Design Consultant

**CANNONDESIGN**





## Washington & Lincoln Garage

CannonDesign Project Number 006719.04

# Exterior Product Data

## TERRACOTTA RAINSCREEN

6 April 2023

**CannonDesign**  
Core & Shell Design Consultant

**CANNONDESIGN**



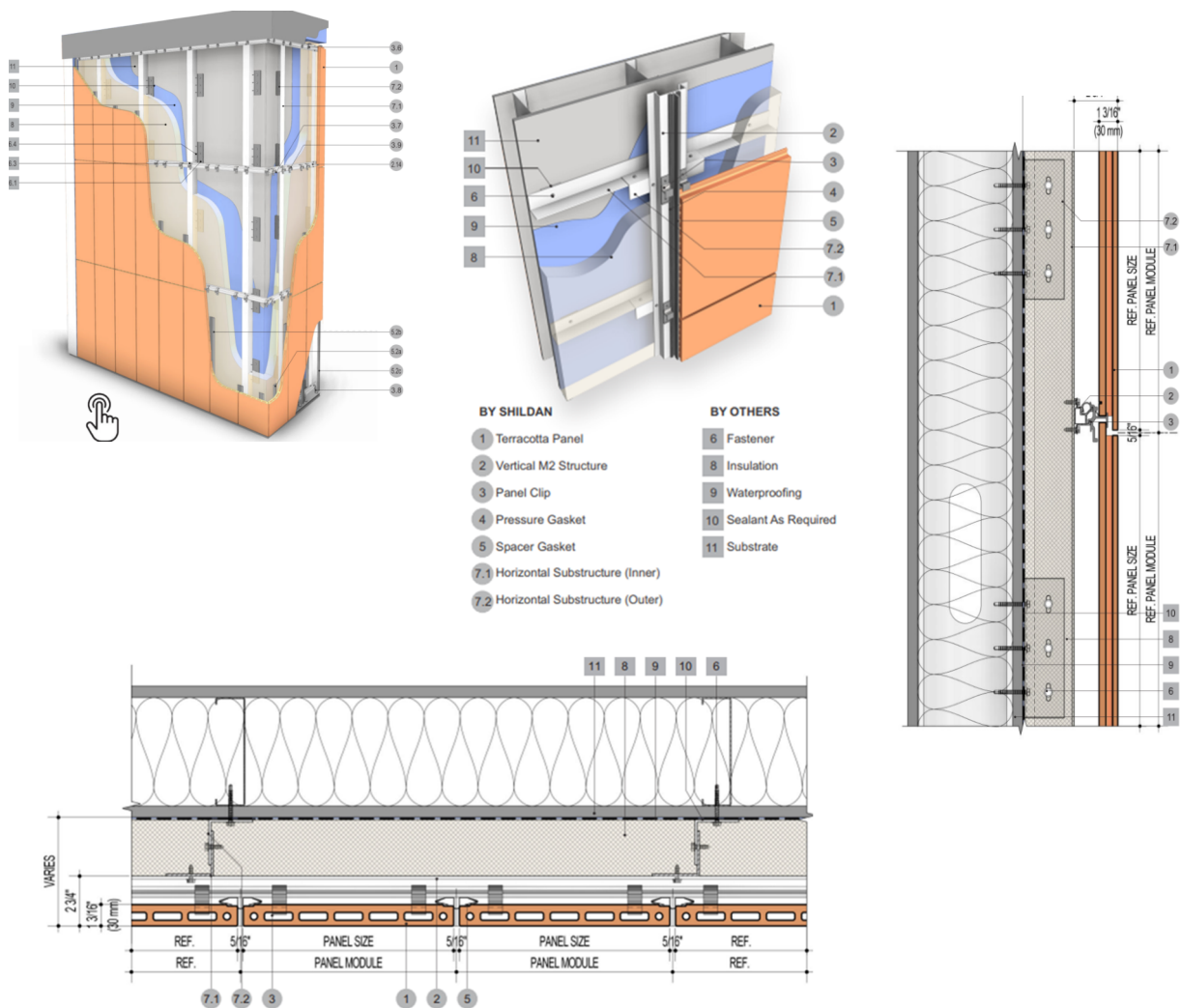
Corporate Headquarters  
2047 Briggs Road  
Mount Laurel, New Jersey 08054  
215-525-4510  
www.shildan.com

### Advantages of the Shildan Terracotta Rainscreen System

The ALPHATON® & LONGOTON® Cladding Systems seamlessly integrate the warm, natural look of terracotta with an advanced, high performance rainscreen curtainwall. Shildan terracotta can blend various styles of architecture to create a unique and sustainable system with these great advantages:

- Ventilated Rainscreen – The Open Joint Rainscreen system, is a high performing, back ventilated, pressure equalized rainscreen system, designed to utilize the Rainscreen Principle. The Rainscreen Principle is a theory governing the design of a building enclosure in such a way as to prevent water penetration due to rain. Our system allows air to circulate behind the panels to provide pressure equalization which prevents water from being drawn into the building.
- Unique Design – Our Rainscreen is unique as it encompasses a shiplap in the open joint which resists wind driven rain and does not allow the rain to penetrate the open cavity behind the cladding. Because the space behind the rainscreen is open, it allows any moisture or vapor to escape via the back-ventilation properties of the design, allowing any stack effect to properly vent out. The natural ventilation prevents any mold or mildew from growing inside the wall.
- No Grout or Sealants – The Ventilated Rainscreen system keeps your building dry and protected from the worst weather conditions without the use of grout or sealants, and without any need for maintenance. This includes positive and negative wind loads, seismic, thermal, and normal movement.
- Energy Efficient – By locating the insulation outside the air/vapor barrier, the condensation is continually evaporating due to air movement. The result is a higher insulation value which reduces energy consumption, resulting in healthy wall construction.
- Up to Code– The ALPHATON® & LONGOTON® Rainscreen systems meet the standards set by the International Building Code and the International Energy Code which has been adopted by many states.
- Versatile Design – The Open Joint Technology allows for design flexibility. A wide array of panel shapes and sizes can be created giving the designer greater latitude in modular design.
- Natural Materials – The panels are made from 100 percent natural clay materials with no artificial pigments. A wide range of natural colors are available.
- Sustainable Design – 80 year-plus life expectancy, with a naturally ventilated wall cavity, helps to eliminate the potential for “sick building syndrome” common to closed cavity walls. All materials are fully recyclable.

- **Improved HVAC** – by virtually eliminating air filtration and exfiltration, the HVAC system will be more effective and reduce energy costs.
- **100 Years** – Since condensation is not trapped in the wall, we can provide a 100-year facade, even with steel stud construction.
- **Ten Year Guarantee** – The full system has a ten years factory warranty.
- **Perfect for Coastal Environment** – all materials of the system are non-fading and resistant to frost, corrosion, salt water and other aggressive substances. Magnesium alloy aluminum support structures used in shipbuilding.
- **Acoustic insulation** – The sound attenuation of walls is significantly improved by the MOEDING-ALPHATON® facade.
- **Replacement Panels** – if one panel is damaged, it can easily be replaced without harming the others.
- **All year installation** – the system can be installed in almost any weather conditions.





## Washington & Lincoln Garage

CannonDesign Project Number 006719.04

# Exterior Product Data

## COMPOSITE METAL PANEL

6 April 2023

**CannonDesign**  
Core & Shell Design Consultant

**CANNONDESIGN**

 MITSUBISHI CHEMICAL COMPOSITES AMERICA, INC.

**ALPOLIC**<sup>®</sup>  
METAL COMPOSITE MATERIALS

Your Design | **Perfected**

ARCHITECTURAL BROCHURE

WE UNDERSTAND  
**ARCHITECTURAL**

# INFLUENTIAL

**YOUR CHOICES IN BUILDING MATERIALS HAVE A DIRECT INFLUENCE ON THE BOLDNESS AND BREADTH OF YOUR DESIGN VISION. THE BUILDINGS YOU DESIGN, IN TURN, INFLUENCE THE COMMUNITIES THEY GRACE AND THE LIVES OF THE PEOPLE WHO ENJOY THEM. ALPOLIC® MATERIALS OFFER ENDLESS FABRICATION AND FINISH POSSIBILITIES, FREEING YOU TO DESIGN ARCHITECTURE THAT TRULY MATTERS – FROM THE STATEMENT IT MAKES TO THE PURPOSE IT SERVES.**

## HEALTHCARE

Bring state-of-the-art quality and a vibrant, affirming look to places where people bring their hopes of sustaining healthier, happier lives.

- Hospitals
- Clinics
- Medical Offices
- Assisted Living & Nursing Homes
- Rehabilitation Facilities

## EDUCATION

Challenge the mind with designs that inspire learning by creating the ideal ambience for everything from focused study, to shared discovery, to team celebration.

- University Buildings
- Schools
- Cafeterias
- Dorms
- Athletic Facilities

## GOVERNMENT

Service, justice, security, community:

Engage the people with architecture that inspires civic pride, from legislative halls to park plazas.

- Government Offices
- Prisons
- Park Facilities
- Courthouses
- Fire & Police Stations
- Post Offices

## MILITARY

Create the right environment for every facet of soldier life – places to train, work, plan, eat, recreate, socialize, live and raise families.

- Offices
- Housing
- Commissaries
- Hospitals

## COMMUNITY

Bring people together in spaces that excite the senses and invite participation through the use of engaging forms and finishes.

- Libraries
- Auditoriums
- Museums
- Community Centers
- Churches
- Sports Arenas
- Golf Courses/Country Clubs
- Convention Centers

## RESIDENTIAL

Create more than living spaces – create places to truly live, where clean lines and colorful details invite residents home each day.

- Luxury Apartments
- Condominiums
- Townhomes
- Single Family Dwellings
- Affordable Housing

## COMMERCIAL

Show a flair for business with designs and colors that convey authority, yet welcome employees and customers to engage creatively with the enterprise.

- Corporate Offices
- Laboratories
- Production Facilities
- Car Parks
- Broadcast Studios
- Rental Warehouses
- Parking Garages
- Shopping Centers

## INDUSTRIAL

Reveal function in extraordinary forms that represent the fruits of industry in all its dynamic and colorful variety.

- Manufacturing
- Research Centers
- Power Plants
- Warehousing & Distribution

## TRANSPORTATION

Bring joy to people in transit, enlivening the journey and creating new destinations to look forward to.

- Airports
- Bus Stations
- Train Terminals
- Parking Structures
- Subway Stations

# IDEAL

ALPOLIC® materials are ideal for architectural projects because they're lighter in weight, easier to fabricate into complex forms, and easier to install than traditional materials. Yet they offer superior flatness, durability, stability, vibration damping and ease of maintenance.

With a huge selection of finish types, colors and glosses – plus the ability to specify virtually any custom color – there's no limit to the architectural effects you can create. To achieve the widest possible color and gloss range, with unmatched durability, we coil-coat our ACM panels with the incredibly tough and stable Lumiflon® FEVE fluoropolymer resin, so your concept stays fresh through decades of exposure to the elements. ALPOLIC® products and finishes are backed by up to a 30-year warranty.

## **Product Properties**

ALPOLIC® aluminum composite materials (ACM) are produced by continuously bonding two thin sheets of aluminum on either side of an extruded thermoplastic or mineral-filled, fire-retardant thermoplastic core. The aluminum surfaces have been pre-finished and coil-coated in a variety of paint finishes before bonding.

We also offer metal composite materials (MCM) featuring skins of copper, zinc, stainless steel or titanium bonded to the same cores and left unfinished. ALPOLIC® ACM and MCM both offer the rigidity of heavy-gauge sheet metal in a lightweight composite material.

## **Ease of Fabrication**

ALPOLIC® ACM can be fabricated with ordinary woodworking or metalworking tools, with no special tools required. Cutting, grooving, punching, drilling, bending, rolling and many other fabrication techniques can be easily performed to create a virtually unlimited variety of complex forms and shapes.

### **MANUFACTURING FLEXIBILITY**

ALPOLIC® materials are offered in a variety of thicknesses: 2mm, 3mm, 4mm and 6mm

### **STANDARD WIDTHS**

40"      48"      50"      62"

### **SEMI-STANDARD WIDTHS**

Consult Customer Service

### **CUSTOM WIDTHS**

Consult Customer Service

### **RANGE OF SIZES**

Width: 40"- 62" (826mm - 1,575mm)

Length: 6'- 24' (1,829mm - 7,315mm)

### **PRODUCT TOLERANCE**

ALPOLIC® materials are trimmed and squared with cut edges to offer the best panel edge conditions in the industry.

Width:  $\pm 0.08"$  (2mm)

Length:  $\pm 0.16"$  (4mm)

### **PRODUCT TOLERANCE**

3mm  $\pm 0.008"$  (0.2mm)

4mm  $\pm 0.008"$  (0.2mm)

6mm  $\pm 0.012"$  (0.3mm)

### **BOW MAXIMUM**

0.5% of length and/or width

### **SQUARENESS MAXIMUM**

0.2" (5mm)

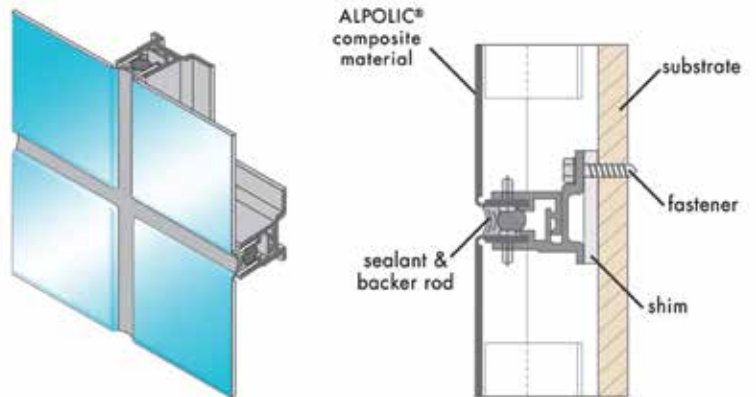




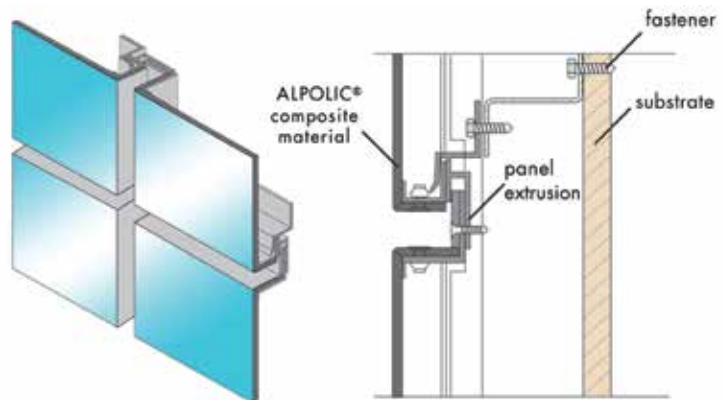
# FUNCTIONAL

ALPOLIC® MATERIALS ARE UNSURPASSED IN THEIR FUNCTIONAL ADAPTABILITY, FREEING ARCHITECTS AND FABRICATORS TO COLLABORATE ON INNOVATIVE DESIGN FORMS AND CLADDING SYSTEMS. IN CITIES AROUND THE WORLD, YOU'LL FIND BUILDINGS THAT REVEAL STRIKING NEW POSSIBILITIES, ACHIEVED THROUGH THE TEAMWORK OF VISIONARY ARCHITECTS AND SKILLED FABRICATORS WORKING WITH VERSATILE ALPOLIC® MATERIALS.

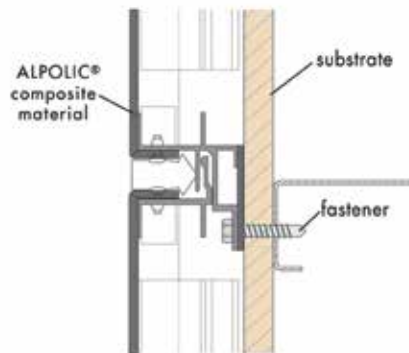
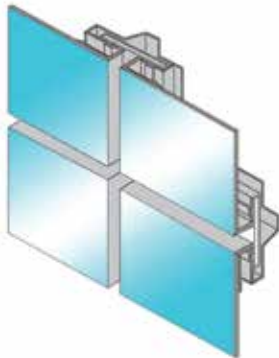
## ROUT AND RETURN WET SEAL



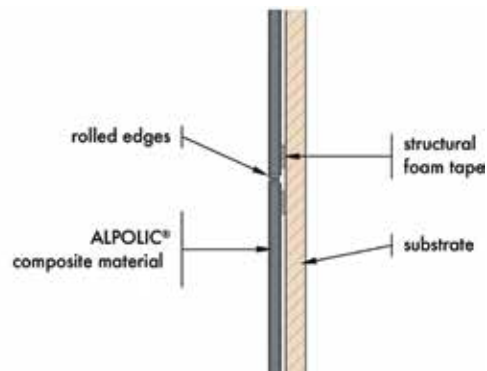
## RAINSCREEN



### ROUT & RETURN DRY GASKET SEAL



### INTERIOR ROLLED PIN EDGE





## Washington & Lincoln Garage

CannonDesign Project Number 006719.04

# Exterior Product Data

## THIN BRICK VENEER

6 April 2023

**CannonDesign**  
Core & Shell Design Consultant

**CANNONDESIGN**

# THIN BRICK



## **FREEDOM OF EXPRESSION**

The freedom to add brick where previously thought impossible or impractical, Endicott thin brick clears the way for innovative, visually stunning solutions that are easy to install, affordable and hard to ignore.

WITH ENDICOTT  
THIN BRICK,  
LESS IS MORE.

**Endicott**

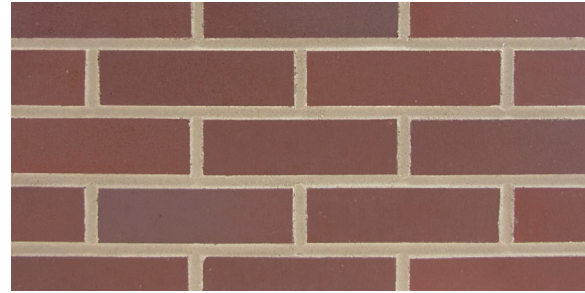
DISCOVER NEW WAYS TO ACHIEVE YOUR UNIQUE ARCHITECTURAL VISION WITH ENDICOTT THIN BRICK. SUITED TO YEAR-ROUND COMMERCIAL, RESIDENTIAL AND REMODELING APPLICATIONS, ENDICOTT THIN BRICK IS THE IDEAL CHOICE FOR PRECAST, TILT-UP, PREFABRICATED WALL, AND JOB-APPLIED PROJECTS.

Brick Color: Manganese Ironspot

*Augsburg University, Hagfors Center – Minneapolis, MN*

# COLORS

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Bordeaux Blend



Graphite



Grey Sands



Merlot Sands



Executive Ironspot



Sienna Ironspot



Burgundy Sands



Sahara Sands



Medium Ironspot #77

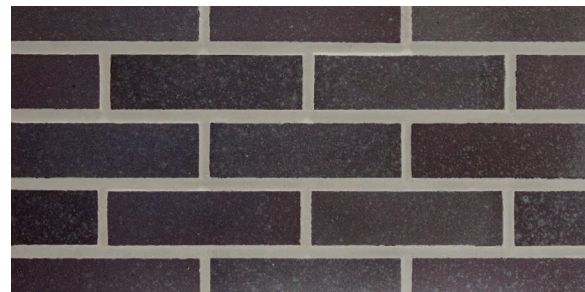


Garage

Medium Ironspot #46



Autumn Sands



Dark Ironspot



Manganese Ironspot



Orleans Sands

# TEXTURES



Square Edge no Texture

Available in 1/2" thick.



## KEYBACK DESIGN

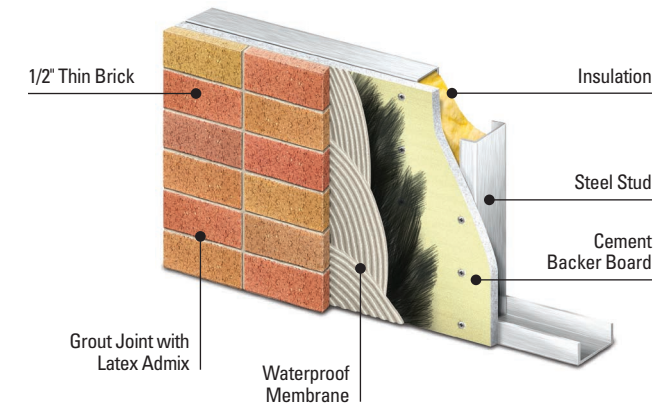
To enhance in-place installation, Endicott thin brick features a keyback design, which provides a mechanical lock into the concrete for maximum durability and permanence.

It also provides the advantage of increased freeze-thaw pull-out strength.

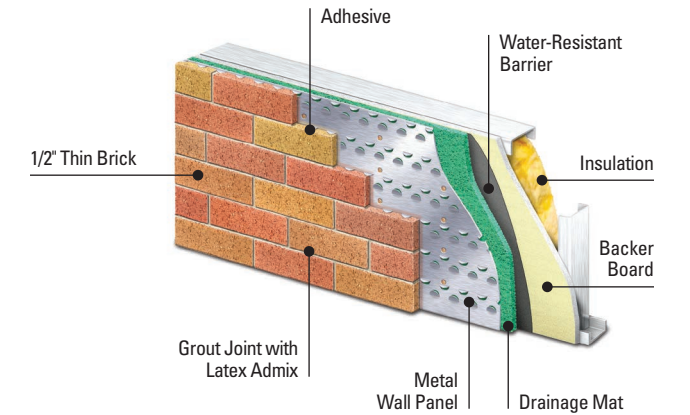
# APPLICATIONS

Some of the more common application processes for thin brick include:

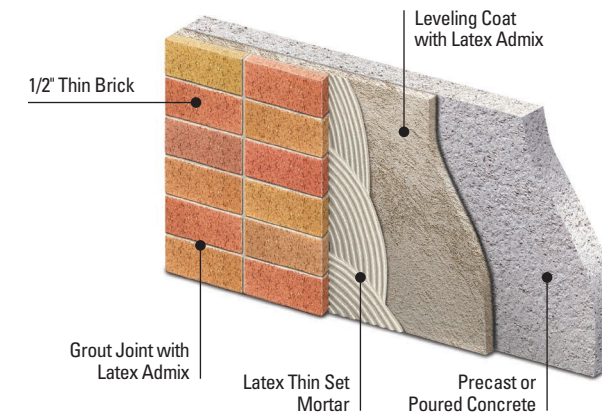
### PANEL SYSTEM Prefabricated or On-Site Panelization



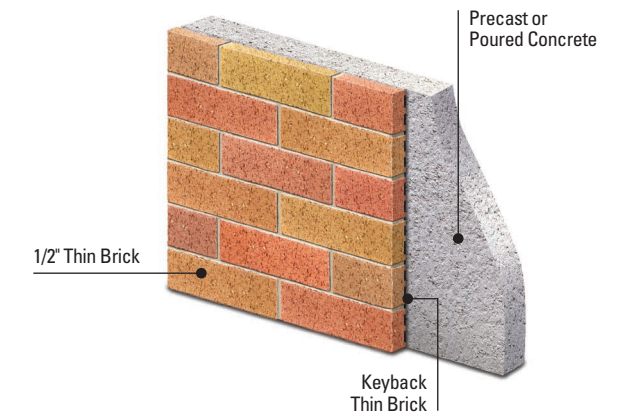
### METAL PANEL WALL SYSTEM Prefabricated or On-Site Panelization



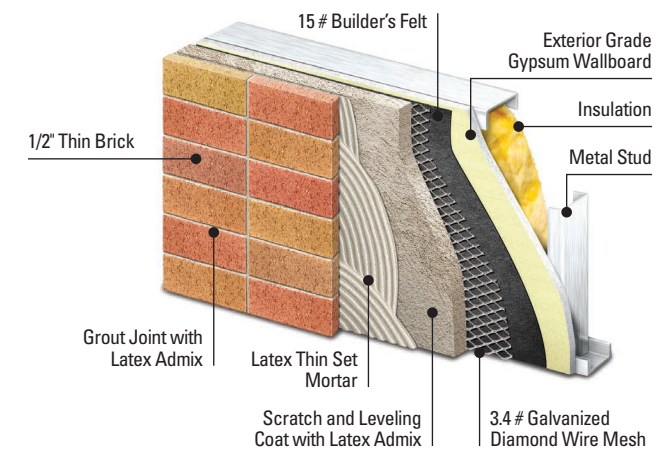
### THIN BED SYSTEM WITH LEVELING COAT Job Applied Over Precast or Poured in Place Concrete



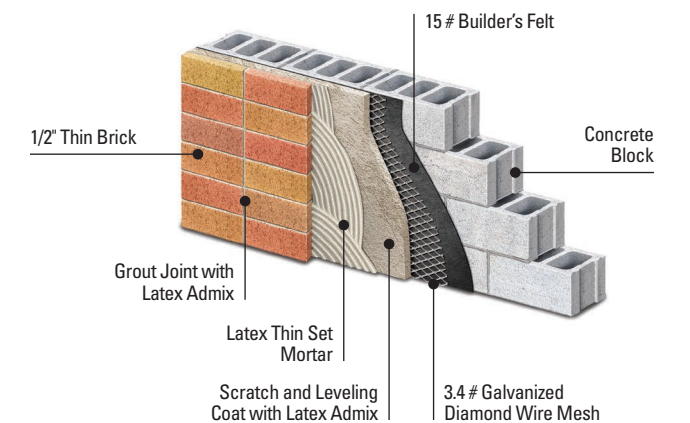
### THIN BRICK SYSTEM Embedded in Precast Concrete



### MORTAR BED SYSTEM Prefabricated or On-Site Panelization



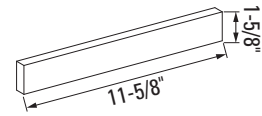
### MORTAR BED SYSTEM Concrete Block Infill Wall or Existing Masonry



# SIZES

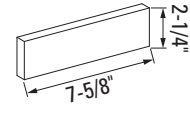
## ROMAN

1-5/8" x 11-5/8"



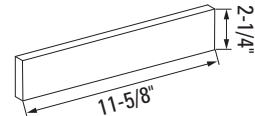
## MODULAR

2-1/4" x 7-5/8"



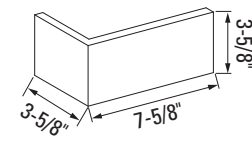
## NORMAN

2-1/4" x 11-5/8"



## BC448

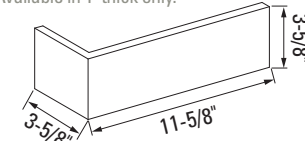
3-5/8" x 7-5/8" x 3-5/8"



## BC4412

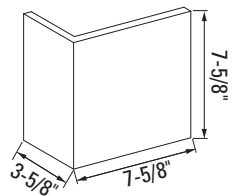
3-5/8" x 11-5/8" x 3-5/8"

NOTE: Available in 1" thick only.



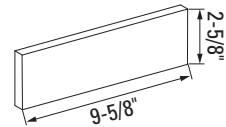
## BC848

3-5/8" x 7-5/8" x 7-5/8"



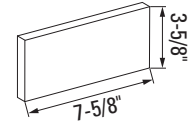
## KINGSIZE

2-5/8" x 9-5/8"



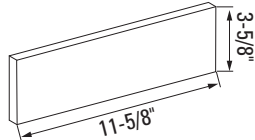
## CLOSURE

3-5/8" x 7-5/8"



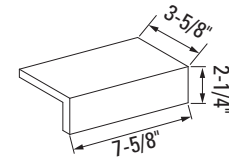
## UTILITY

3-5/8" x 11-5/8"



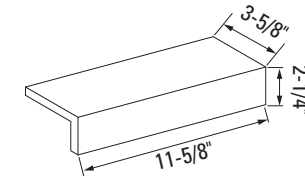
## EDGE CAP A

3-5/8" x 7-5/8" x 2-1/4"



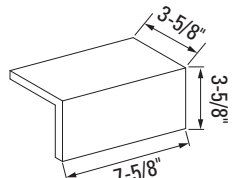
## EDGE CAP B

3-5/8" x 11-5/8" x 2-1/4"



## EDGE CAP C

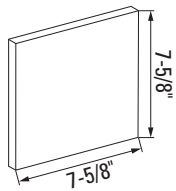
3-5/8" x 7-5/8" x 3-5/8"



## TRIPLE

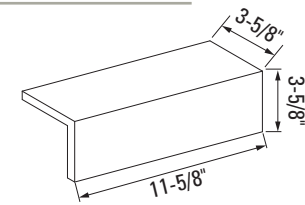
7-5/8" x 7-5/8"

NOTE: Available in 1/2" and 5/8" thick only.



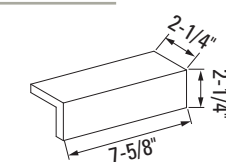
## EDGE CAP D

3-5/8" x 11-5/8" x 3-5/8"



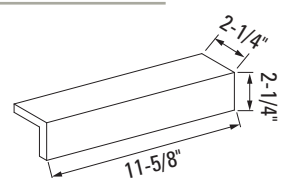
## EDGE CAP E

2-1/4" x 7-5/8" x 2-1/4"



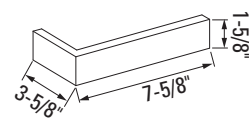
## EDGE CAP F

2-1/4" x 11-5/8" x 2-1/4"



## BC1-5/8" 48

3-5/8" x 7-5/8" x 1-5/8"



## BC1-5/8" 412

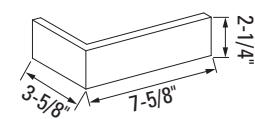
3-5/8" x 11-5/8" x 1-5/8"

NOTE: Available in 1" thick only.



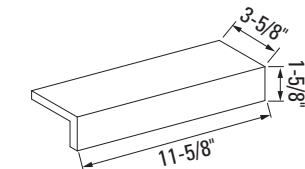
## BC2-1/4" 48

3-5/8" x 7-5/8" x 2-1/4"



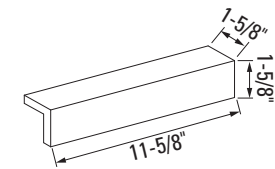
## EDGE CAP G

3-5/8" x 11-5/8" x 1-5/8"



## EDGE CAP H

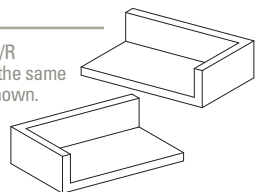
1-5/8" x 11-5/8" x 1-5/8"



## EDGE CAP CORNERS

Left/Right

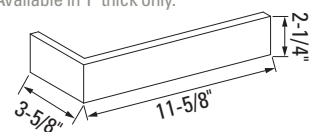
NOTE: 3-Sided L/R dimensions are the same as Edge Caps shown.



## BC2-1/4" 412

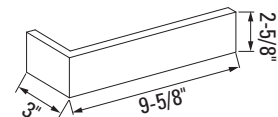
3-5/8" x 11-5/8" x 2-1/4"

NOTE: Available in 1" thick only.



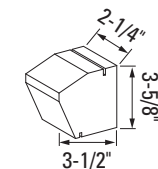
## BC2-5/8" 310

3" x 9-5/8" x 2-5/8"



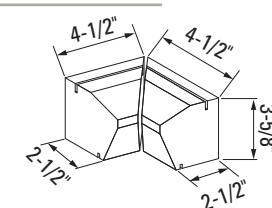
## ROLOK SILL

2-1/4" x 3-1/2" x 3-5/8"



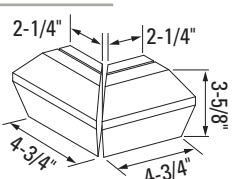
## ROLOK SILL INTERNAL CORNER

4-1/2" x 2-1/2" x 3-5/8"



## ROLOK SILL EXTERNAL CORNER

2-1/4" x 4-3/4" x 3-5/8"







**Endicott Thin Brick & Tile, LLC**  
P.O. Box 645 Fairbury, Nebraska USA 68352  
P 402.729.3323 F 402.729.5804  
[endicott.com](http://endicott.com)





## Washington & Lincoln Garage

CannonDesign Project Number 006719.04

# Exterior Product Data

## DECORATIVE FAÇADE SCREEN

6 April 2023

**CannonDesign**

Core & Shell Design Consultant

**CANNONDESIGN**



PARKING  
GARAGE  
DECORATIVE  
FACADE  
SCREENS





cover: RICE UNIVERSITY—CAMBRIDGE OFFICE BUILDING GARAGE / Houston, TX  
above: 9+COLORADO—BLOCK 7 / Denver, CO

## Value Engineering with FlexFacades by Structurflex

As projects develop there is an invariably a need to make sure the project hits a budget target. One place for substantial savings is for facade projects that were originally designed with metal mesh. With FlexFacades by Structurflex, we have created a solution that allows you to hit your budget target without compromising on the design. Our durable turnkey solutions aren't just an aesthetic and lightweight solution that is affordable, but also a way to improve both for the initial cost and lifecycle costs of maintaining the structure. Here are just a few of the reasons why our complete solutions can enhance the design and help keep costs trim:

### **ECONOMICAL ALTERNATIVE TO METAL**

50% of Initial Cost Installed compared to metal on a typical project

### **SUBSTANTIAL BUILDING ENERGY SAVINGS**

Our solutions reflect solar heat, reduce heat island effect (which helps in maintaining a cool building in summer), and reduce prevailing cold winds (providing a protective layer in winter). All of these efforts help reduce the carbon footprint of your building and reduce the cost of energy.

### **MAINTAINS 'OPEN GARAGE' (No Mechanical Ventilation):**

Our facade screens maintain visual transparency and daylighting which allows for ventilation in the garage. The ability of our materials to allow the structure to ventilate typically means that expensive mechanical ventilation systems are unnecessary.

### **MAINTENANCE SAVINGS (50% Maintenance/Life Cycle Cost):**

Refinishing metal facades that rust and fade, especially coastal areas, is 2 to 3 times the cost of a fabric replacement every 20 to 30-yrs. Most of our mesh solutions have a thick PVDF and/or PTFE coatings to protect against fading and provide an additional layer of protection. Cleaning is comparable to metal-clean as needed. For longer-term maintenance, since most building owners normally refresh a building facade every 20+ years, the design of our solution allows for the replacement of the mesh element without the replacement of the structure.

### **VERY DURABLE (Engineered to Survive Extreme Weather Conditions):**

All our projects have survived extreme weather conditions across the globe. They have survived Hurricanes back to Katrina, Tornados in the Midwest, Extreme Winter Weather of Denver and the Extreme Hot Arid Climates in the Middle East/Southern California.

# Value Engineering with FlexFacades by Structurflex (continued)

## **PUBLIC ART/GRAPHICS** (Inexpensive Art Options)

Add artwork applied graphics on select screening material\* or a pattern of various composed colors applied economically.

## **METALLICS / CUSTOM COLORS**

We have various standard mesh screening colors including fabric that looks like metal as a value engineering solution. Custom mesh colors are available as well on larger projects.

## **VERY 'GREEN'** (Reduced Energy/Waste/Recyclable)

Our solutions have a lower embodiment of energy to produce, compared to metal screens and most are 100% recyclable.

## **LIGHTWEIGHT** (Reduced Weight/Larger Panels)

Our solutions are typically 1% the weight of metal screens; can provide extremely large panels with minimal structural support and anchorage.

## **REDUCES NOISE POLLUTION**

Our solutions under wind pressure do not vibrate and make noise like metal screens. Additionally, metal, as a hard surface, reflects noise. Our fabric solution reduces and absorbs noise pollution.

## **REDUCES LIGHT POLLUTION**

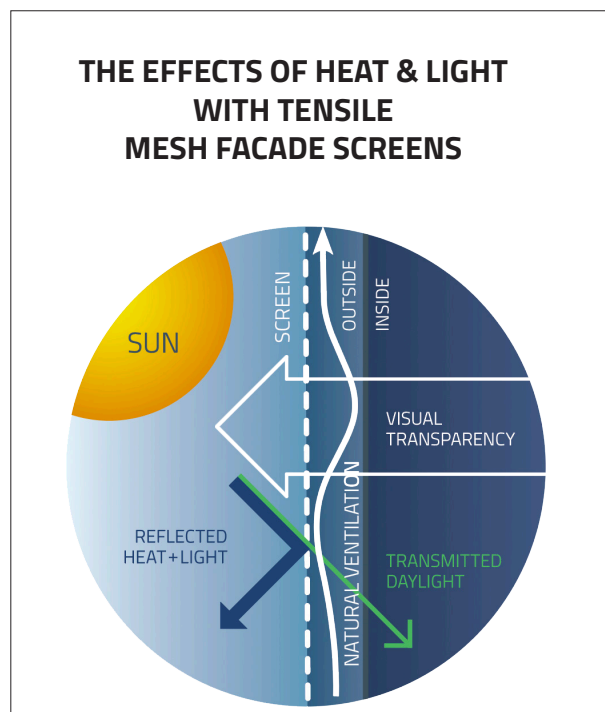
Metal screens typically do not provide screening or reduce interior light pollution from within at night. Our fabric-based solutions provide more masking, especially with parking garages.

## **WARRANTY**

Comparable to traditional metal screens with 10-year minimum warranties. 20+ years, the design of our solution allows for the replacement of the mesh element without the replacement of the structure.

- **ECONOMICAL** 50% of the cost of metal mesh, perforated metal, & glass installed, typical.
- **ENERGY SAVINGS** Reduce solar heat gain/heat island effect, dramatic energy savings.
- **MAINTENANCE SAVINGS** 50% maintenance/life cycle cost. No expensive metal screen refinishing.
- **GREEN** Lower energy to produce & 100% recyclable.\*
- **MAINTAINS 'OPEN GARAGE'** Views out, daylighting, natural air circulation, no mechanical ventilation.\*
- **SCREENING** Better light & noise pollution masking compared to metal.
- **GRAPHICS/COLORS** Inexpensive art options & colors. Silver metallic mesh looks like expensive metal mesh.
- **VERY DURABLE/LIGHTWEIGHT** Engineered to survive extreme weather conditions & 1% the weight of metal.
- **INNOVATIVE** Freedom & flexible design solutions.
- **WARRANTY** 10-year minimum.
- **FIRE RATED** ASTM-E-84/E-136 "Non-Combustible."\*

\* Depending on screening material type selected.



### About FlexFacades by Structurflex

FlexFacades by Structurflex is a global leader in tensile fabric facades and fabric cladding. Made of coated PES, PTFE coated fiberglass, ETFE, or metal mesh, our award-winning textile facade claddings provide protection from wind, heat, and solar glare, creating opportunities for reducing heating and cooling costs and even eliminating artificial heating and cooling systems. Fabric facades can include unique artwork or brand elements, turning a functional building into a work of art. Our expertise in textile facade design, engineering, fabrication, and installation means our clients receive both a superior product and superior service.

right HISTORIC PONCE CITY MARKET / Atlanta, GA

back cover: PRAIREFIRE / Overland Park, KS



Paul Snustead, Director of Façades

414 Oak Street, Suite 101  
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United States of America  
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Fax +1 816 889 9003

[flexfacades.com](http://flexfacades.com)





# Washington & Lincoln Garage

CannonDesign Project Number 006719.04

## Exterior Product Data SECURITY GRILLE

6 April 2023

**CannonDesign**  
Core & Shell Design Consultant

**CANNONDESIGN**



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BuyLine 7407

# SECURITY FENCING & GATES



**GATES**



**FENCING**



 American Fence Association

**FIXED LOUVER**



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for Master Spec • CAD Drawings • Photo Gallery



# SECURITY FENCING & GATES

## BUILT TO LAST

The Ametco fencing system is an exclusive system, an alternative approach to fencing design, the concept of which is both functional and decorative. The Ametco fencing system is ideally suited to harmonize with any environment. This fencing system has been created through advanced techniques by Ametco Mfg. Corp., a company whose dynamic approach and flair in metal fabrication have now conceived this unique system, which has revolutionized the traditional fencing image and extended the range of applications throughout the private and industrial building industries. Ametco fencing system is manufactured using the electro-forged welding process, giving complete penetration of the cross member. Ametco Mfg. Corp. has developed a highly desirable fencing product which fits perfectly into modern architectural and security applications.

## LASTING COLORS

Ametco fencing is protected by extremely effective coating systems, giving long life with a touch of elegance. The hot dip galvanized finish with a polyester powder coating gives Ametco fencing protection from the elements, as well as increasing its sturdiness and eliminating maintenance. This system gives the best corrosion protection in the industry. The hot dip galvanizing will leave rough areas on the treated surface. These rough areas do not impair the coating in terms of corrosion resistance. The galvanized product is then powder coated. The color gives an "extra" touch of appeal to the fencing, harmonizing with its surroundings. Once you have selected the color from the wide choices available, it will endure exposure without crazing or fading. For jobs where a smooth surface is required, see Ametco's fixed louver aluminum or stainless steel product.

## WARRANTY

The American Hot Dip Galvanizers Association, Inc. states, "The life expectancy of galvanized coatings on typical structural members is far in excess of 50 years in most rural environments, and 20 to 25 years plus, even in severe urban and coastal exposure."

The warranty for the powder coated finish is 10 years. The polyester coated galvanized metal will remain corrosion free for years. Performance properties of the polyester coating are as follows. SALT SPRAY RESISTANCE: (ASTM B-117) Bonderite 1000 steel panels, in a scored condition, exhibit no undercutting after 500 hours in 5% salt spray testing at 95 degrees F and 95% relative humidity. No rusting or blistering on panel face. Under the same conditions after 1000 hours the panels showed less than  $\frac{3}{16}$ " undercutting.

WEATHERABILITY: (ASTM D822) After one year exposure in South Florida with panels facing south and tilted at a 45 degree angle, a high gloss white polyester coating retains 88% of its gloss (gloss readings obtained on washed panels). No film failure.

A 2-part polyurethane coat on top of hot dip galvanized is used when gates are too large to be powder coated. Ametco Mfg. Corp. certifies that its fencing systems are free from defects in material and workmanship. The polyester coated fencing is guaranteed not to crack, peel or blister for a period of 10 years. Accidental damages, defects resulting from improper installation and damage from vandalism or abuse are not included. Warranty is limited to a prorated value of the coating, not to exceed the original value of the coating. Or, at Ametco's discretion, re-coating the panel but not to include labor for removal or reinstallation.

In the interest of improving quality and design, AMETCO reserves the right to amend specifications without giving prior notice.



*Metro design used at California shopping mall*



*Lattice design used at Florida condo entrance*

**All products shown in this catalog are manufactured in Willoughby, Ohio from steel produced in the USA**

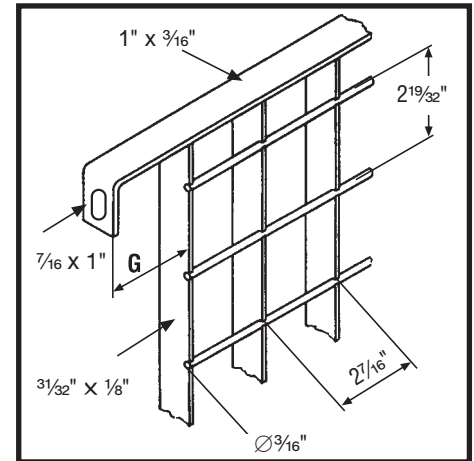
32 31 00/AMR  
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## LATTICE

27/16" x 219/32" MESH

### Applications

Great versatility for both civil and industrial use and especially suitable for railings and internal decoration.

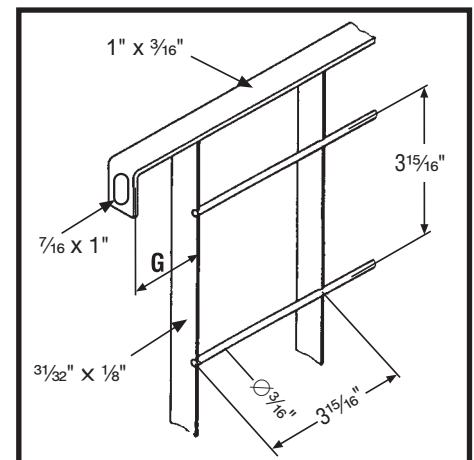


## STADIUM®

315/16" x 315/16" MESH

### Applications

The Stadium model is suggested for economy in large areas and the internal sub-division of areas already fenced, for the three sides of outer fencing which are not seen, internal decoration, special applications and false ceilings.



## Available colored coatings

SEE PAGE 2.



Custom colors available at an additional charge.  
Note: The reprint of the color chart may vary from actual finish color.

## INSTALLATION

The Ametco system is simplicity itself. Standard panels are merely bolted to the uprights which are anchored conventionally. The modular design means it can be erected in a fraction of the time of most other rigid fences and allows easy replacement of any panels damaged. The ease of assembly coupled with strength and long-life make Ametco fencing one of the most cost-effective fencing.

### Anti-Intruder Posts

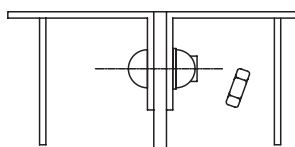
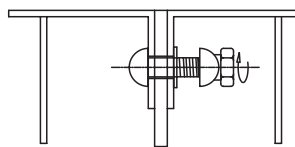
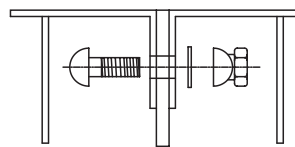
Complete with extension arm to carry 3 galvanized barbed wires and 3 holes for electrified wires. Anti-intruder posts are available for panels 83<sup>3</sup>/<sub>8</sub>" and 99" high Extension Arm Dimensions.

11<sup>3</sup>/<sub>4</sub>" x 2<sup>3</sup>/<sub>8</sub>" x 5<sup>5</sup>/<sub>16</sub>"

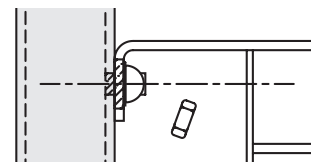
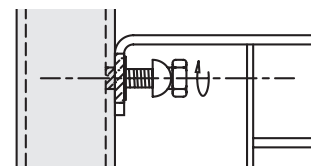
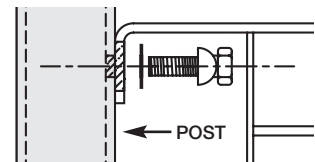
### Standard Bolts

Stainless Steel AISI 304  
Bolt Dimensions = 3<sup>3</sup>/<sub>8</sub>" x 2"

### SECURITY NUT for Thru-Bolt Application



### SECURITY BOLT for Post Application



### Ametco's security bolts and nuts

The hexagon nut will shear off from the cup head when the Ametco Security Bolt or Nut is tightened to the correct torque, rendering the bolt or nut nearly impossible to release.

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## Washington & Lincoln Garage

CannonDesign Project Number 006719.04

# Exterior Product Data CURTAIN WALL GLAZING

6 April 2023

**CannonDesign**  
Core & Shell Design Consultant

**CANNONDESIGN**



[REQUEST SAMPLE](#)

Products

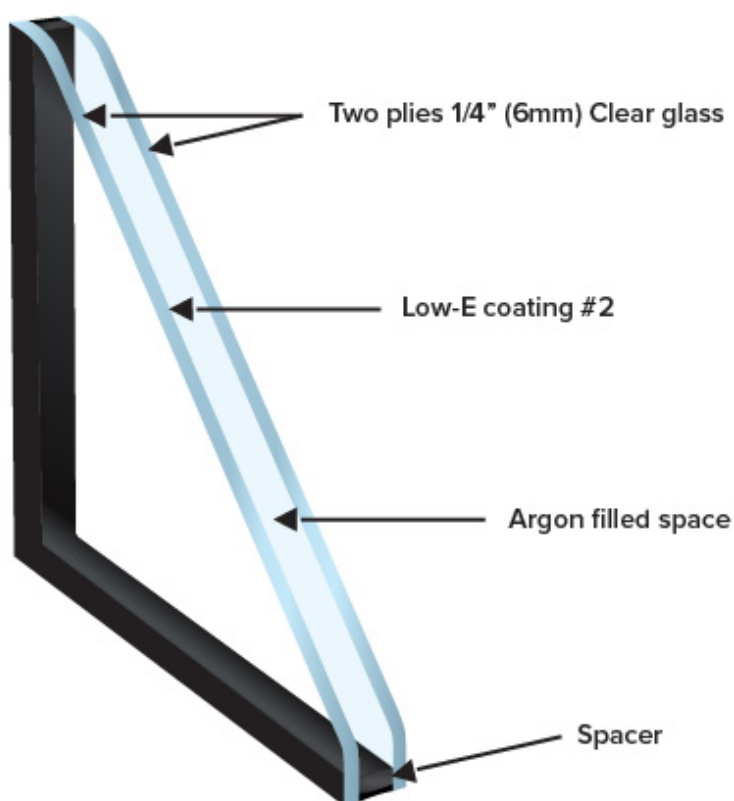
# INSULATING GLASS

Search for the perfect glass



insulating glass unit, however it is commonly shortened to insulating glass or IGU. Viracon is the leader in Architectural Insulating Glass

At Viracon, insulating glass units are sealed with a primary seal and a secondary seal of silicone. Insulating units are designed to absorb stress on the unit caused by thermal expansion and pressure, provide a barrier to water and moisture infiltration, provide a gas-tight seal to prevent loss of any specialty gas fill and create a barrier that reduces condensation.



[REQUEST SAMPLE](#)

### Benefits of Insulating Glass

The primary benefit of insulating glass is the improvement in solar performance that it provides by reducing the heat gain or loss. The performance benefits of insulating glass can be combined with a number of other components to create a wide array of configurations.

In addition to the improved solar performance, insulating glass offers a greater availability of coatings. Low-E coatings which cannot be exposed, and therefore cannot be used with monolithic glass, can be used inside the insulating unit where they are protected by the hermetically sealed space.

Insulating units also have more aesthetic possibilities than monolithic glass. The Low-E coating and silk-screen or digital print, if desired, are applied to the exterior ply of glass leaving the interior ply available for additional treatment. For a spandrel location, a full coverage opaque ceramic frit can be applied to the inner face (surface #4). For vision areas where daylight is desired but view through needs to be minimized, a translucent ceramic frit can be applied to the surface facing the airspace (surface #3).

**1/4" Clear Monolithic**  
1/4" (6mm) clear

**1" Clear Insulating**  
1/4" (6mm) clear  
1/2" (12.7mm) airspace

**1" VE1-2M Insulating**  
1/4" (6mm) clear with VE1-2M #2  
1/2" (12.7mm) airspace



Summer U Value 0.52  
SHGC 0.82

Summer U Value 0.72  
SHGC 0.70

Summer U Value 0.29  
SHGC 0.38

### Components and Enhancements

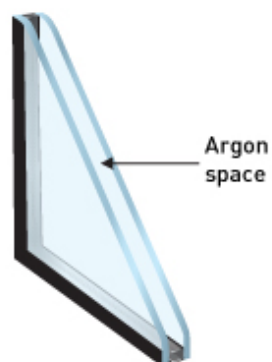
When specifying insulating glass for your project, it is important to select and clearly outline the configuration as well as each individual component of the insulating glass unit.

In addition, Viracon offers many items to enhance the appearance and performance of insulating glass units for your building.



[REQUEST SAMPLE](#)

### [Glass Printing](#)



### [Argon](#)

## 1" (25mm) Insulating VE1-2M

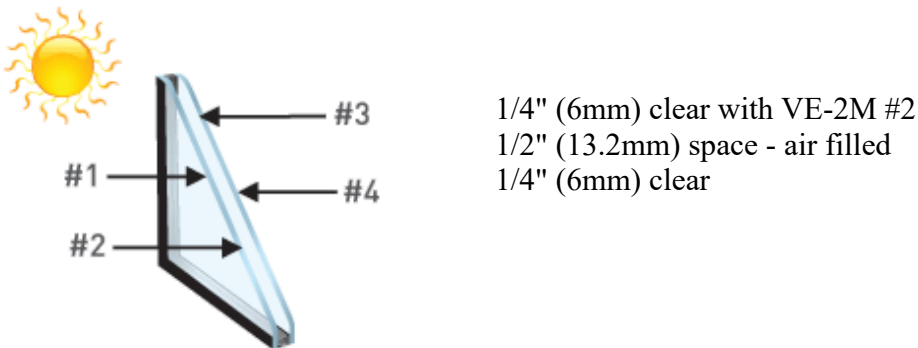
### PERFORMANCE DATA

---

Transmittance	
Visible Light	70%
Solar Energy	33%
UV	10%
Reflectance	
Visible Light-Exterior	11%
Visible Light-Interior	12%
Solar Energy	31%
NRFC U-Value	
Winter	0.30 (hr x sqft x °F)
Summer	0.26 (hr x sqft x °F)
Shading Coefficient	0.44
Relative Heat Gain	91Btu/(hr x sqft)
Solar Heat Gain Coefficient (SHGC)	0.38
LSG	1.84

### Makeup

---



Viracon's solar and optical performance data is center of glass data based on the National Fenestration Rating Council measurement standards, calculated using Lawrence Berkeley National Laboratory's (LBNL) WINDOW 7 software.

Winter and Summer U-Values are the only performance values available for spandrel glazing. The U-Values for spandrel glazing are the same as the corresponding vision unit. The spandrel color does not impact U-Value.



## Washington & Lincoln Garage

CannonDesign Project Number 006719.04

# Exterior Product Data

## GRANITE BASE

6 April 2023

**CannonDesign**  
Core & Shell Design Consultant

**CANNONDESIGN**



Madera County Courthouse  
Madera, CA  
© Brandon Baker Photography



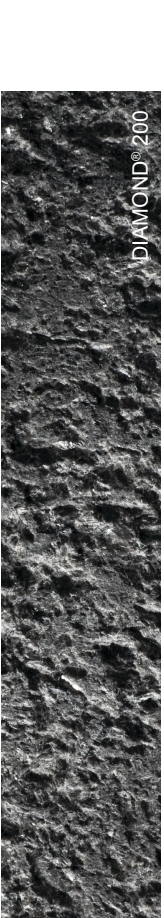
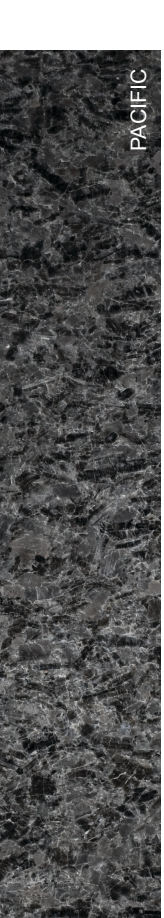
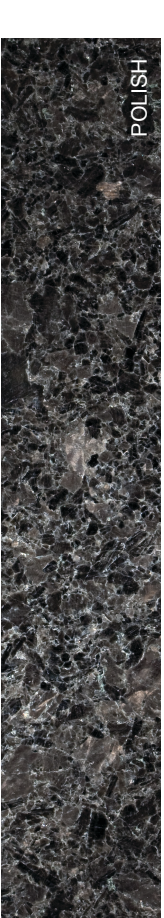
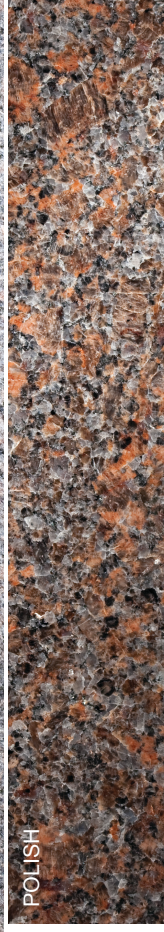
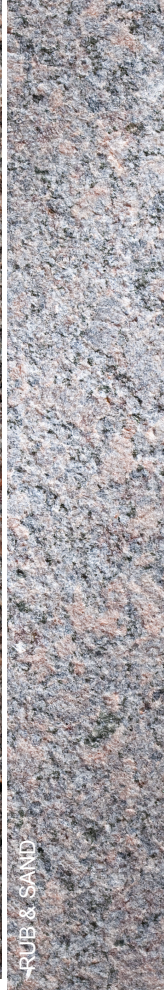
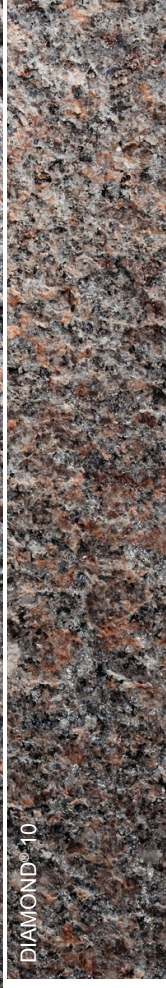
Wall of Remembrance  
Pablo, MT

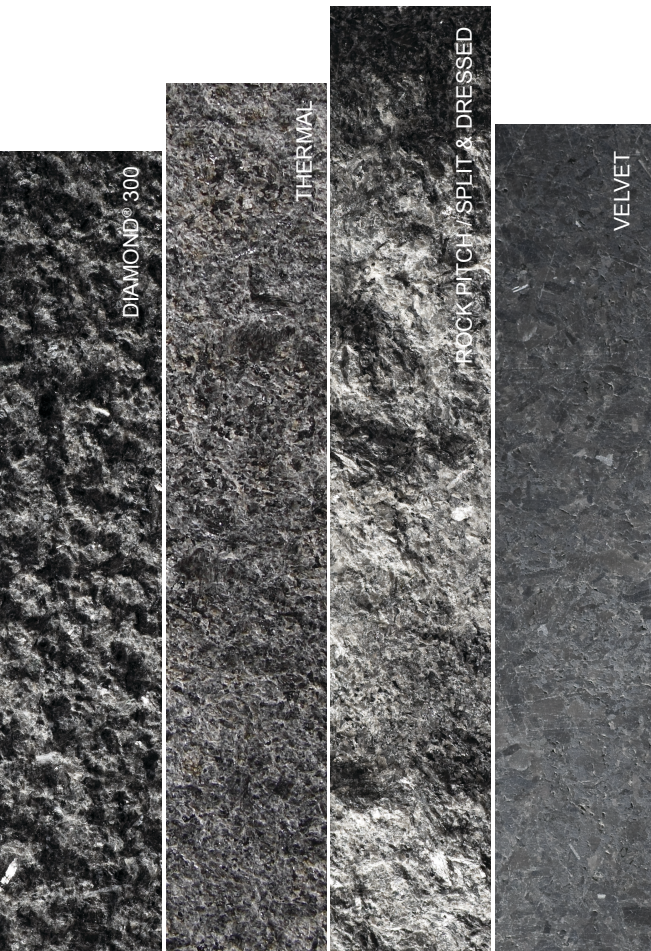
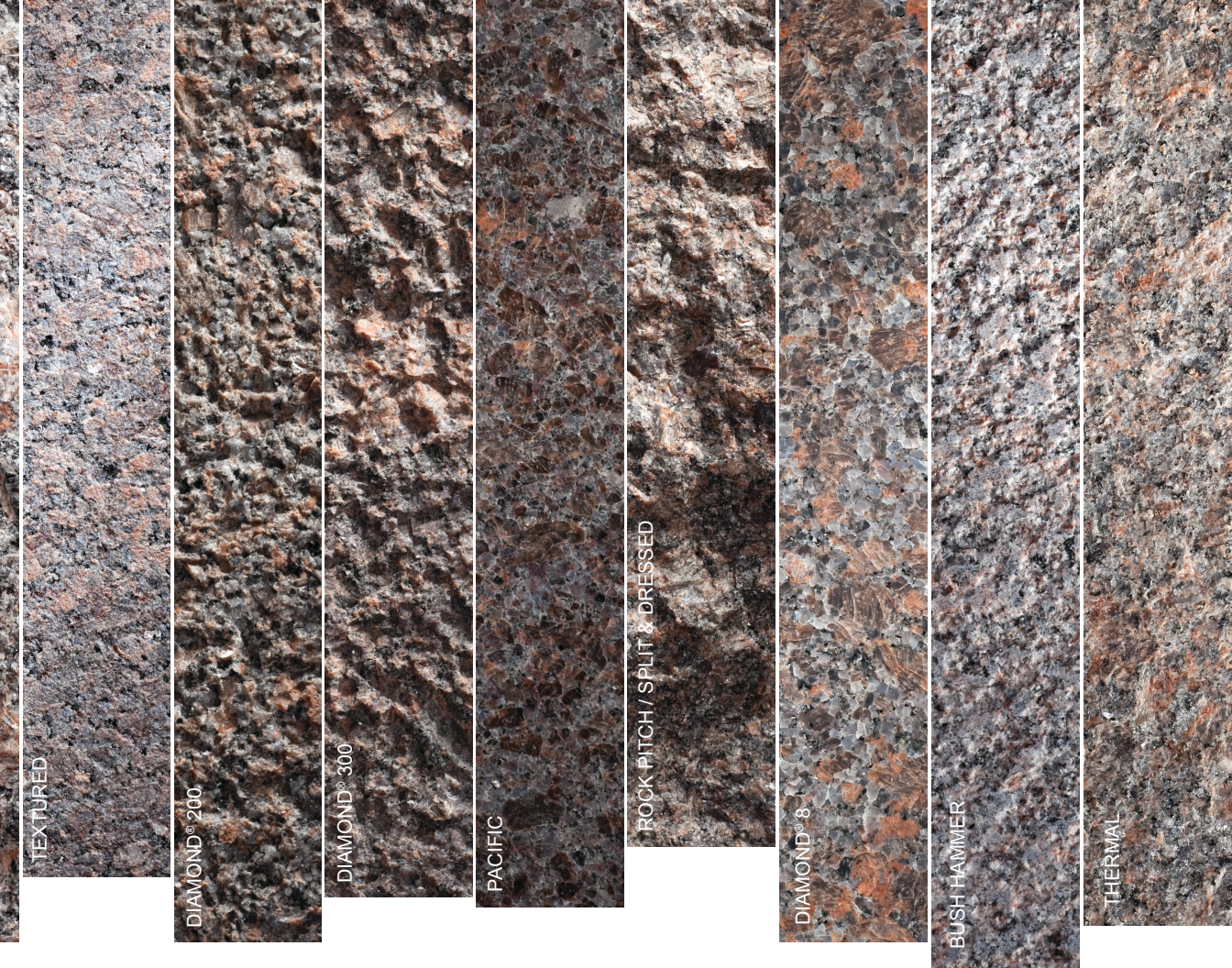


Target Field Station  
Minneapolis, MN

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<b>Avg. Compressive Strength</b>	18,680 Psi
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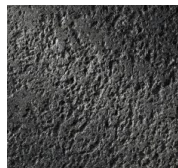
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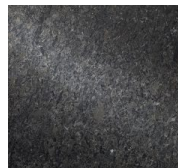
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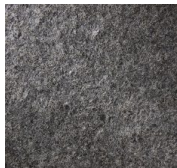
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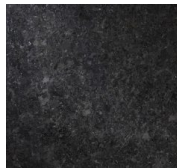
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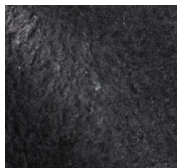
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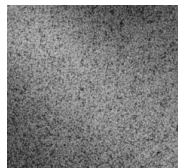
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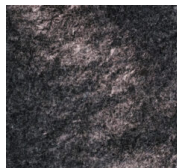
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# Frog Hollow

• NEIGHBORHOOD REVITALIZATION ZONE •

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April 24, 2023

To Whom It May Concern:

On April 18<sup>th</sup> the Frog Hollow NRZ voted in favor of supporting the development of a parking garage and retail space on the southwest corner of Washington and Lincoln Streets as a critical component of the Connecticut Children's Medical Center expansion.

While the Frog Hollow NRZ is generally opposed to the creation of additional parking garages in our community, we understand the need for on-site parking in this special case. Before reaching this decision, a subcommittee of the NRZ held multiple meetings with the project principals and, eventually, Mayor Luke Bronin. An agreement was reached between all of the parties and is documented in the attached letter dated 03/29/2023.

The CCMC development includes an expansion of the existing hospital space on the east side of Washington Street, the development of a garage with retail space fronting on Washington and Lincoln Streets, the development of a mixed-use retail and residential building on the northwest corner of Washington and Lincoln and the relocation of four houses currently located on the development site on Lincoln Street to vacant lots, preferably within the historic district.

Together, these developments mark the first step in the Washington Street Corridor Revitalization Project. The NRZ will continue to work with CCMC and the other institutions, businesses and residents along the Corridor to buildout the remaining vacant lots and historic buildings in accordance with the City plan (POCD) adopted by the City on 05/12/2020.

Sincerely,

Marcus Ordoñez, Rhodee Gine & Carey Shea  
Co-chairs, Frog Hollow NRZ

cc: Luke Bronin, Mayor, City of Hartford  
James Shmerling, President & CEO, Connecticut Children's Medical Center



March 29, 2023

RE: Washington and Lincoln Garage Proposal to support Connecticut Children's Project

Dear members of The Frog Hollow NRZ Washington Street Garage Subcommittee,

Per the meeting that was held with Mayor Luke Bronin, Jim Shmerling, President of Connecticut Children's, Karri May, Senior Director of Facilities at Connecticut Children's, Larry Stubbs, LAZ Parking, and several members of the Frog Hollow NRZ Washington Street Garage Subcommittee, Aaron Gil, Marcus Ordonez, and Rhodee Gine, the following commitments were made by Connecticut Children's:

- Connecticut Children's will improve current home ownership and rental assistance programs for any employee who wishes to live in Hartford neighborhoods located in the vicinity of Connecticut Children's Hartford campus.
- Connecticut Children's will host neighborhood job fairs for new employment opportunities within the hospital addition, as well as the parking facility in partnership with LAZ Parking.
- Connecticut Children's will support a motion to add a voting member to the SINA board that is filled by a resident of the Frog Hollow community.
- A request was made of Connecticut Children's to accommodate a voting member board seat on the board for the hospital by a resident of the Frog Hollow community. Jim clarified that with fiduciary responsibility to the hospital, there are several requirements to being invited to the board, but if someone met all of those requirements and also was a resident of Frog Hollow, he would welcome those recommendations and present such candidate to the board.
- Connecticut Children's is committed to working with a developer to build a mixed-use structure on the former car-wash site, after the tower and garage project are completed.
- Connecticut Children's will provide a façade treatment on the garage structure along Lincoln Street on the first and second floors which matches the façade treatment shown on Washington Street. It was agreed by all parties that the visual perception from the exterior of the building will match the scale implied by the elevation shown on Washington, which provides continuity and consistency with the residential structure directly next door. A rendering has been attached to this letter for record.

In addition to the items noted above, Mayor Bronin has committed to the following:

- Acknowledging that Connecticut Children's has already agreed to plant 100 new trees offsite in coordination with the city Forester within proximity of the project site and on Lincoln Street, the city will match that support and ensure that 100 additional trees are planted in the Frog Hollow Neighborhood.



- The City will partner to secure resources to allow SINA to pursue additional \$1 million in restoration or construction work on four properties (an estimated \$250,000 per residential property) in the Frog Hollow neighborhood, with an emphasis on threatened historic properties, if possible.
- The City will convene and collaborate with CRDA and Connecticut Children's to help pursue their commitment to construct a mixed-use development on the former car-wash site, where retail/commercial/office space would be provided at the street level, and family housing and apartments would be provided above.
- Mayor Bronin agreed to convene the three hospitals of Hartford (St. Francis, Hartford Hospital, and Connecticut Children's), to have further conversations about policies related to charging employees for parking.

It is our understanding that with these commitments made by both Connecticut Children's and Mayor Bronin, that the NRZ leadership supports and will advocate publicly for the approval of the Washington and Lincoln Garage, and that the subcommittee will endorse a motion to write a letter of support to carry forward in the city approvals process.

We greatly appreciate your time and collaboration.

Sincerely,

Handwritten signature of James E. Shmerling in black ink.

James E. Shmerling, DrHA, FACHE  
President and CEO  
Connecticut Children's Medical Center

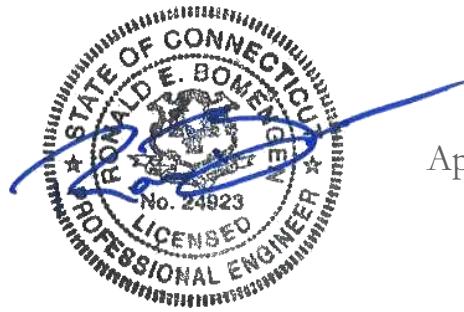
Handwritten signature of Luke Bronin in black ink.

Luke Bronin  
Mayor  
City of Hartford

# Stormwater Management Report

## LAZ Parking Realty Investors Washington & Lincoln Garage

Hartford, Connecticut



April 6, 2023



**FUSS & O'NEILL**

146 Hartford Road  
Manchester, CT 06040

Project No. 20220997.A10

# Table of Contents

## Stormwater Management Report Washington & Lincoln Garage

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1	Executive Summary .....	1
2	Existing Conditions .....	1
3	Proposed Conditions.....	3
4	Construction Stormwater Management and Soil Erosion and Sedimentation Control.....	5
5	Post-Construction Stormwater Management .....	6
6	Methods .....	7
7	Summary.....	7



# Table of Contents

## Stormwater Management Report Washington & Lincoln Garage

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### Figures

End of Report

- 1 Site Location Map
- 2 NRCS Web Soil Survey Map
- 3 FEMA Flood Insurance Rate Map
- 4 Drainage Basin Map

### Appendices

End of Report

- A Existing Watershed Analysis
- B Proposed Watershed Analysis
- C Proposed Stormwater System Analysis
- D Water Quality Calculations

## 1 Executive Summary

LAZ Parking Realty Investors (LPRI) proposes to construct a new 8-story, 44,134 square foot parking garage at the southwest corner of the Washington Street and Lincoln Street intersection to accommodate the Connecticut Children's Medical Center's (Connecticut Children's) existing 321,132 square foot facility and 191,442 square foot expansion currently under construction. Upon completion, the garage will connect to the newly built addition via a pedestrian skywalk over Washington Street. The proposed garage will provide approximately 900 parking spaces for patients, employees of Connecticut Children's, as well as free temporary parking for local residents on parking ban days. The structure will also include street front restaurant and retail space along both Washington and Lincoln Street, and additional office space above ground level on Washington Street.

The project is located on the west side of Washington Street and the south side of Lincoln Street. It is bounded by apartment buildings to the south, and by multi-family residential dwellings to the west. Proposed site improvements include the construction of bituminous driveways, concrete and paver sidewalks, bicycle racks, stone benches, site lighting, and landscaped areas. A location map for the project site can be found in *Figure 1*.

Existing and proposed hydrologic conditions (*Appendices A & B*) for the project area were evaluated. Due to an increase of impervious area, it will be necessary to retain and attenuate runoff volume and peak flowrate. Attenuation of runoff volume and peak flows will be achieved using 2,400 square feet of rain garden space and an underground detention system with a storage capacity of 4,000 cubic feet.

Overall drainage patterns of the site will be unchanged by the project. Stormwater will be collected through a series of roof drains, yard drains, and rain gardens surrounding the perimeter of the garage structure. The stormwater will then be conveyed through underground piping prior to discharging to the combined sanitary sewer system in Lincoln Street. Runoff from the proposed roof will be captured through roof drains and be conveyed through building foundation via roof leaders or to the underground detention system located below the ground floor parking level.

The proposed improvements have been designed to effectively reduce runoff volume and peak flowrate leaving the site as compared to the existing conditions for the 1-, 2-, 10-, 25-, and 100-year design storm events. Additionally, the stormwater management system is adequately sized to convey stormwater for the 10-year design storm (*Appendix C*).

## 2 Existing Conditions

Approximately 77-percent of the existing project area is impervious surfaces, e.g., buildings, driveways, parking lots, and sidewalks. The remaining area of the site is lawn and landscaped areas. The project area generally slopes northwesterly. The western portion of the site, in the vicinity of the multi-family dwellings, is generally sloped between 1-percent to 2-percent. The existing parking lot in the eastern portion of the site generally slopes toward Lincoln Street between 5-percent and 8-percent.

Existing stormwater infrastructure includes one catch basin, one drywell, and roof leaders. The vast majority of stormwater runoff generated from the project area collects into the Metropolitan District Commission's (MDC) stormwater collection system, either through the catch basin located on Lincoln

Street, or the sewer manhole located west of the project area on Lincoln Street. A small portion of stormwater runoff from the project area is collected into a drywell located within the project area, where it ultimately enters the groundwater table.

The existing hydrologic evaluation, included as *Appendix A*, determined the project's 1.5-acre watershed area is comprised of three subcatchment areas, which drain to two design points (DP). The design points are as follows:

- **DP-10L** is a sewer manhole located in the center of Lincoln Street, approximately 255 feet east of the northwest corner of the project area. This manhole receives a majority of the stormwater flow from the project area through a 12-inch pipe from the east. Surface flow from a small portion of the western area of the project area conveys along Lincoln Street and ultimately drains to this manhole.
- **DP-12P** is a drywell with a catch basin frame and grate top, located in an existing parking lot in the northeast portion of the project area. Approximately a quarter of the paved parking lot slopes toward this drywell, and the sheet flow associated with this area enters the drywell, where it ultimately flows into the groundwater table.

Existing conditions, drainage characteristics, and discharge locations for the subcatchments are described below. These subcatchments are illustrated on sheet DR-101, which is included in *Appendix A* along with the existing watershed model.

- **Subcatchment 10S** is a portion of the project area containing existing buildings, driveways, parking lots, sidewalks, lawn and planted landscape islands. Stormwater runoff generated is collected by into a catch basin located on the south gutterline of Lincoln Street, and is conveyed by an 8-inch PVC pipe that connects to the 12-inch clay main that ultimately leads west to DP-10L.
- **Subcatchment 11S** is the western portion of the project area containing existing buildings, driveways, parking lots, sidewalks, lawn and planted landscape islands. Stormwater runoff generated for this portion travels to the south gutterline of Lincoln Street via sheet flow, and ultimately discharges to DP-10L.
- **Subcatchment 12S** is the 3,300 square foot segment of the existing parking lot in the northeast portion of the project area that grades downslope to the drywell DP-12P.

The NRCS soil mapping, which is attached as *Figure 2*, shows that the majority of the project area is composed of 'Urban Land' with a Hydrologic Soil Group rating of 'D'. A small portion located in the northwest corner of the project area is composed of 'Rainbow-Urban Land complex, 0 to 8 percent slopes', which possesses a Hydrologic Soil Group rating of 'C'.

Federal Emergency Management Agency (FEMA) mapping shows that the project site does not lie within the 500-year flood plain. A portion of the relevant FEMA – Flood Insurance Rate Map for Hartford County, Connecticut (Panel Number 09003C0368G, Effective Date: September 16, 2011) is attached as *Figure 3*.



The project area is in the Folly Brook Local Basin (basin number 4005) and is a sub-watershed of the Connecticut Major Basin. The project location relative to the major Connecticut drainage basins is presented as *Figure 4*.

### 3 Proposed Conditions

Proposed construction of the Washington & Lincoln Garage includes the construction of bituminous driveways, concrete and paver sidewalks, bicycle racks, stone benches, site lighting, and landscaped areas.

The project area was analyzed to evaluate proposed hydrologic conditions. Due to the proposed construction layout, the existing drywell will be removed and thus, design point DP-12P, was not included as part of the proposed watershed analysis. Construction of the proposed development will result in an increase of approximately 0.1 acres of impervious area within the analyzed watershed yielding a proposed impervious percentage of approximately 81%. Due to the increase of the impervious area, it will be necessary to retain and attenuate runoff volume and peak flows. Attenuation of runoff volume and peak flows will be achieved using 2,400 square feet of rain garden space and an underground detention system with a storage capacity of 4,000 cubic feet.

The proposed hydrologic evaluation, included as *Appendix B*, determined that the project area is comprised of seven subcatchment areas, which will all drain to the existing design point DP-10L. The evaluated subcatchment areas are illustrated in the Proposed Watershed Analysis Map found in *Appendix B*. The design point is as follows:

- **DP-10L** is a sewer manhole located in the center of Lincoln Street, approximately 255 feet east of the northwest corner of the project area. This design point is unchanged from existing conditions.

Proposed conditions, drainage characteristics, and discharge locations for the subcatchments are as follows:

- **Subcatchment 10S** will be comprised of a paved driveway, surrounded by landscaped areas, on the southeast portion of the project area. Stormwater runoff generated travels via sheet flow north where it collects into a rain garden (Pond 10P) north of the driveway. From there, discharge flows into a series of 12" HDPE underground piping eventually leading to a rain garden in the northwest portion of the project area (Pond 13). Stormwater within Pond 13P is conveyed through an 8" PVC pipe to the MDC's combined sanitary sewer system on Lincoln Street that ultimately drains to DP-10L.
- **Subcatchment 11S** will be comprised of an impervious paver walkway, a dining patio, a portion of the new skywalk addition, a small portion of the roof over the second-floor office space and a rain garden (Pond 11P) with other landscaping elements. Stormwater runoff generated travels via sheet flow where it collects into the rain garden located in the center of the subcatchment area. From there, discharge flows into a series of 12" HDPE underground piping eventually leading to Pond 13P in the northeast portion of the project area. Stormwater within Pond 13P is

conveyed through an 8" PVC pipe to the MDC's combined sanitary sewer system on Lincoln Street that ultimately drains to DP-10L.

- **Subcatchment 12S** will be comprised of a portion of the new garage on the northern part of the project area, and a strip of landscaped area along the perimeter of this portion of the building. Stormwater runoff from the building collects into a roof leader, which drains into a rain garden (Pond 12P) via an endwall just north of the building. From there, discharge flows west through 12" HDPE underground piping to Pond 13P. Stormwater within Pond 13P is conveyed through an 8" PVC pipe to the MDC's combined sanitary sewer system on Lincoln Street that ultimately drains to DP-10L.
- **Subcatchment 13S** will largely be comprised of a rain garden (Pond 13P) located in the northeast portion of the project area, along with two impervious paver walkway areas. In addition to stormwater generated in this subcatchment area, Pond 13P also collects flows from Ponds 10P, 11P, and 12P. Stormwater within Pond 13P is conveyed through an 8" PVC pipe to the MDC's combined sanitary sewer system on Lincoln Street that ultimately drains to DP-10L.
- **Subcatchment 14S** will largely be comprised of the western portion of the parking garage, as well as landscaped areas and concrete sidewalks along the south and west perimeters of the building. Stormwater runoff generated in the perimeter areas around the building will be collected by a series of yard drains and 12" HDPE underground piping, leading to a hydrodynamic separator located at the northwest driveway of the project area. Stormwater runoff from this portion of the building collects into a roof leader, and drains into the same hydrodynamic separator via an 8" HDPE pipe. Stormwater collected at the hydrodynamic separator is then conveyed through an 8" HDPE pipe to the MDC's combined sanitary sewer system on Lincoln Street that ultimately drains to DP-10L.
- **Subcatchment 15S** will be comprised of the majority of the parking garage structure. Stormwater runoff from the building will collect into a roof leader, and then be conveyed into a hydrodynamic separator. From there, discharge will enter an underground detention system with a storage capacity of 4,000 cubic feet. Stormwater discharged through the outlet control structure is conveyed through an 8" PVC pipe to the MDC's combined sanitary sewer system on Lincoln Street that ultimately drains to DP-10L.
- **Subcatchment 16S** will be comprised of concrete sidewalks and landscaped areas along the Washington and Lincoln Street right-of-ways. A paved driveway in the northwest portion of the site is also included as part of this area. Stormwater runoff generated travels via sheet flow to an existing catch basin located on Lincoln Street, and into the MDC's combined sanitary sewer system that ultimately drains to DP-10L.

Results from modeling of pre- and post-development peak flow rates at the design points are shown in the table on the following page. These results are taken from the HydroCAD models of existing and proposed conditions found in *Appendices A and B*.

### EXISTING & PROPOSED WATERSHED RESULTS

Storm Event (Year)	Design Point – '10L' Storm Manhole in Lincoln Street					
	Peak Flowrate Discharge (CFS)			Volume Runoff (AF)		
	Existing Flowrate	Proposed Flowrate	Net Change	Existing Runoff	Proposed Runoff	Net Change
1	2.45	1.79	-0.66	0.269	0.239	-0.030
2	3.08	2.20	-0.88	0.343	0.312	-0.031
10	4.73	4.56	-0.17	0.538	0.510	-0.028
25	6.00	5.71	-0.29	0.691	0.672	-0.019
100	8.55	8.46	-0.09	1.001	1.000	-0.001

When compared to existing conditions, proposed watershed modeling indicates the development will match or reduce both runoff volume and peak flow rates for Design Point 10L for all design storm events.

## 4 Construction Stormwater Management and Soil Erosion and Sedimentation Control

A detailed Erosion and Sedimentation (E&S) control plan has been prepared for the site. During construction, measures will be taken to reduce erosion and manage sedimentation from disturbed surfaces. The following Best Management Practices (BMPs) will be employed:

- Stormwater inlet protection will be installed at all stormwater collection structures to remove sediments from the run-off prior to entering the receiving drainage systems.
- Compost filter socks will be installed at the down-gradient perimeter of the disturbed portion of the development.
- Construction entrances will be installed at main points of entry to prevent the tracking of sediment into local roads.
- Temporary erosion control blankets will be installed on the rain garden surfaces prior to planting.

These BMPs will protect downstream stormwater collection systems following construction. The plan has been prepared in accordance with the 2002 Erosion and Sedimentation Control Guidelines (DEEP Bulletin 34).

Erosion and sedimentation control (E&S) details and narratives for construction periods are provided in the site plans. E&S details and procedures are consistent with the 2002 Guidelines for Soil Erosion and Sedimentation Control (DEEP Bulletin 34), and Town requirements.

## 5 Post-Construction Stormwater Management

The water quality of stormwater runoff from the developed site will be improved using Best Management Practices (BMPs). Sumps in yard drains, rain gardens and hydrodynamic separators will be used to help achieve the removal of 80% of Total Suspended Solids that may be present in the stormwater runoff.

The design meets the requirements of the Connecticut General Permit of the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities and the Connecticut Stormwater Quality Manual (CT SWQM). Water quality volume (WQV) treatment will be achieved through the use of hydrodynamic separators and rain gardens. WQV is equivalent to the first inch of rainfall in any storm event that should be captured and treated to remove a majority of the stormwater pollutants on an annual basis. WQV calculations, as well as a map displaying the volume areas analyzed (DR-401) is included in *Appendix D*. Calculations are based on section 7.4.1 of the CT SWQM.

To ensure these measures continue to operate adequately over time, the following maintenance procedures should be followed:

- **Inlet Sumps** – Yard drain sumps must be inspected at regular intervals and cleaned when necessary. At a minimum, inspections should be conducted twice per year, once in the spring and again in the fall. More inspections may be required during winter months where heavy sanding operations may lead to rapid sediment accumulation within the structure. Cleaning operations are typically done using a vacuum truck.
- **Hydrodynamic Separators** – Two hydrodynamic separators are proposed in the project area to provide sediment and floatables removal before discharging to the stormwater drainage system. The hydrodynamic separators must be inspected at regular intervals and maintained when necessary to ensure optimum performance. At a minimum, inspections should be conducted twice per year; once in the spring and again in the fall. More inspections may be required during winter months where heavy sanding operations may lead to rapid sediment accumulation within the structure. The structures should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when appreciable level of hydrocarbons and trash has accumulated. Cleaning operations are typically done using a vacuum truck.
- **Underground Detention System** – At a minimum, the underground detention system should be inspected annually, semi-annually for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition. The system incorporates strategically located manhole covers to visually inspect the system. The manhole covers allow for easy access to the system from the surface. If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches a clean-out should be performed per the manufacturer's recommendations.
- **Rain Gardens** – During the first year after final site stabilization, the rain gardens should be inspected weekly or after storm events greater than 0.5 inch. The rain gardens can be inspected every three months or after major storm events during the second year of operations onwards.

Annual maintenance should include, at a minimum, removal of litter, sediment, brush, and woody vegetation. Inspections should note and schedule repairs for areas showing signs of scour and animal borrows. If sediment removal is required, this can be done using a vacuum truck or by hand. Mechanical removal of sediment is not recommended as it may disturb established plantings.

These design measures incorporate commonly used Best Management Practices and follows guidelines set forth by the CTDEEP Stormwater Quality Manual, the CTDEEP Best Management Practices for Disposal of Snow Accumulations from Roadways and Parking Lots, and the Connecticut and federal stormwater regulations.

## 6 Methods

The existing and proposed drainage analysis for the development was completed using the HydroCAD Software Solutions computer program. The HydroCAD program runoff method selected for the watershed modeling is based on NRCS TR-20 methods. The methods described in the NRCS TR-55 manual were followed to calculate the curve number and time of concentration input data for this model.

The following curve numbers were used to model the impervious and pervious surfaces, and are acceptable for surfaces over Hydrological Groups – ‘C’ and ‘D’ soils per the NRCS TR-55 Drainage Manual:

Cover Type	Hydrologic Soil Type	Hydrologic Soil Type
	<b>C</b>	<b>D</b>
Paved Parking	98	98
Roofs	98	98
<50% Grass Cover	86	89

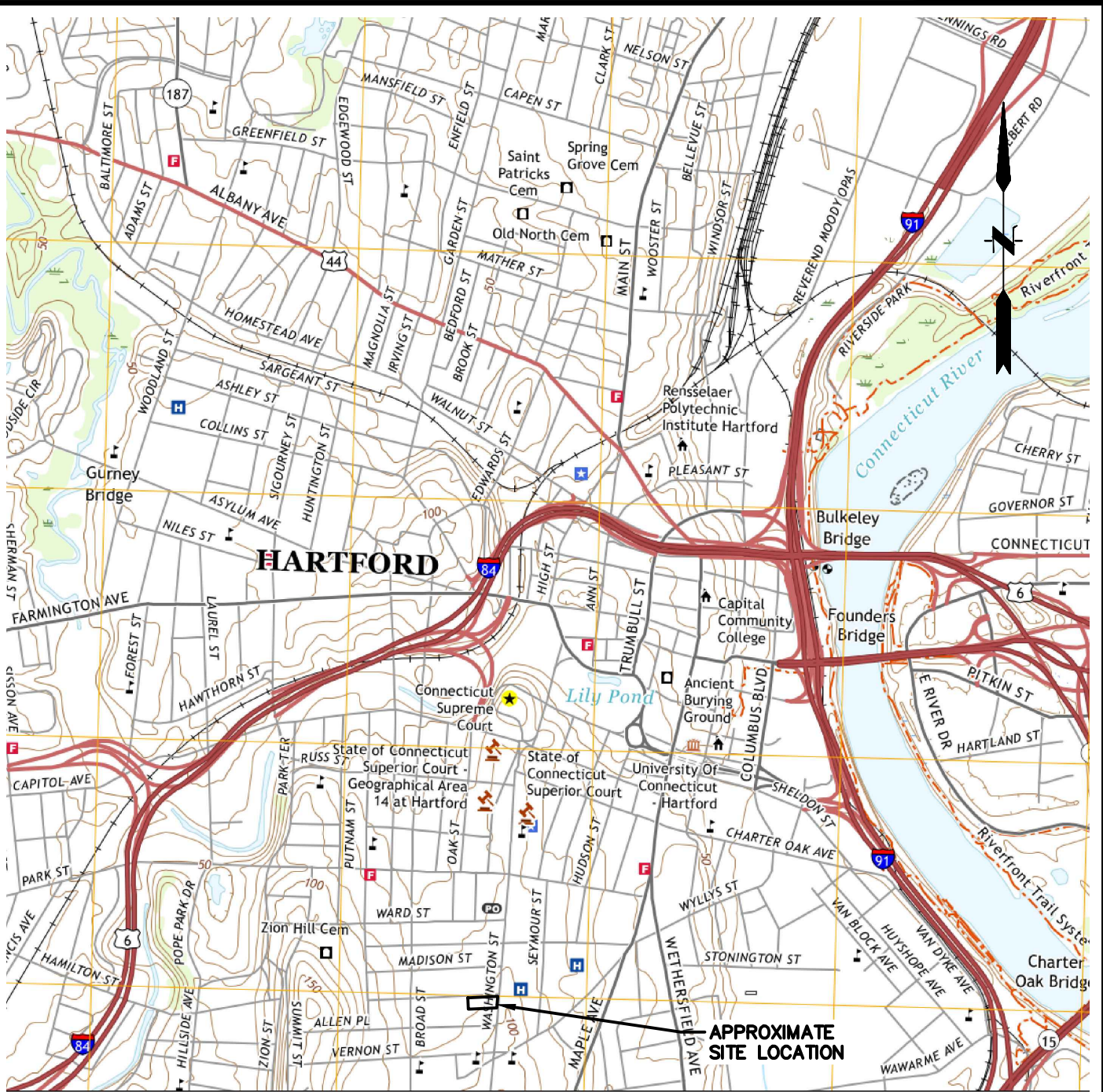
The drainage analysis for the proposed stormwater management system was completed using Bentley System’s StormCAD computer program. Input information for the model was derived using the Rational Formula. Times of concentration for paved areas were assumed to be the minimum allowable time of 5 minutes. The model accounts for a tailwater (12” clay tile main flowing full) in the MDC’s combined sanitary sewer main for each of the discharge points. The StormCAD output indicates that all of the proposed pipes will have adequate capacity to convey and drain the 10-year design storm.

## 7 Summary

The proposed improvements have been designed to reduce runoff volume and peak flowrate leaving the site as compared to the existing conditions for the 1-, 2-, 10-, 25-, and 100-year design storm events. Yard drain sumps, rain gardens, and hydrodynamic separators are implemented to enhance water quality. Rain gardens and an underground detention system have been designed to retain an increase of stormwater due to the increase in impervious area and attenuate the increase in peak flows for the project area. The design meets the intent of the guidelines of the 2004 Connecticut Stormwater Quality Manual. The on-site stormwater management pipe network has been designed to safely convey the NOAA Atlas-14 10-year design storm event.

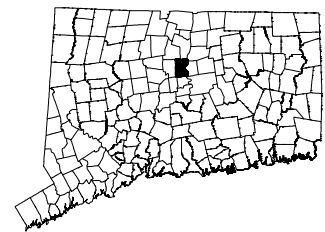
## **Figures**

---



**MAP REFERENCE**

THIS MAP WAS PREPARED FROM THE FOLLOWING  
 7.5 MINUTE USGS TOPOGRAPHICAL MAP:  
 HARTFORD NORTH, CONNECTICUT, 2021



<b>SCALE:</b>	
HORZ.:	1" = 2000'
VERT.:	
<b>DATUM:</b>	
HORZ.:	
VERT.:	
<b>GRAPHIC SCALE</b>	



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 860.646.2469  
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LAZ PARKING REALTY INVESTORS

SITE LOCATION MAP

WASHINGTON STREET GARAGE

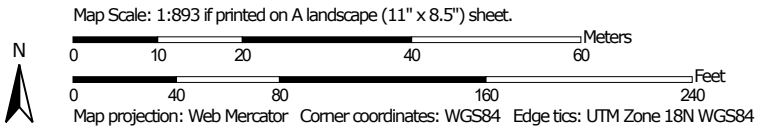
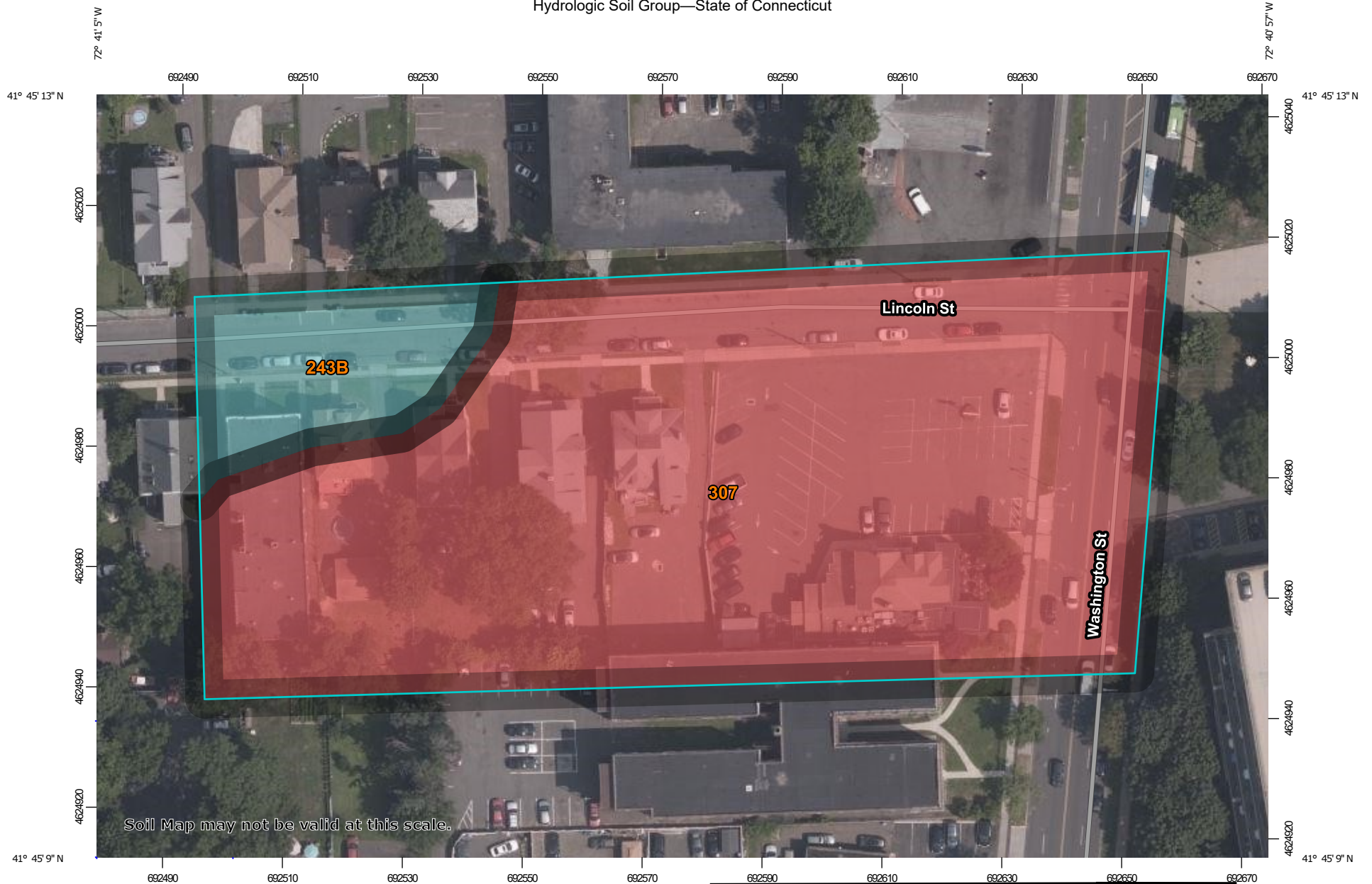
HARTFORD

CONNECTICUT

PROJ. No.: 20220997 A10  
 DATE: FEBRUARY 2022

**FIGURE 1**

Hydrologic Soil Group—State of Connecticut




WASHINGTON & LINCOLN GARAGE	PROJ. No.: 20220997.A10
	DATE: April 2023
<b>NRCS Soil Map</b>	
Washington St, Hartford, CT	

**Figure 2**



## 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  
 Survey Area Data: Version 22, Sep 12, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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
243B	Rainbow-Urban land complex, 0 to 8 percent slopes	C	0.3	11.1%
307	Urban land	D	2.4	88.9%
<b>Totals for Area of Interest</b>			<b>2.7</b>	<b>100.0%</b>

### 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*

**NOTES TO USERS**

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

**Accredited Levee Notes to Users:** Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at <http://www.fema.gov/business/nfp/index.shtm>.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 18N. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov>, or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA, NNGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

**Base map** information shown on this FIRM was provided in digital format by Connecticut Department of Environment (CT DEP). This information was derived from digital orthophotography dated 2008.

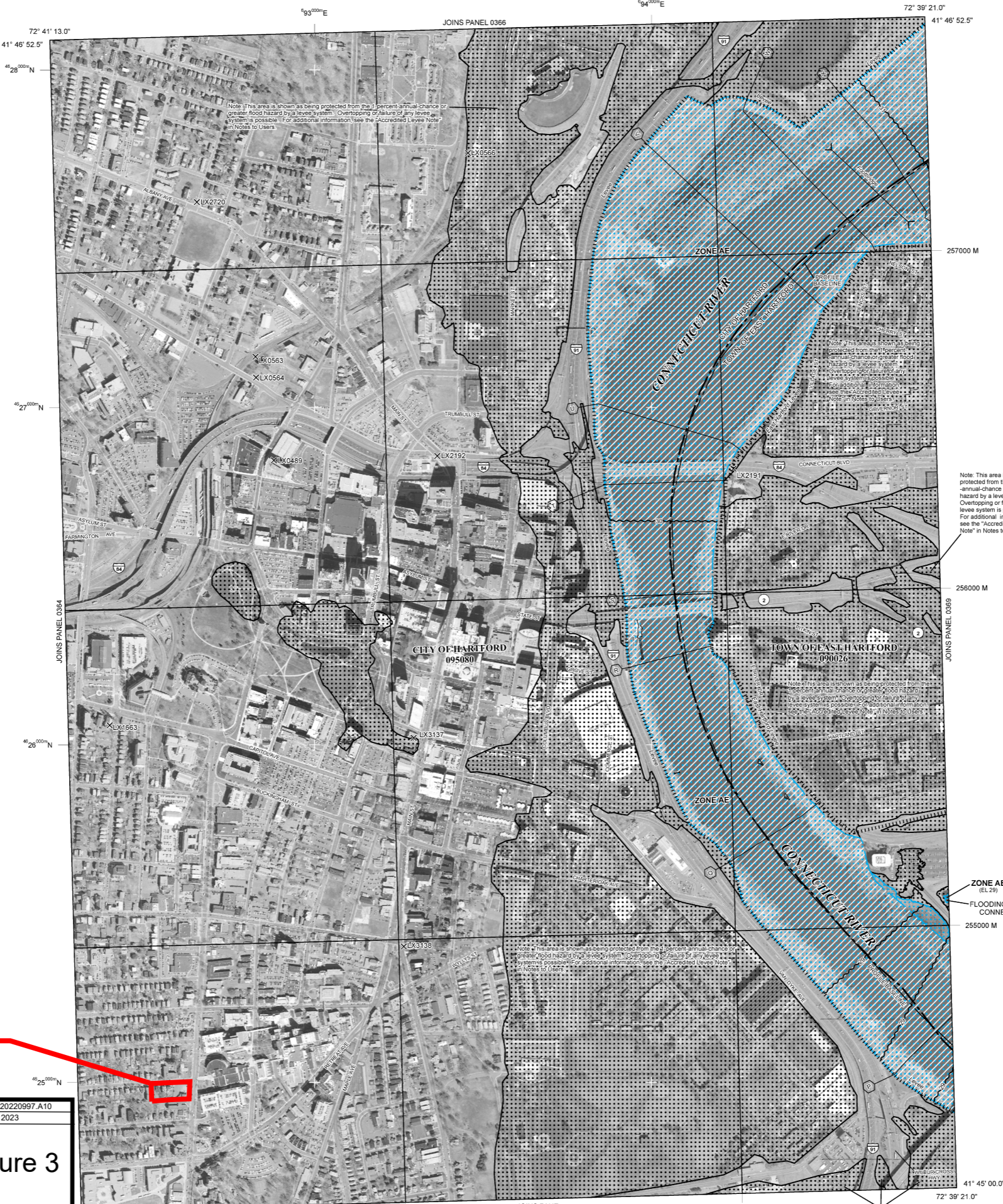
The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information Exchange (FMIX)** at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfp>.



**LEGEND**

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE AV** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- Base Flood Elevation line and value; elevation in feet\*
- Base Flood Elevation value where uniform within zone; elevation in feet\*

\*Referenced to the North American Vertical Datum of 1988

- Cross section line
- Transect line
- Culvert
- Bridge
- 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 4989000 M 1000-meter ticks; Connecticut State Plane Zone (FIPS Zone 0600), Lambert Conformal Conic projection
- 4989000 M 1000-meter Universal Transverse Mercator grid values, zone 18N
- DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M 1:5 River Mile
- MAP REPOSITORIES Refer to Map Repositories list on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP September 26, 2008
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL September 16, 2011. To change map notes and flood boundaries to reflect the accreditation of formerly provisionally-accredited levees.
- For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
- To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-458-6620.

PANEL 0368G

FIRM

FLOOD INSURANCE RATE MAP  
HARTFORD COUNTY,  
CONNECTICUT  
(ALL JURISDICTIONS)

PANEL 368 OF 675  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAST HARTFORD, TOWN OF	090026	0368	G
HARTFORD, CITY OF	095080	0368	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  
09003C0368G  
MAP REVISED  
SEPTEMBER 16, 2011  
Federal Emergency Management Agency

APPROXIMATE SITE LOCATION

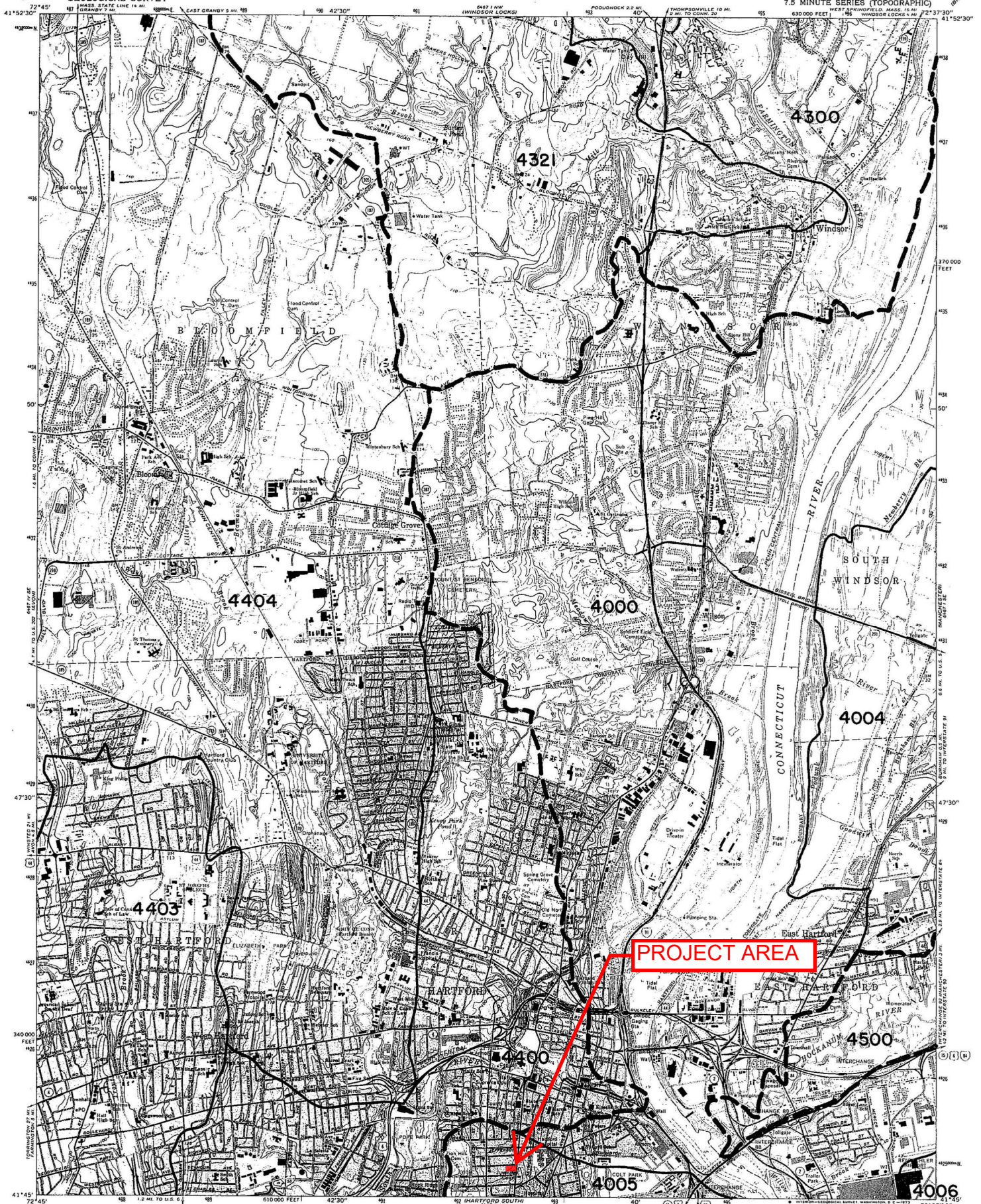
WASHINGTON & LINCOLN GARAGE

FEMA Basin Map

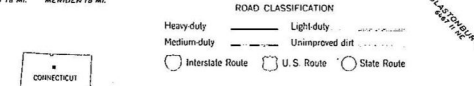
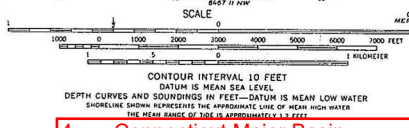
Washington St, Hartford, CT

PROJ. No.: 20220997.A10  
DATE: April 2023

Figure 3



Map by the Geological Survey and City of Hartford  
 Edited and published by the Geological Survey  
 Revised in cooperation with Connecticut Highway Department  
 Control by USGS, USC&GS, and Connecticut Geodetic Survey  
 Planimetry by photogrammetric methods from aerial photographs  
 taken 1941. Topography by plane-table surveys 1943. Revised 1964  
 Selected hydrographic data compiled from USC&GS Chart 267 (1962)  
 This information is not intended for navigational purposes  
 Polyconic projection. 1927 North American datum  
 10,000-foot grid based on Connecticut coordinate system  
 1000-meter Universal Transverse Mercator grid ticks,  
 zone 18, shown in blue  
 Fine red dashed lines indicate selected fence and right lines where  
 generally visible on aerial photographs. This information is uncheckered  
 Red text indicates areas in which only landmark buildings are shown  
 Area covered by dashed light-blue pattern is subject  
 to controlled inundation



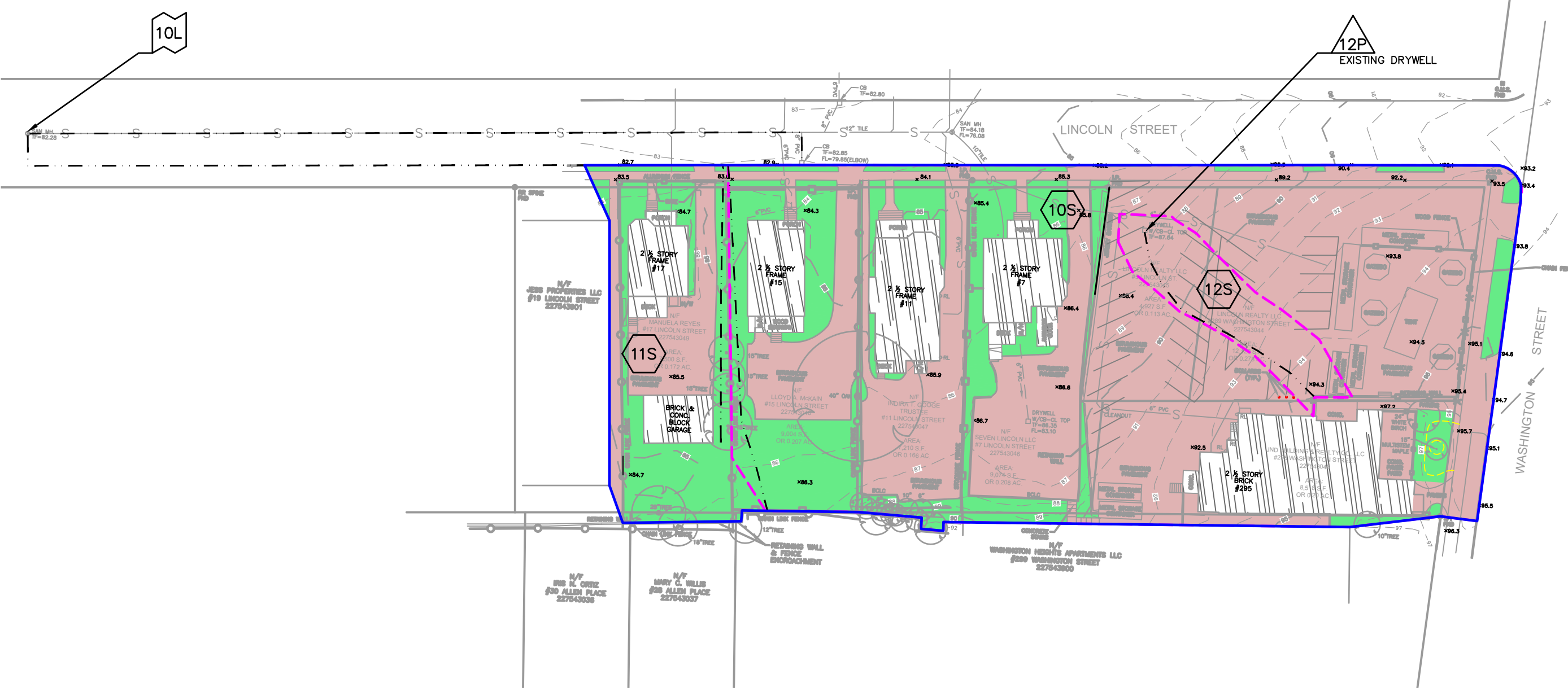
- 4 Connecticut Major Basin
- 40 CT Main Stem Reg. Basin
- 4000 Connecticut River
- 4005 Folly Brook

## **Appendix A**

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### Existing Watershed Analysis

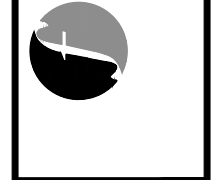
- LEGEND**
- OVERALL WATERSHED BOUNDARY
  - SUB-WATERSHED BOUNDARY
  - TIME OF CONCENTRATION LINE
  - IMPERVIOUS SURFACE – PAVED
  - IMPERVIOUS SURFACE – ROOF
  - PERVIOUS SURFACE – GRASS
  - 00S CATCHMENT AREA
  - 00P POND
  - 00L LINK



File: J:\DWG\2022\0997\A10\_DRA01.dwg Layout: DR-101 Plotted: 2023-02-16 6:39 PM Saved: 2023-02-16 6:39 PM User: T.Davis  
 PC3: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 STB/CBT: FO.STB  
 LAYER STATE:

SCALE:	HORIZ.: 1" = 50'
	VERT.: 1" = 25'
DATUM:	
	HORIZ.: 1" = 50'
	VERT.: 1" = 25'
	GRAPHIC SCALE

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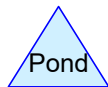
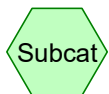
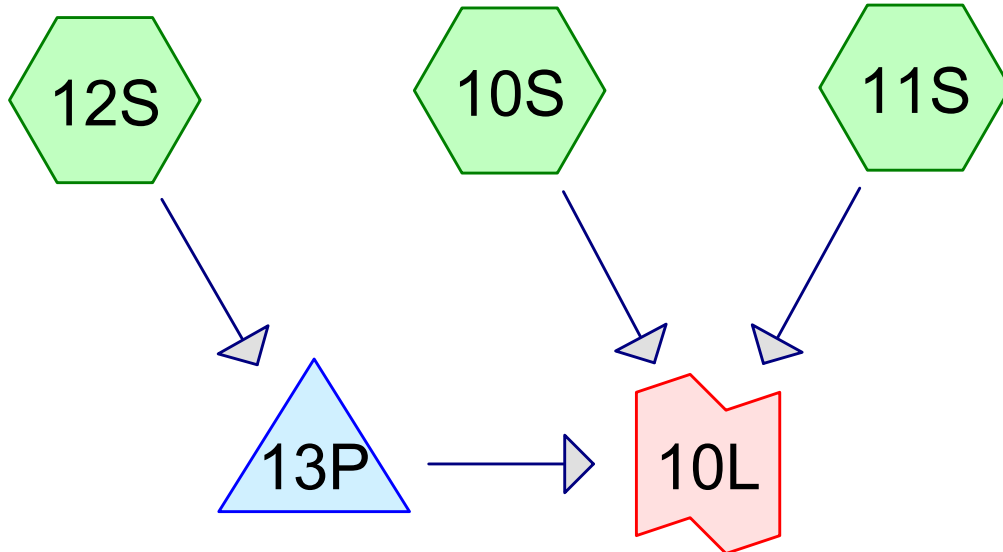


LAZ PARKING REALTY INVESTORS  
 EXISTING DRAINAGE ANALYSIS  
 WASHINGTON STREET GARAGE

CONNECTICUT  
 HARTFORD

PROJ. No.: 20220997.A10  
 DATE: 02/28/2023

DR-101



**Routing Diagram for 20220997.A10\_EXISTING**  
Prepared by Fuss & O'Neill, Printed 2/20/2023  
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**20220997.A10\_EXISTING**

Prepared by Fuss &amp; O'Neill

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Printed 2/20/2023

Page 2

**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.65	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.26	2
3	10-Year	Type III 24-hr		Default	24.00	1	4.86	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.11	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.63	2

**20220997.A10\_EXISTING**

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Page 3

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.038	86	<50% Grass cover, Poor, HSG C (10S, 11S)
0.321	89	<50% Grass cover, Poor, HSG D (10S, 11S)
0.022	98	Paved parking, HSG C (10S, 11S)
0.921	98	Paved parking, HSG D (10S, 11S, 12S)
0.010	98	Roofs, HSG C (10S, 11S)
0.243	98	Roofs, HSG D (10S, 11S)
<b>1.556</b>	<b>96</b>	<b>TOTAL AREA</b>

**20220997.A10\_EXISTING**

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Page 4

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.070	HSG C	10S, 11S
1.485	HSG D	10S, 11S, 12S
0.000	Other	
<b>1.556</b>		<b>TOTAL AREA</b>

**20220997.A10\_EXISTING**

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Page 5

**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.038	0.321	0.000	0.359	<50% Grass cover, Poor	10S, 11S
0.000	0.000	0.022	0.921	0.000	0.943	Paved parking	10S, 11S, 12S
0.000	0.000	0.010	0.243	0.000	0.253	Roofs	10S, 11S
<b>0.000</b>	<b>0.000</b>	<b>0.070</b>	<b>1.485</b>	<b>0.000</b>	<b>1.556</b>	<b>TOTAL AREA</b>	

**20220997.A10\_EXISTING**

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Page 6

**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	10S	0.00	0.00	15.0	0.0200	0.010	0.0	8.0	0.0
2	10S	0.00	0.00	424.0	0.0079	0.013	0.0	12.0	0.0
3	11S	0.00	0.00	14.0	0.0200	0.013	0.0	8.0	0.0

**20220997.A10\_EXISTING**

Prepared by Fuss & O'Neill

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Existing Conditions

Type III 24-hr 1-Year Rainfall=2.65"

Printed 2/20/2023

Page 7

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment10S:** Runoff Area=54,983 sf 79.43% Impervious Runoff Depth=2.21"  
Flow Length=599' Tc=19.4 min CN=96 Runoff=2.12 cfs 0.232 af

**Subcatchment11S:** Runoff Area=9,480 sf 54.35% Impervious Runoff Depth=2.01"  
Flow Length=462' Tc=21.2 min CN=94 Runoff=0.33 cfs 0.037 af

**Subcatchment12S:** Runoff Area=3,303 sf 100.00% Impervious Runoff Depth=2.42"  
Flow Length=114' Tc=5.0 min CN=98 Runoff=0.20 cfs 0.015 af

**Pond 13P:** Peak Elev=79.01' Storage=0.000 af Inflow=0.20 cfs 0.015 af  
Outflow=0.20 cfs 0.015 af

**Link 10L:** Inflow=2.45 cfs 0.269 af  
Primary=2.45 cfs 0.269 af

**Total Runoff Area = 1.556 ac Runoff Volume = 0.284 af Average Runoff Depth = 2.19"**  
**23.08% Pervious = 0.359 ac 76.92% Impervious = 1.197 ac**

**20220997.A10\_EXISTING**

Prepared by Fuss &amp; O'Neill

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Existing Conditions

Type III 24-hr 1-Year Rainfall=2.65"

Printed 2/20/2023

Page 8

**Summary for Subcatchment 10S:**

Runoff = 2.12 cfs @ 12.26 hrs, Volume= 0.232 af, Depth= 2.21"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
34,346	98	Paved parking, HSG D
185	98	Paved parking, HSG C
9,123	98	Roofs, HSG D
18	98	Roofs, HSG C
10,703	89	<50% Grass cover, Poor, HSG D
608	86	<50% Grass cover, Poor, HSG C
54,983	96	Weighted Average
11,311		20.57% Pervious Area
43,672		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	100	0.0120	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.3	54	0.0315	2.86		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	15	0.0200	6.36	2.22	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	424	0.0079	4.03	3.17	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
19.4	599	Total			

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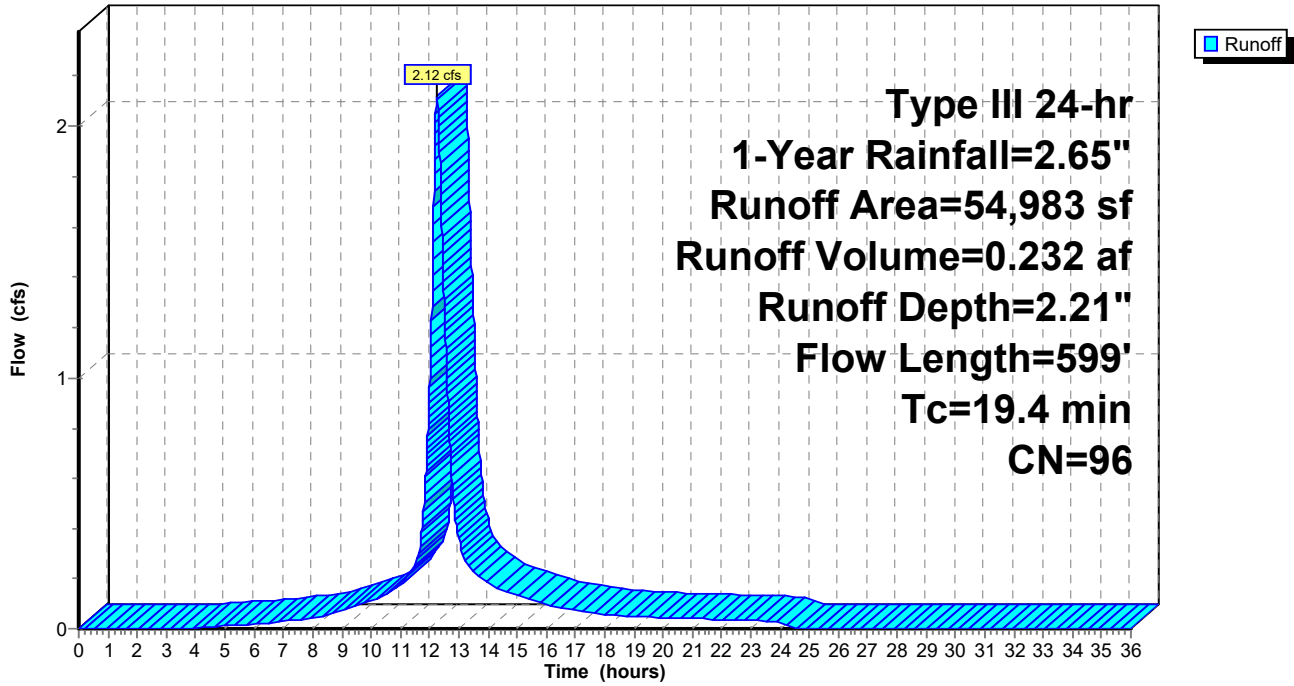
Type III 24-hr 1-Year Rainfall=2.65"

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Page 9

**Subcatchment 10S:**

Hydrograph





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Type III 24-hr 1-Year Rainfall=2.65"

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Page 10

**Summary for Subcatchment 11S:**

Runoff = 0.33 cfs @ 12.28 hrs, Volume= 0.037 af, Depth= 2.01"  
Routed to Link 10L :

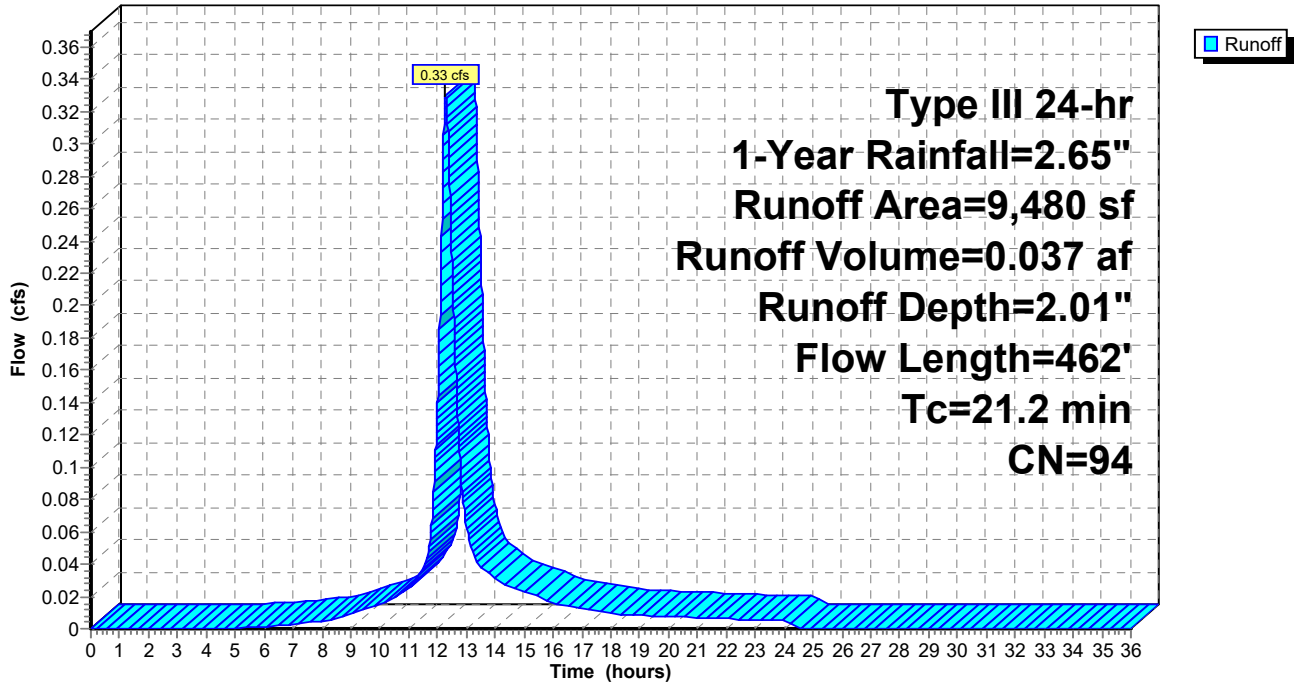
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
2,480	98	Paved parking, HSG D
777	98	Paved parking, HSG C
1,483	98	Roofs, HSG D
412	98	Roofs, HSG C
3,262	89	<50% Grass cover, Poor, HSG D
1,066	86	<50% Grass cover, Poor, HSG C
9,480	94	Weighted Average
4,328		45.65% Pervious Area
5,152		54.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0100	0.09		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.6	21	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.9	321	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	14	0.0200	4.90	1.71	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Clay tile
21.2	462	Total			

**Subcatchment 11S:**

**Hydrograph**



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Type III 24-hr 1-Year Rainfall=2.65"

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Page 12

## Summary for Subcatchment 12S:

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Depth= 2.42"  
Routed to Pond 13P :

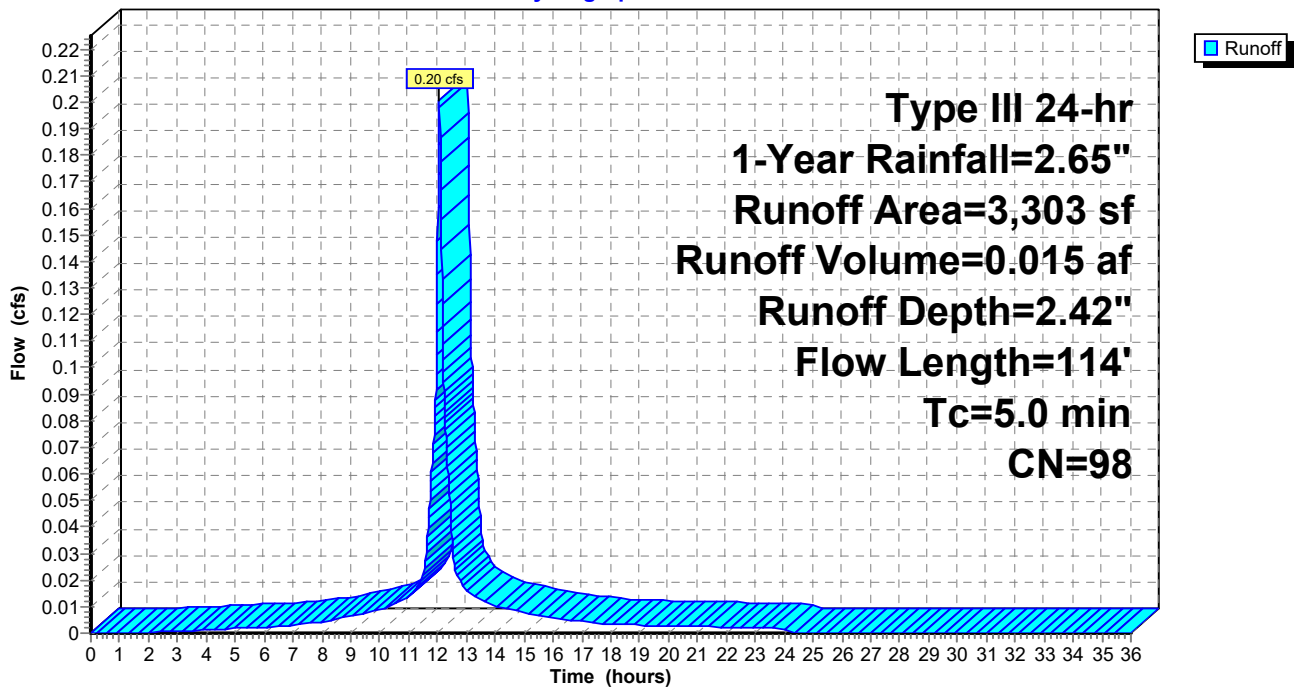
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
3,303	98	Paved parking, HSG D
3,303		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	114		0.38		Direct Entry,

## Subcatchment 12S:

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Existing Conditions  
Type III 24-hr 1-Year Rainfall=2.65"

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Page 13

## Summary for Pond 13P:

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 2.42" for 1-Year event  
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af  
Outflow = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.1 min  
Discarded = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 79.01' @ 12.07 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 0.1 min calculated for 0.015 af (100% of inflow)  
Center-of-Mass det. time= 0.1 min ( 759.7 - 759.6 )

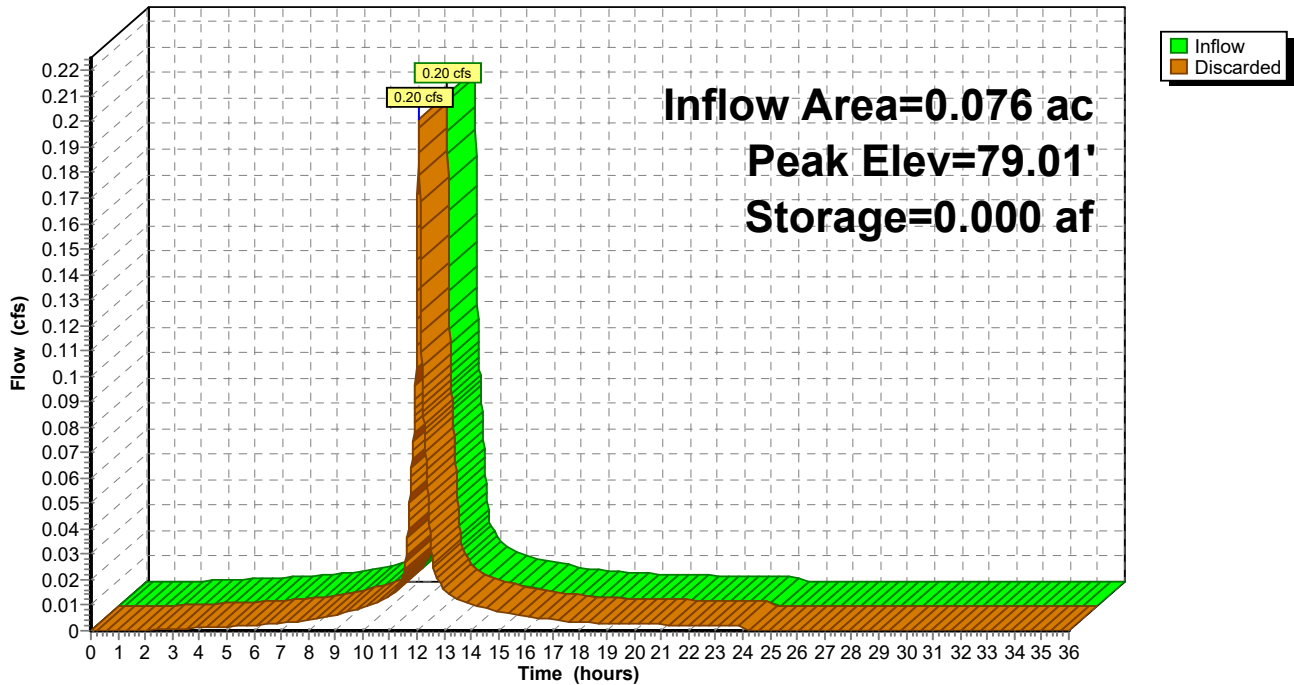
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	0.013 af	12.00'D x 5.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Discarded	79.00'	1.00 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.00 cfs @ 12.07 hrs HW=79.01' (Free Discharge)  
↑1=Exfiltration (Exfiltration Controls 1.00 cfs)

## Pond 13P:

Hydrograph



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Existing Conditions  
Type III 24-hr 1-Year Rainfall=2.65"

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Page 14

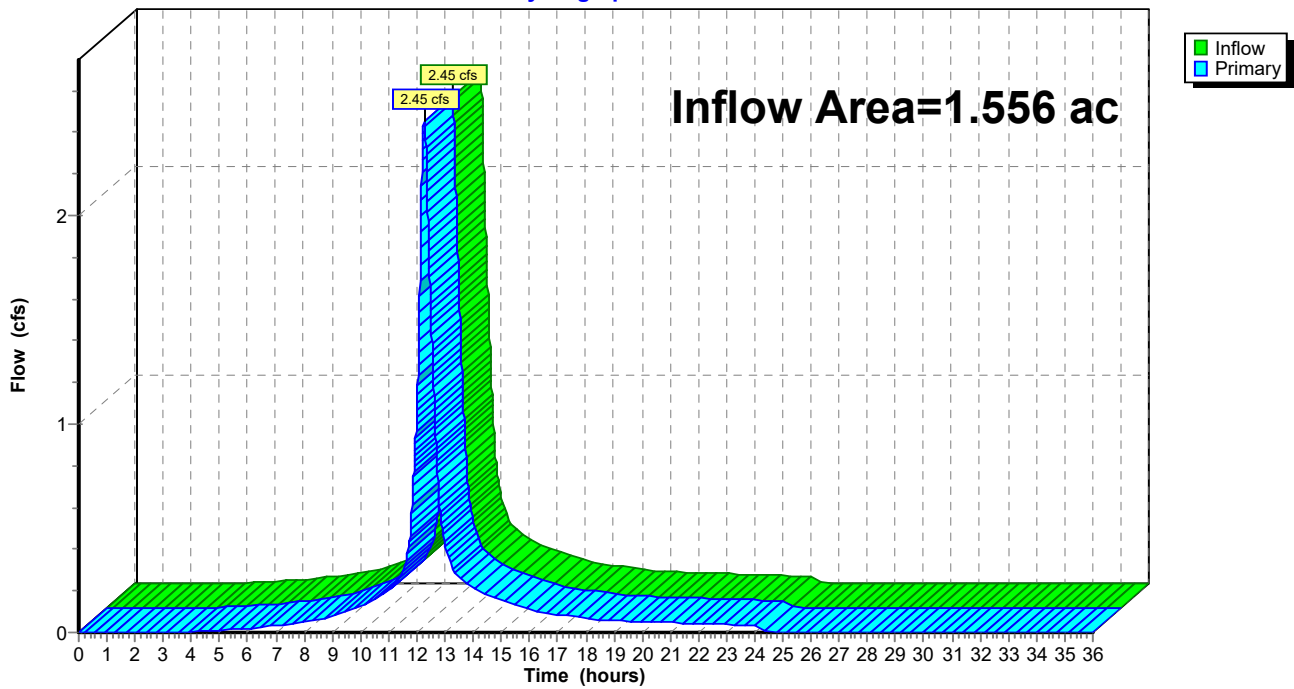
**Summary for Link 10L:**

Inflow Area = 1.556 ac, 76.92% Impervious, Inflow Depth = 2.07" for 1-Year event  
Inflow = 2.45 cfs @ 12.26 hrs, Volume= 0.269 af  
Primary = 2.45 cfs @ 12.26 hrs, Volume= 0.269 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.26"

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Page 15

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment10S:** Runoff Area=54,983 sf 79.43% Impervious Runoff Depth=2.81"  
Flow Length=599' Tc=19.4 min CN=96 Runoff=2.66 cfs 0.295 af

**Subcatchment11S:** Runoff Area=9,480 sf 54.35% Impervious Runoff Depth=2.60"  
Flow Length=462' Tc=21.2 min CN=94 Runoff=0.42 cfs 0.047 af

**Subcatchment12S:** Runoff Area=3,303 sf 100.00% Impervious Runoff Depth=3.03"  
Flow Length=114' Tc=5.0 min CN=98 Runoff=0.25 cfs 0.019 af

**Pond 13P:** Peak Elev=79.01' Storage=0.000 af Inflow=0.25 cfs 0.019 af  
Outflow=0.25 cfs 0.019 af

**Link 10L:** Inflow=3.08 cfs 0.343 af  
Primary=3.08 cfs 0.343 af

**Total Runoff Area = 1.556 ac Runoff Volume = 0.362 af Average Runoff Depth = 2.79"**  
**23.08% Pervious = 0.359 ac 76.92% Impervious = 1.197 ac**

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Type III 24-hr 2-Year Rainfall=3.26"

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Page 16

**Summary for Subcatchment 10S:**

Runoff = 2.66 cfs @ 12.26 hrs, Volume= 0.295 af, Depth= 2.81"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
34,346	98	Paved parking, HSG D
185	98	Paved parking, HSG C
9,123	98	Roofs, HSG D
18	98	Roofs, HSG C
10,703	89	<50% Grass cover, Poor, HSG D
608	86	<50% Grass cover, Poor, HSG C
54,983	96	Weighted Average
11,311		20.57% Pervious Area
43,672		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	100	0.0120	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.3	54	0.0315	2.86		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	15	0.0200	6.36	2.22	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	424	0.0079	4.03	3.17	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
19.4	599	Total			

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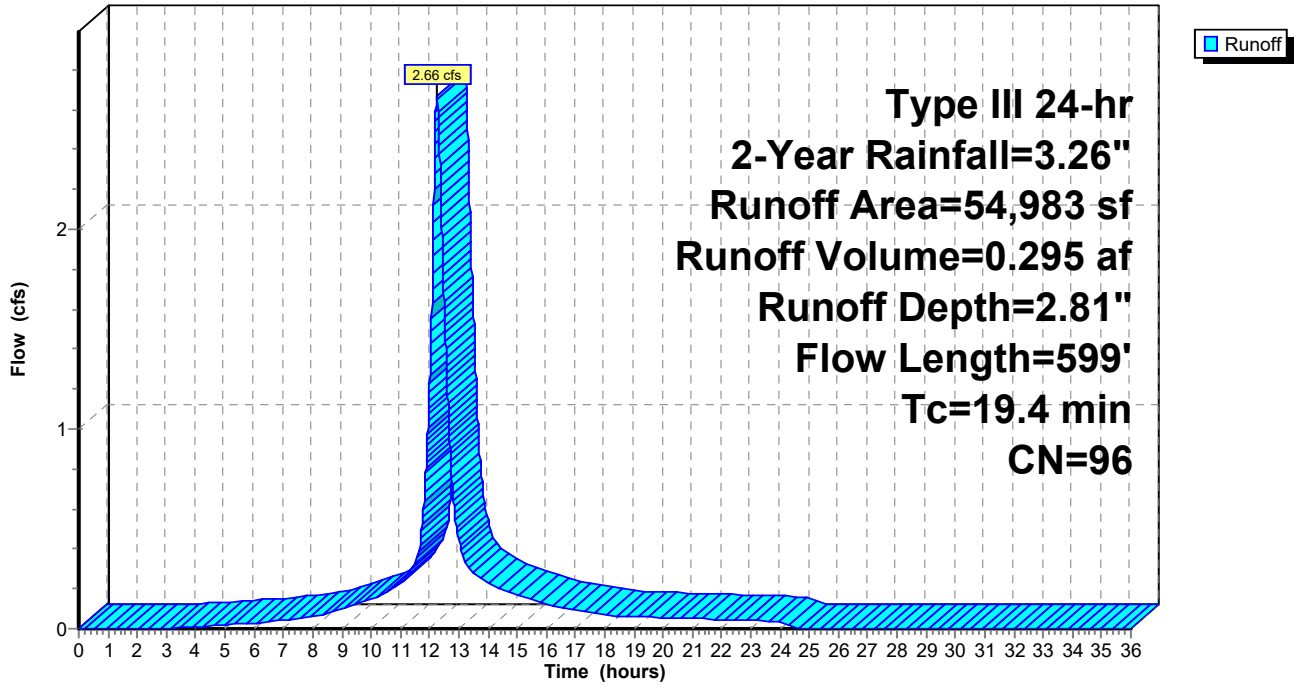
Type III 24-hr 2-Year Rainfall=3.26"

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Page 17

**Subcatchment 10S:**

Hydrograph





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Type III 24-hr 2-Year Rainfall=3.26"

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Page 18

**Summary for Subcatchment 11S:**

Runoff = 0.42 cfs @ 12.28 hrs, Volume= 0.047 af, Depth= 2.60"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
2,480	98	Paved parking, HSG D
777	98	Paved parking, HSG C
1,483	98	Roofs, HSG D
412	98	Roofs, HSG C
3,262	89	<50% Grass cover, Poor, HSG D
1,066	86	<50% Grass cover, Poor, HSG C
9,480	94	Weighted Average
4,328		45.65% Pervious Area
5,152		54.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0100	0.09		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.6	21	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.9	321	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	14	0.0200	4.90	1.71	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Clay tile
21.2	462	Total			

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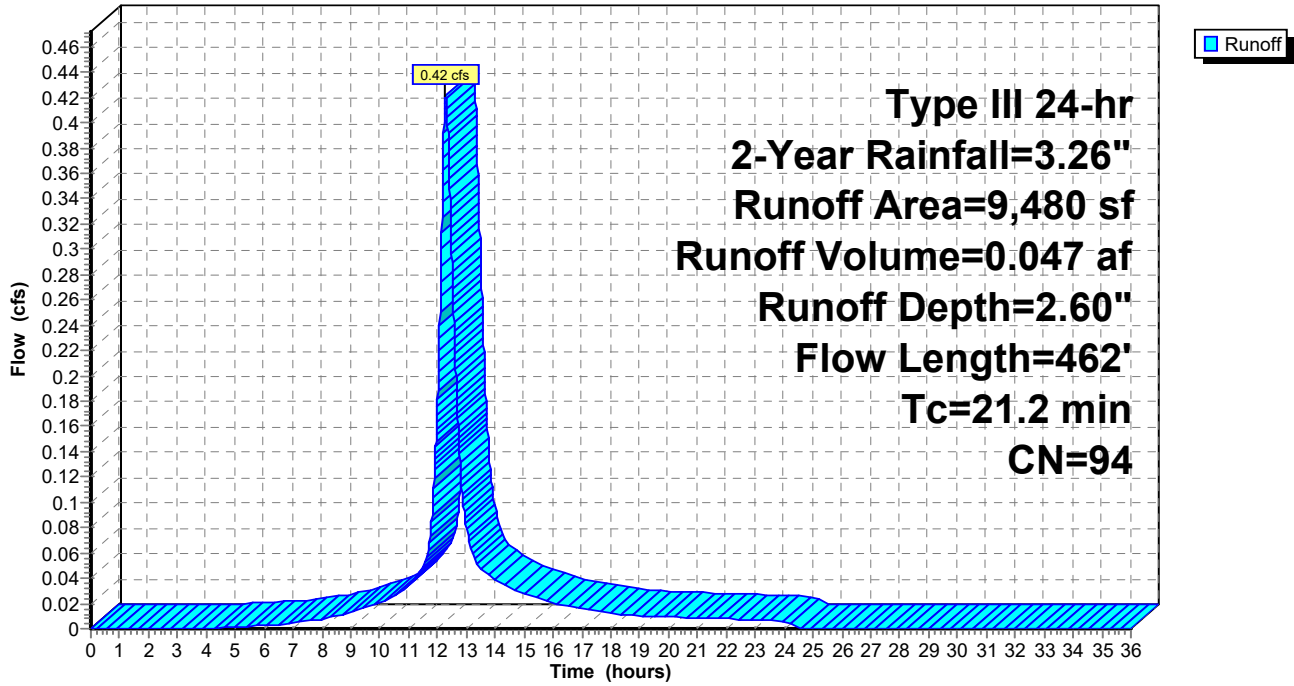
Existing Conditions  
Type III 24-hr 2-Year Rainfall=3.26"

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Page 19

**Subcatchment 11S:**

Hydrograph



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Existing Conditions  
Type III 24-hr 2-Year Rainfall=3.26"

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Page 20

**Summary for Subcatchment 12S:**

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af, Depth= 3.03"  
Routed to Pond 13P :

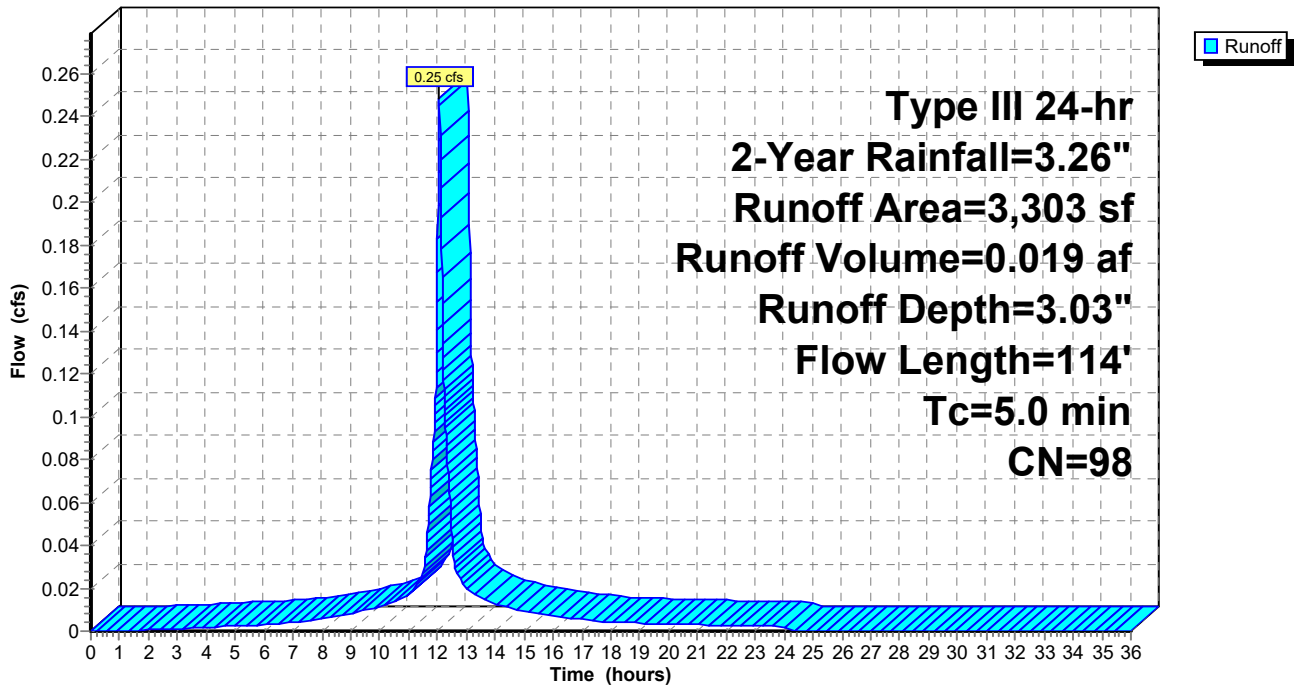
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
3,303	98	Paved parking, HSG D
3,303		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	114		0.38		Direct Entry,

**Subcatchment 12S:**

Hydrograph



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Existing Conditions  
Type III 24-hr 2-Year Rainfall=3.26"

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Page 21

**Summary for Pond 13P:**

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 3.03" for 2-Year event  
 Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af  
 Outflow = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.1 min  
 Discarded = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 79.01' @ 12.07 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 0.1 min calculated for 0.019 af (100% of inflow)  
 Center-of-Mass det. time= 0.1 min ( 755.2 - 755.1 )

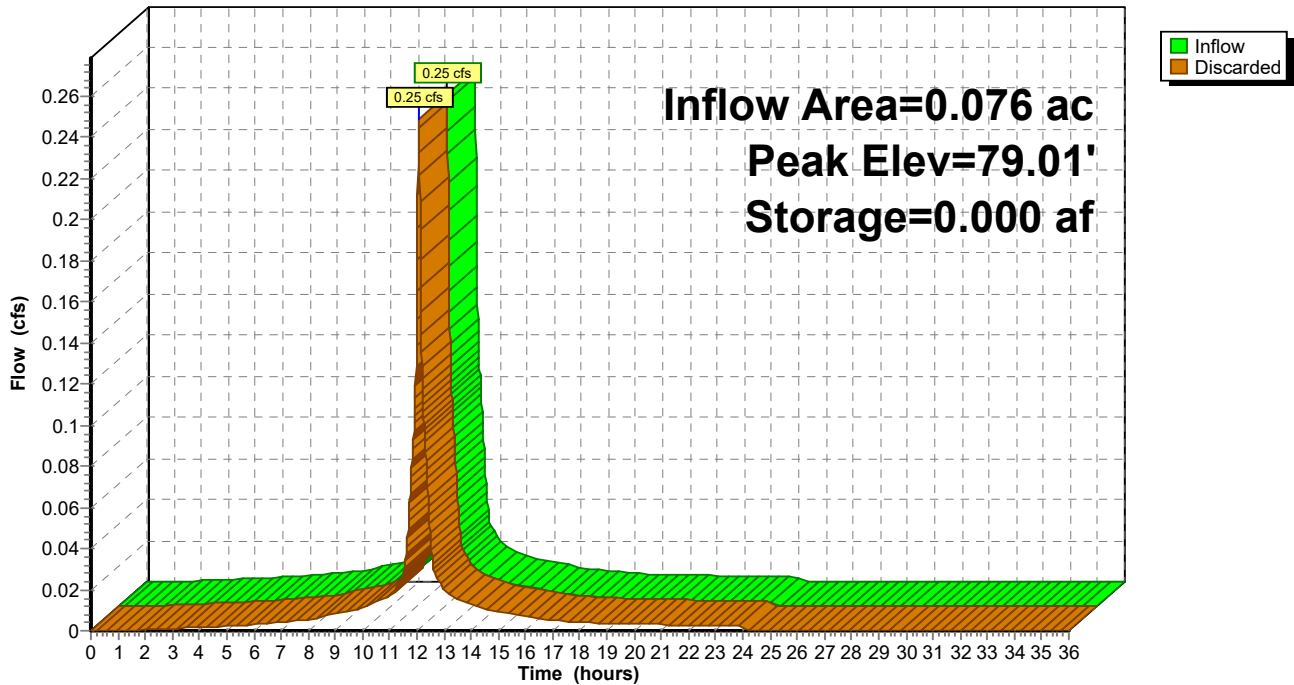
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	0.013 af	12.00'D x 5.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Discarded	79.00'	1.00 cfs Exfiltration at all elevations

**Discarded OutFlow** Max=1.00 cfs @ 12.07 hrs HW=79.01' (Free Discharge)  
 ↳1=Exfiltration (Exfiltration Controls 1.00 cfs)

**Pond 13P:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.26"

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Page 22

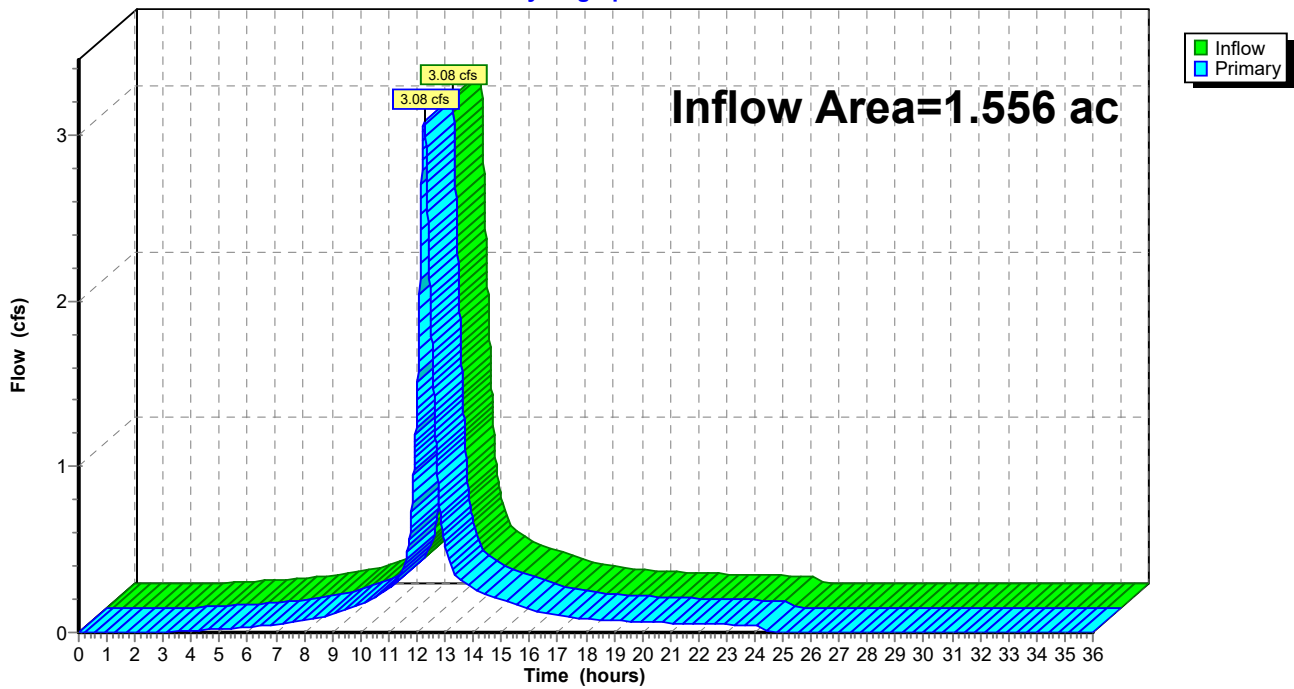
**Summary for Link 10L:**

Inflow Area = 1.556 ac, 76.92% Impervious, Inflow Depth = 2.64" for 2-Year event  
Inflow = 3.08 cfs @ 12.26 hrs, Volume= 0.343 af  
Primary = 3.08 cfs @ 12.26 hrs, Volume= 0.343 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.86"

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Page 23

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment10S:** Runoff Area=54,983 sf 79.43% Impervious Runoff Depth=4.39"  
Flow Length=599' Tc=19.4 min CN=96 Runoff=4.07 cfs 0.462 af

**Subcatchment11S:** Runoff Area=9,480 sf 54.35% Impervious Runoff Depth=4.17"  
Flow Length=462' Tc=21.2 min CN=94 Runoff=0.66 cfs 0.076 af

**Subcatchment12S:** Runoff Area=3,303 sf 100.00% Impervious Runoff Depth=4.62"  
Flow Length=114' Tc=5.0 min CN=98 Runoff=0.37 cfs 0.029 af

**Pond 13P:** Peak Elev=79.02' Storage=0.000 af Inflow=0.37 cfs 0.029 af  
Outflow=0.37 cfs 0.029 af

**Link 10L:** Inflow=4.73 cfs 0.538 af  
Primary=4.73 cfs 0.538 af

**Total Runoff Area = 1.556 ac Runoff Volume = 0.567 af Average Runoff Depth = 4.37"**  
**23.08% Pervious = 0.359 ac 76.92% Impervious = 1.197 ac**

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Type III 24-hr 10-Year Rainfall=4.86"

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Page 24

**Summary for Subcatchment 10S:**

Runoff = 4.07 cfs @ 12.26 hrs, Volume= 0.462 af, Depth= 4.39"  
Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
34,346	98	Paved parking, HSG D
185	98	Paved parking, HSG C
9,123	98	Roofs, HSG D
18	98	Roofs, HSG C
10,703	89	<50% Grass cover, Poor, HSG D
608	86	<50% Grass cover, Poor, HSG C
54,983	96	Weighted Average
11,311		20.57% Pervious Area
43,672		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	100	0.0120	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.3	54	0.0315	2.86		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	15	0.0200	6.36	2.22	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	424	0.0079	4.03	3.17	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
19.4	599	Total			

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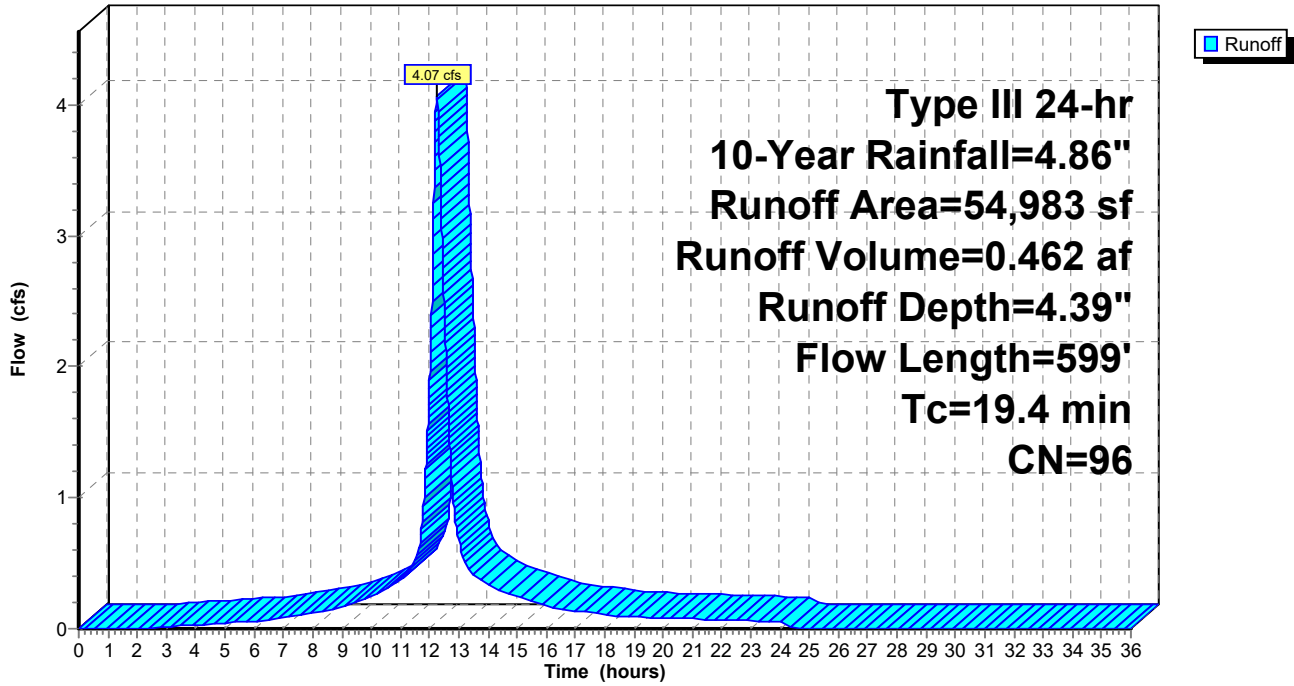
Type III 24-hr 10-Year Rainfall=4.86"

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Page 25

**Subcatchment 10S:**

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Type III 24-hr 10-Year Rainfall=4.86"

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Page 26

**Summary for Subcatchment 11S:**

Runoff = 0.66 cfs @ 12.27 hrs, Volume= 0.076 af, Depth= 4.17"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
2,480	98	Paved parking, HSG D
777	98	Paved parking, HSG C
1,483	98	Roofs, HSG D
412	98	Roofs, HSG C
3,262	89	<50% Grass cover, Poor, HSG D
1,066	86	<50% Grass cover, Poor, HSG C
9,480	94	Weighted Average
4,328		45.65% Pervious Area
5,152		54.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0100	0.09		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.6	21	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.9	321	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	14	0.0200	4.90	1.71	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Clay tile
21.2	462	Total			

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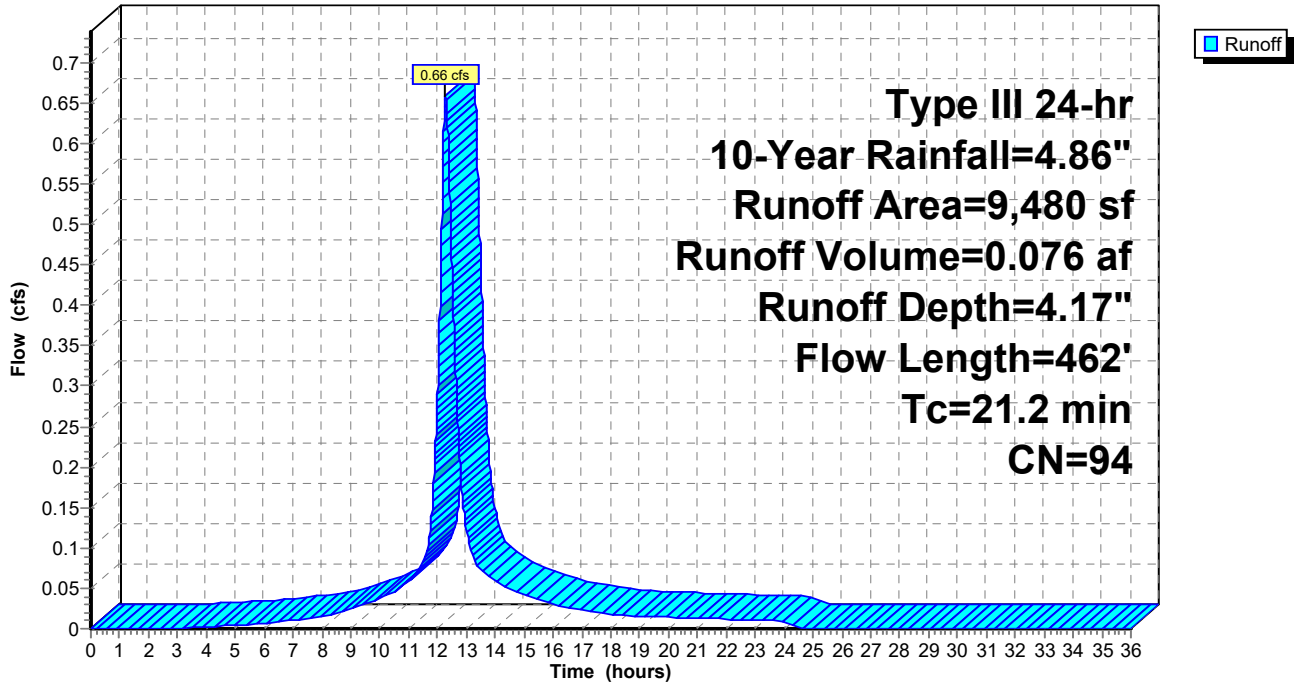
Type III 24-hr 10-Year Rainfall=4.86"

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Page 27

**Subcatchment 11S:**

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Existing Conditions

Type III 24-hr 10-Year Rainfall=4.86"

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Page 28

## Summary for Subcatchment 12S:

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 0.029 af, Depth= 4.62"  
Routed to Pond 13P :

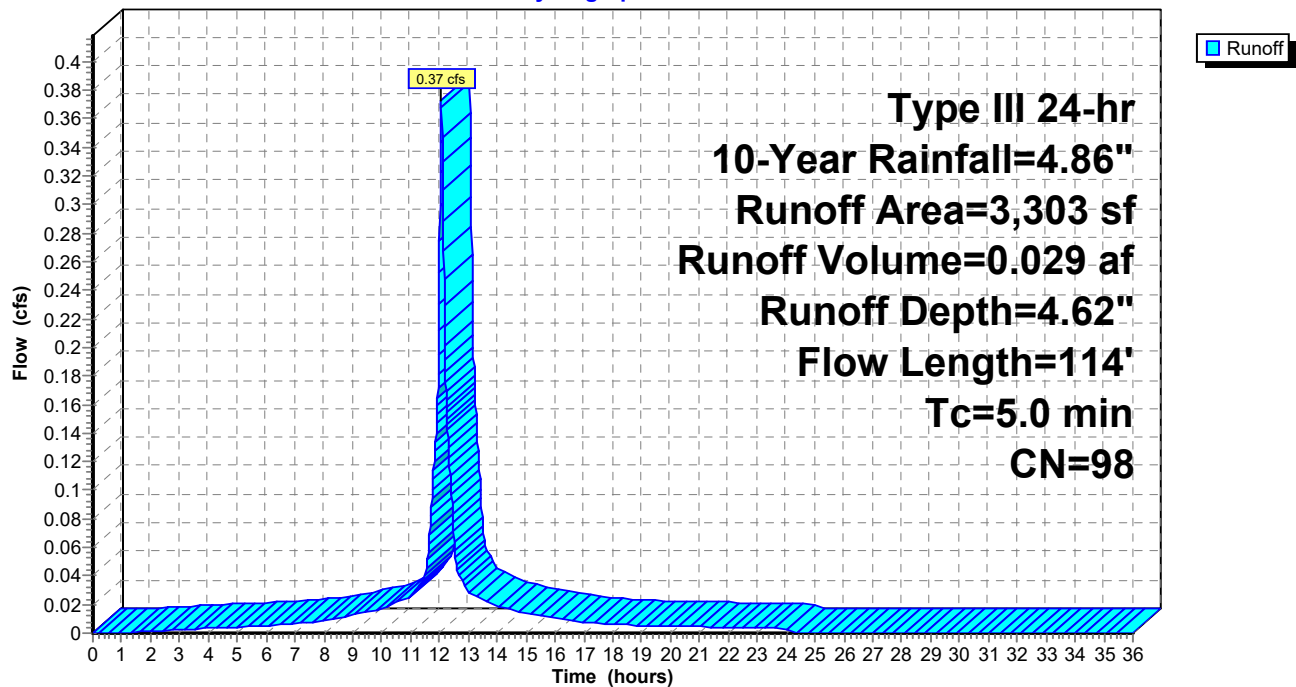
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
3,303	98	Paved parking, HSG D
3,303		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	114		0.38		Direct Entry,

## Subcatchment 12S:

### Hydrograph



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Existing Conditions  
Type III 24-hr 10-Year Rainfall=4.86"

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Page 29

## Summary for Pond 13P:

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 4.62" for 10-Year event  
Inflow = 0.37 cfs @ 12.07 hrs, Volume= 0.029 af  
Outflow = 0.37 cfs @ 12.07 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.1 min  
Discarded = 0.37 cfs @ 12.07 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 79.02' @ 12.07 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 0.1 min calculated for 0.029 af (100% of inflow)  
Center-of-Mass det. time= 0.1 min ( 747.7 - 747.6 )

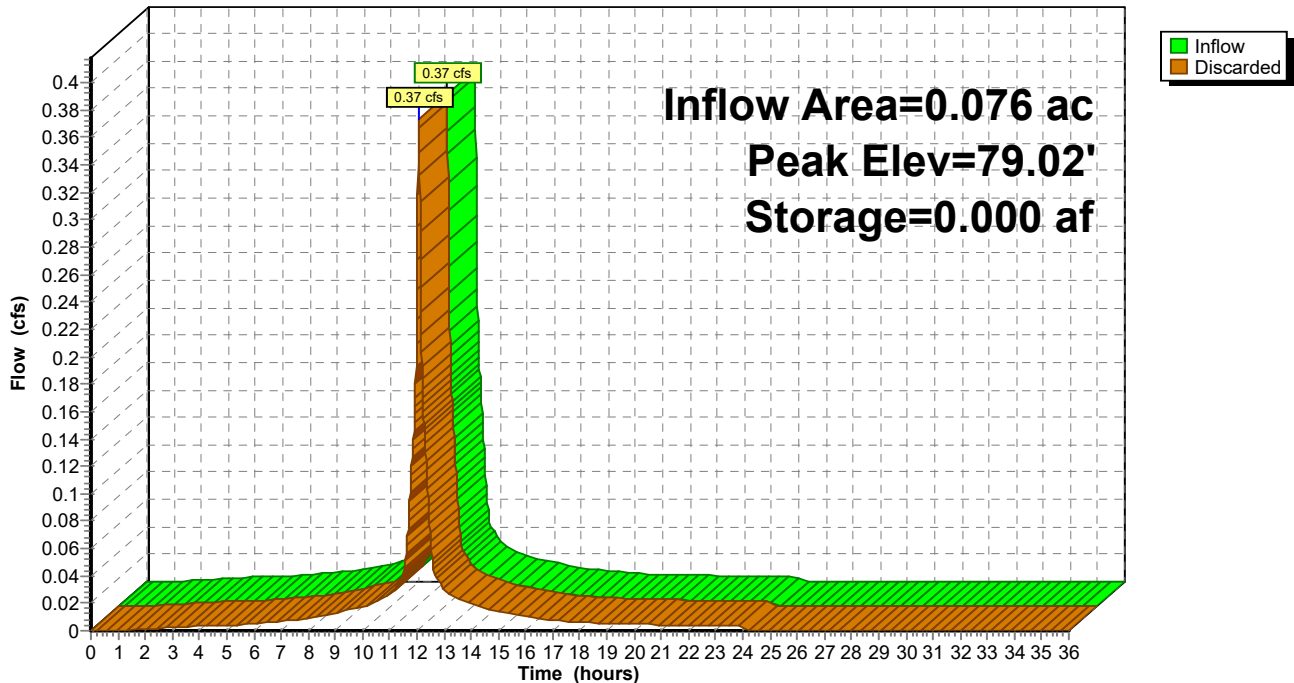
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	0.013 af	12.00'D x 5.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Discarded	79.00'	1.00 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.00 cfs @ 12.07 hrs HW=79.02' (Free Discharge)  
↑1=Exfiltration (Exfiltration Controls 1.00 cfs)

## Pond 13P:

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.86"

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Page 30

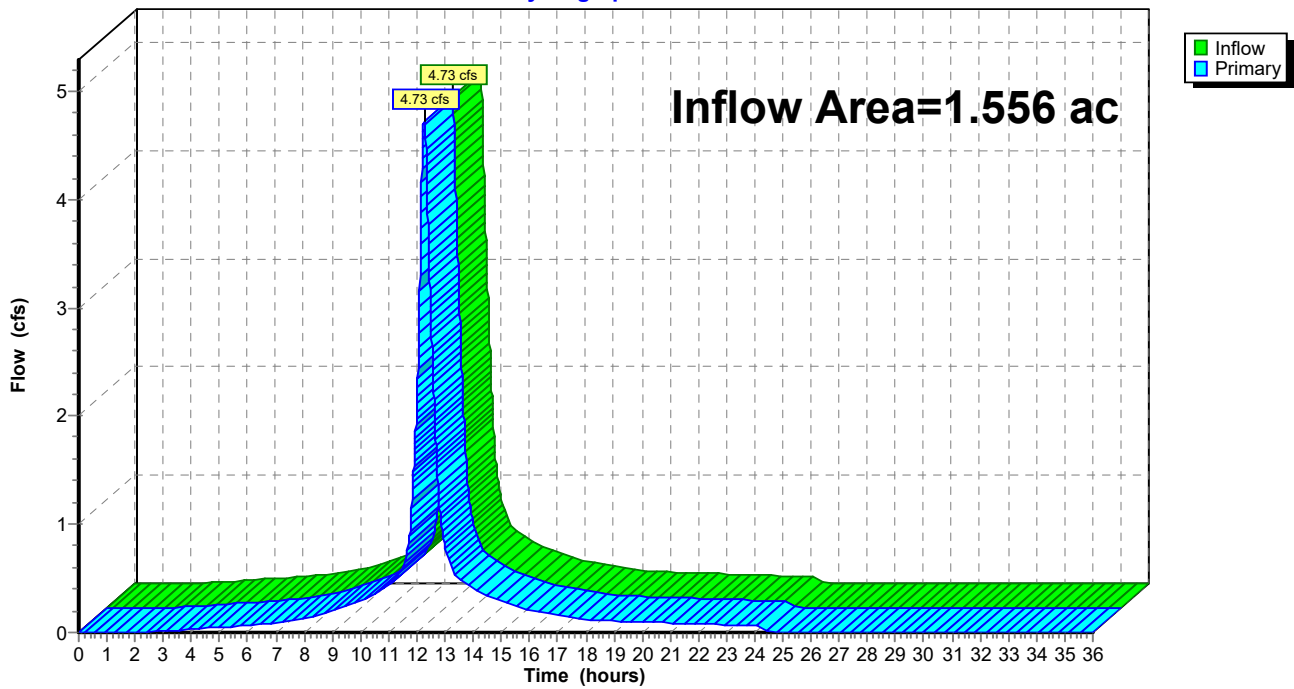
**Summary for Link 10L:**

Inflow Area = 1.556 ac, 76.92% Impervious, Inflow Depth = 4.15" for 10-Year event  
Inflow = 4.73 cfs @ 12.26 hrs, Volume= 0.538 af  
Primary = 4.73 cfs @ 12.26 hrs, Volume= 0.538 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph



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Existing Conditions  
*Type III 24-hr 25-Year Rainfall=6.11"*

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Page 31

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment10S:** Runoff Area=54,983 sf 79.43% Impervious Runoff Depth=5.64"  
Flow Length=599' Tc=19.4 min CN=96 Runoff=5.16 cfs 0.593 af

**Subcatchment11S:** Runoff Area=9,480 sf 54.35% Impervious Runoff Depth=5.41"  
Flow Length=462' Tc=21.2 min CN=94 Runoff=0.84 cfs 0.098 af

**Subcatchment12S:** Runoff Area=3,303 sf 100.00% Impervious Runoff Depth=5.87"  
Flow Length=114' Tc=5.0 min CN=98 Runoff=0.47 cfs 0.037 af

**Pond 13P:** Peak Elev=79.02' Storage=0.000 af Inflow=0.47 cfs 0.037 af  
Outflow=0.47 cfs 0.037 af

**Link 10L:** Inflow=6.00 cfs 0.691 af  
Primary=6.00 cfs 0.691 af

**Total Runoff Area = 1.556 ac Runoff Volume = 0.728 af Average Runoff Depth = 5.62"**  
**23.08% Pervious = 0.359 ac 76.92% Impervious = 1.197 ac**

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Type III 24-hr 25-Year Rainfall=6.11"

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Page 32

**Summary for Subcatchment 10S:**

Runoff = 5.16 cfs @ 12.26 hrs, Volume= 0.593 af, Depth= 5.64"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
34,346	98	Paved parking, HSG D
185	98	Paved parking, HSG C
9,123	98	Roofs, HSG D
18	98	Roofs, HSG C
10,703	89	<50% Grass cover, Poor, HSG D
608	86	<50% Grass cover, Poor, HSG C
54,983	96	Weighted Average
11,311		20.57% Pervious Area
43,672		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	100	0.0120	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.3	54	0.0315	2.86		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	15	0.0200	6.36	2.22	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	424	0.0079	4.03	3.17	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
19.4	599	Total			

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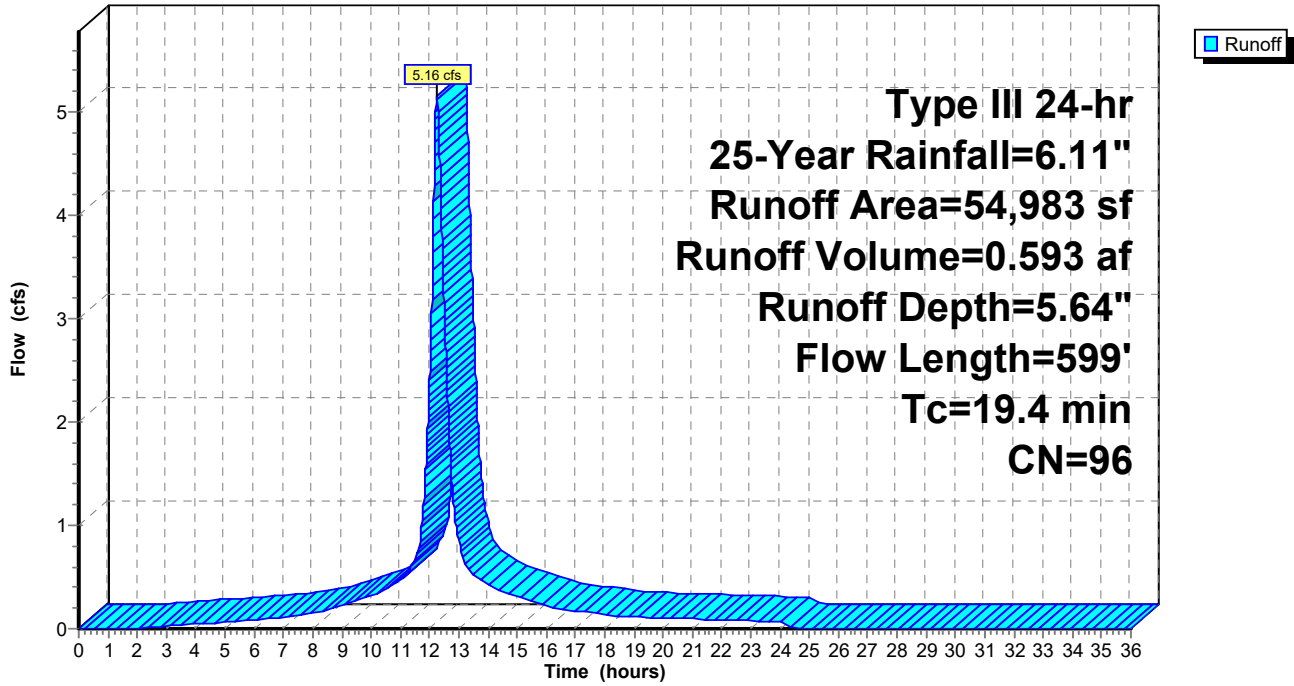
Type III 24-hr 25-Year Rainfall=6.11"

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Page 33

**Subcatchment 10S:**

Hydrograph





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Type III 24-hr 25-Year Rainfall=6.11"

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Page 34

**Summary for Subcatchment 11S:**

Runoff = 0.84 cfs @ 12.27 hrs, Volume= 0.098 af, Depth= 5.41"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
2,480	98	Paved parking, HSG D
777	98	Paved parking, HSG C
1,483	98	Roofs, HSG D
412	98	Roofs, HSG C
3,262	89	<50% Grass cover, Poor, HSG D
1,066	86	<50% Grass cover, Poor, HSG C
9,480	94	Weighted Average
4,328		45.65% Pervious Area
5,152		54.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0100	0.09		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.6	21	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.9	321	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	14	0.0200	4.90	1.71	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Clay tile
21.2	462	Total			

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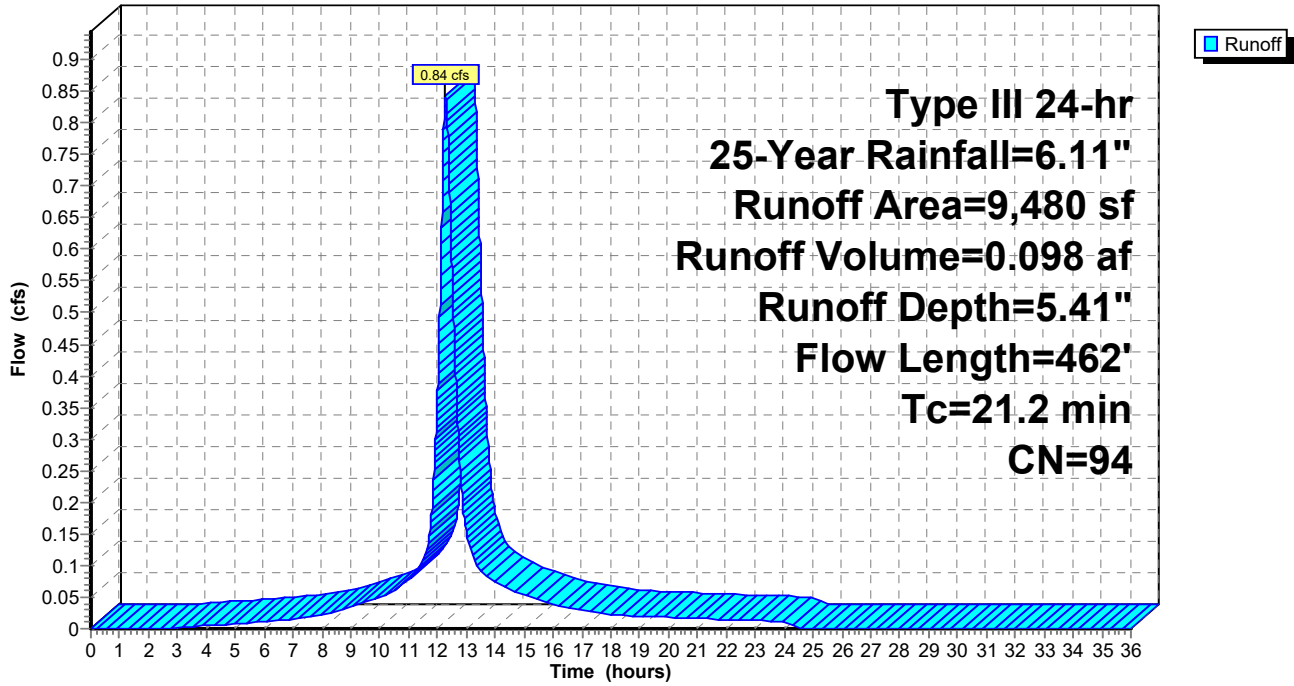
Type III 24-hr 25-Year Rainfall=6.11"

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Page 35

**Subcatchment 11S:**

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 36

**Summary for Subcatchment 12S:**

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.037 af, Depth= 5.87"  
Routed to Pond 13P :

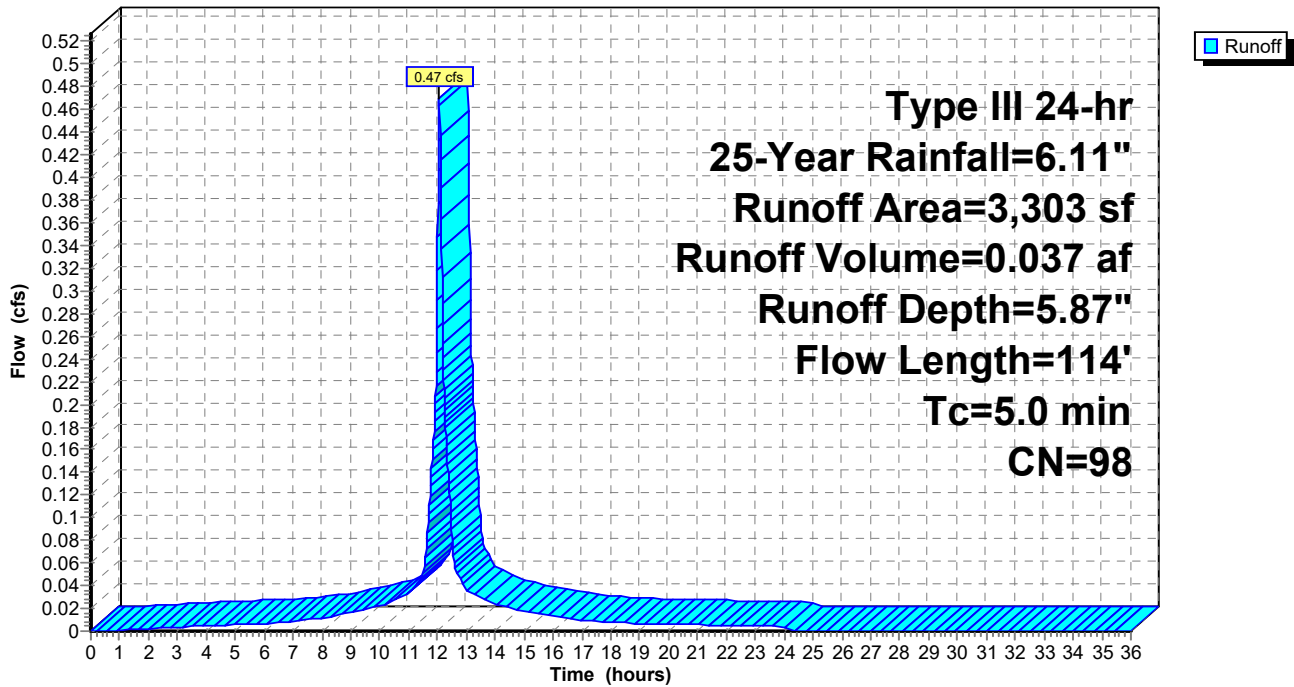
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
3,303	98	Paved parking, HSG D
3,303		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	114		0.38		Direct Entry,

**Subcatchment 12S:**

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 37

## Summary for Pond 13P:

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 5.87" for 25-Year event  
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 0.037 af  
Outflow = 0.47 cfs @ 12.07 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.1 min  
Discarded = 0.47 cfs @ 12.07 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 79.02' @ 12.07 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 0.1 min calculated for 0.037 af (100% of inflow)  
Center-of-Mass det. time= 0.1 min ( 744.0 - 743.9 )

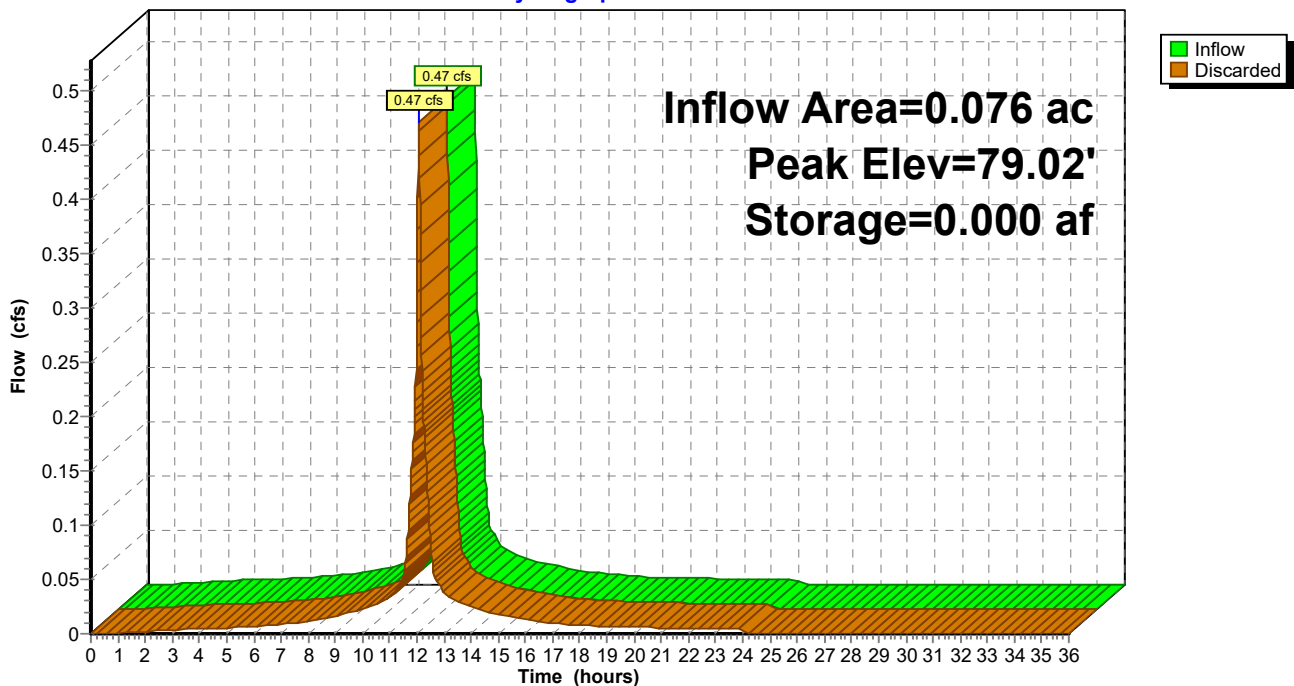
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	0.013 af	12.00'D x 5.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Discarded	79.00'	1.00 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.00 cfs @ 12.07 hrs HW=79.02' (Free Discharge)  
↑1=Exfiltration (Exfiltration Controls 1.00 cfs)

## Pond 13P:

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 38

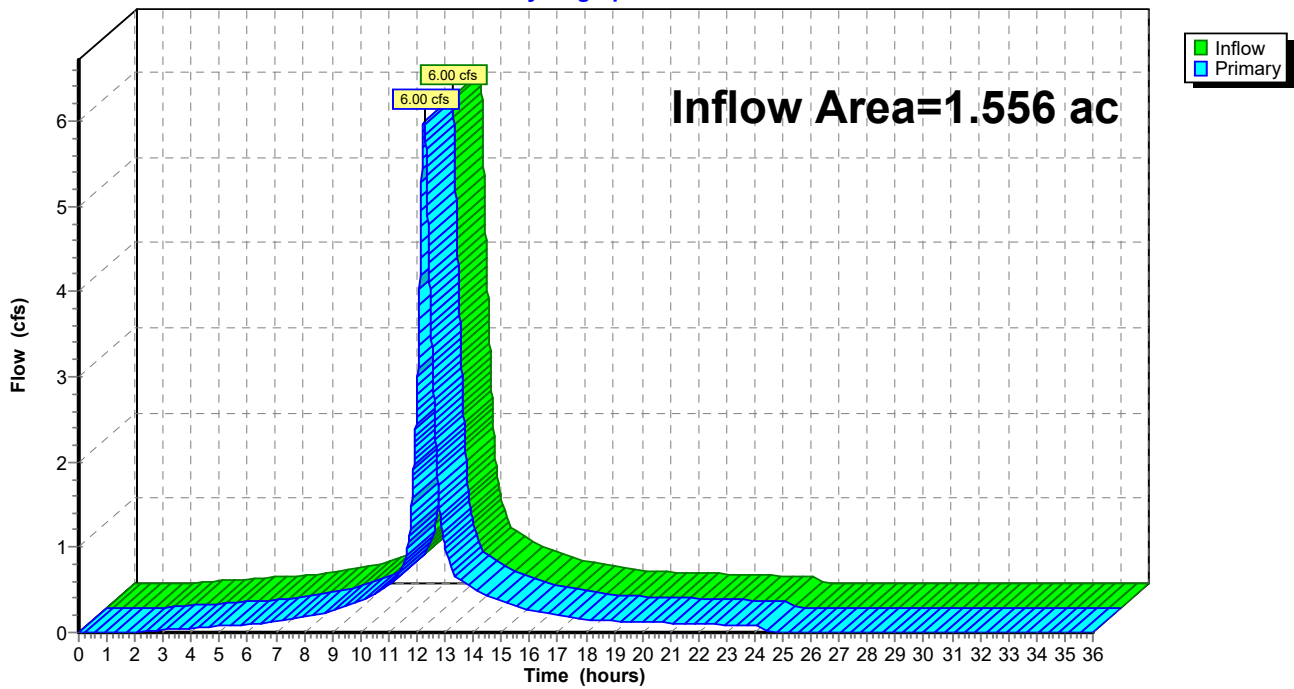
**Summary for Link 10L:**

Inflow Area = 1.556 ac, 76.92% Impervious, Inflow Depth = 5.33" for 25-Year event  
Inflow = 6.00 cfs @ 12.26 hrs, Volume= 0.691 af  
Primary = 6.00 cfs @ 12.26 hrs, Volume= 0.691 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph



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Existing Conditions  
*Type III 24-hr 100-Year Rainfall=8.63"*

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Page 39

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment10S:** Runoff Area=54,983 sf 79.43% Impervious Runoff Depth=8.15"  
Flow Length=599' Tc=19.4 min CN=96 Runoff=7.35 cfs 0.857 af

**Subcatchment11S:** Runoff Area=9,480 sf 54.35% Impervious Runoff Depth=7.91"  
Flow Length=462' Tc=21.2 min CN=94 Runoff=1.21 cfs 0.143 af

**Subcatchment12S:** Runoff Area=3,303 sf 100.00% Impervious Runoff Depth=8.39"  
Flow Length=114' Tc=5.0 min CN=98 Runoff=0.67 cfs 0.053 af

**Pond 13P:** Peak Elev=79.03' Storage=0.000 af Inflow=0.67 cfs 0.053 af  
Outflow=0.67 cfs 0.053 af

**Link 10L:** Inflow=8.55 cfs 1.001 af  
Primary=8.55 cfs 1.001 af

**Total Runoff Area = 1.556 ac Runoff Volume = 1.054 af Average Runoff Depth = 8.13"**  
**23.08% Pervious = 0.359 ac 76.92% Impervious = 1.197 ac**

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Type III 24-hr 100-Year Rainfall=8.63"

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Page 40

**Summary for Subcatchment 10S:**

Runoff = 7.35 cfs @ 12.26 hrs, Volume= 0.857 af, Depth= 8.15"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
34,346	98	Paved parking, HSG D
185	98	Paved parking, HSG C
9,123	98	Roofs, HSG D
18	98	Roofs, HSG C
10,703	89	<50% Grass cover, Poor, HSG D
608	86	<50% Grass cover, Poor, HSG C
54,983	96	Weighted Average
11,311		20.57% Pervious Area
43,672		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	100	0.0120	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.3	54	0.0315	2.86		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.0	15	0.0200	6.36	2.22	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	424	0.0079	4.03	3.17	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
19.4	599	Total			

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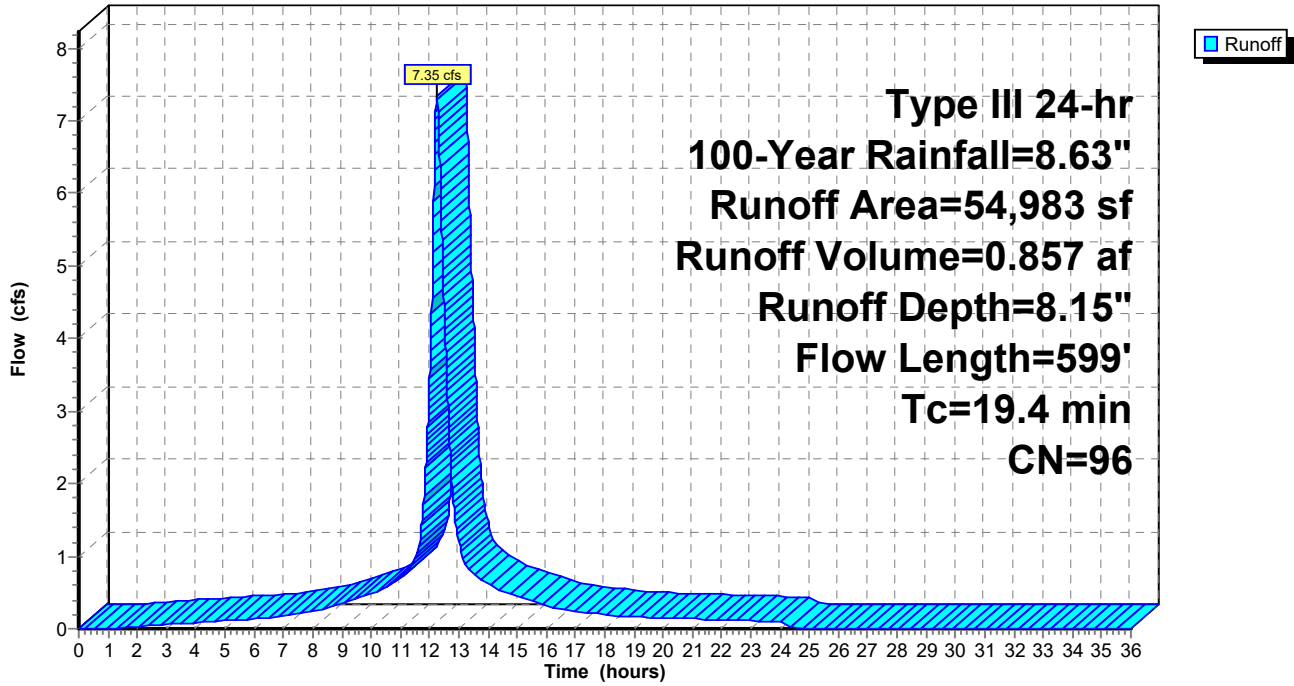
Existing Conditions  
Type III 24-hr 100-Year Rainfall=8.63"

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Page 41

**Subcatchment 10S:**

Hydrograph





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Type III 24-hr 100-Year Rainfall=8.63"

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Page 42

**Summary for Subcatchment 11S:**

Runoff = 1.21 cfs @ 12.27 hrs, Volume= 0.143 af, Depth= 7.91"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
2,480	98	Paved parking, HSG D
777	98	Paved parking, HSG C
1,483	98	Roofs, HSG D
412	98	Roofs, HSG C
3,262	89	<50% Grass cover, Poor, HSG D
1,066	86	<50% Grass cover, Poor, HSG C
9,480	94	Weighted Average
4,328		45.65% Pervious Area
5,152		54.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0100	0.09		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.26"
0.6	21	0.0060	0.54		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.0	4	0.0250	3.21		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	2	0.0250	2.55		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.9	321	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.0	14	0.0200	4.90	1.71	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Clay tile
21.2	462	Total			

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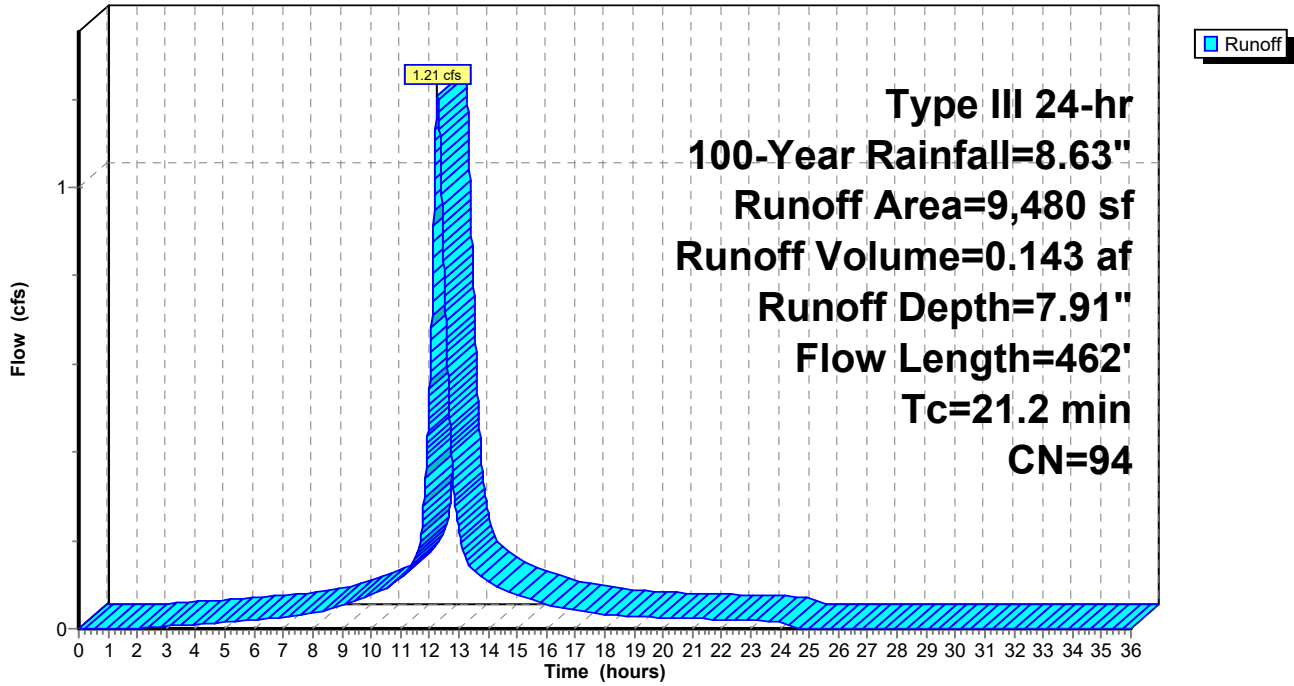
Type III 24-hr 100-Year Rainfall=8.63"

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Page 43

**Subcatchment 11S:**

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.63"

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Page 44

**Summary for Subcatchment 12S:**

Runoff = 0.67 cfs @ 12.07 hrs, Volume= 0.053 af, Depth= 8.39"  
Routed to Pond 13P :

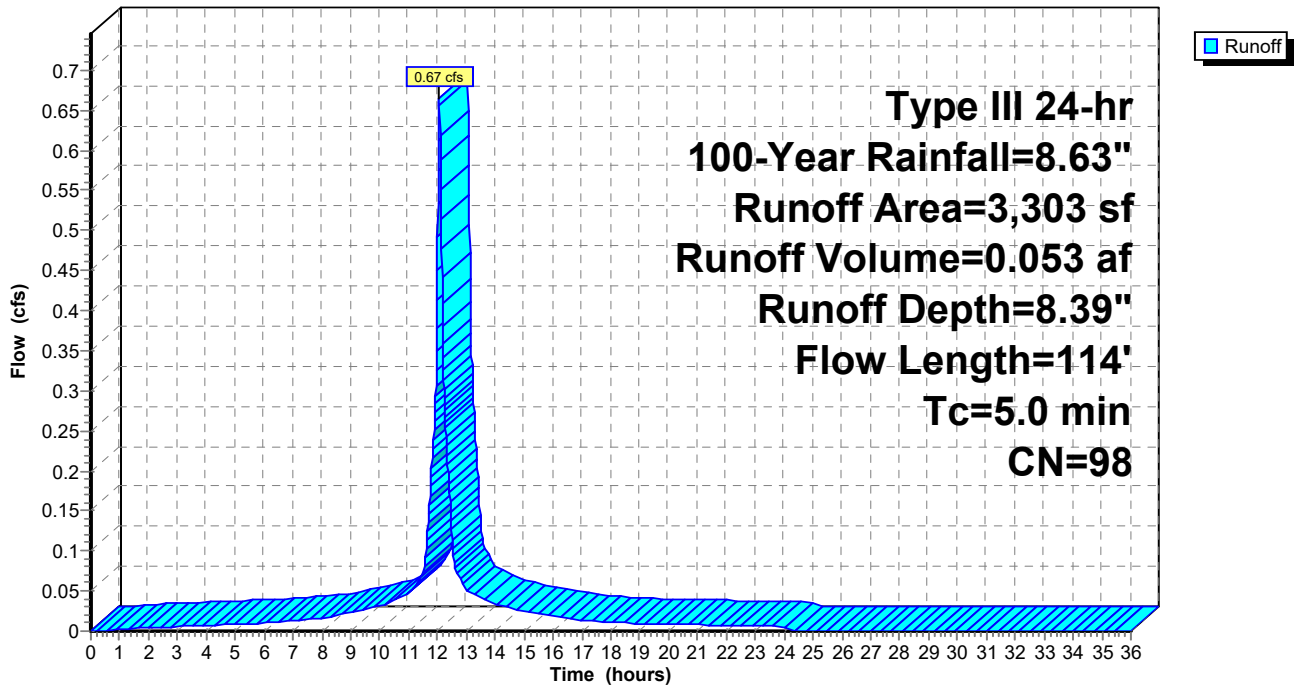
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
3,303	98	Paved parking, HSG D
3,303		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	114		0.38		Direct Entry,

**Subcatchment 12S:**

Hydrograph



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Existing Conditions  
Type III 24-hr 100-Year Rainfall=8.63"

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Page 45

**Summary for Pond 13P:**

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 8.39" for 100-Year event  
 Inflow = 0.67 cfs @ 12.07 hrs, Volume= 0.053 af  
 Outflow = 0.67 cfs @ 12.07 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.1 min  
 Discarded = 0.67 cfs @ 12.07 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 79.03' @ 12.07 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 0.1 min calculated for 0.053 af (100% of inflow)  
 Center-of-Mass det. time= 0.1 min ( 739.5 - 739.4 )

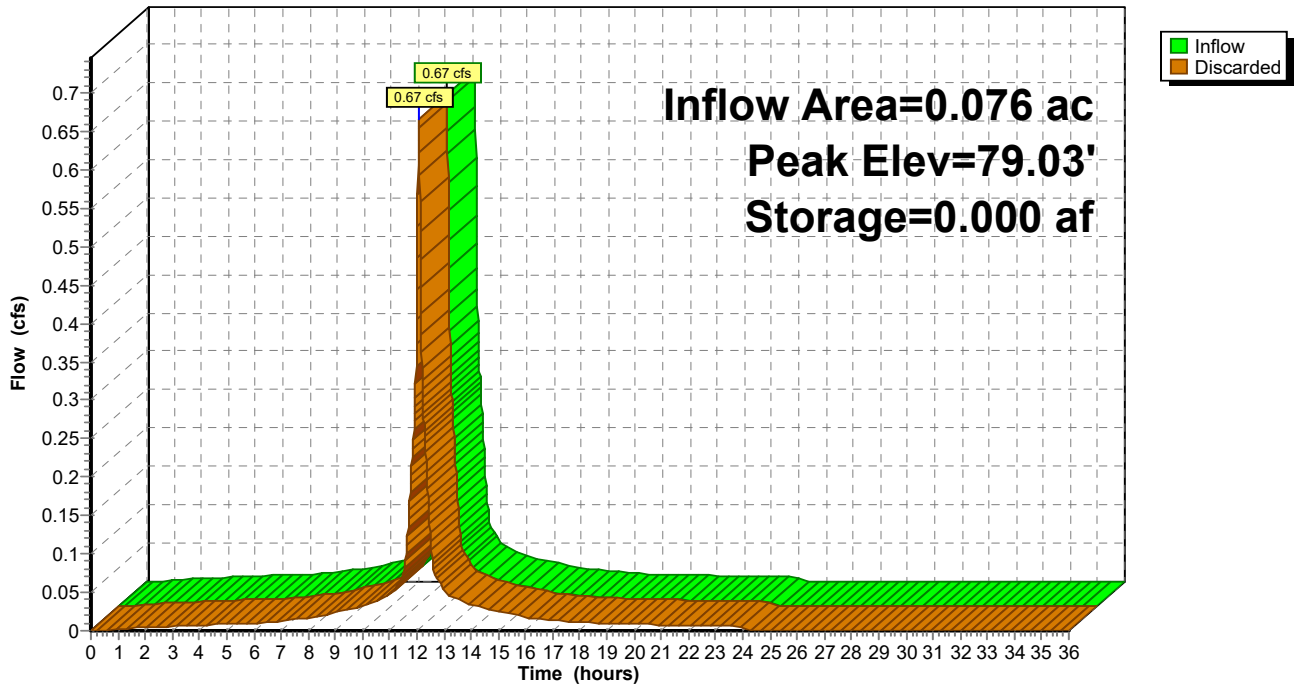
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	0.013 af	<b>12.00'D x 5.00'H Vertical Cone/Cylinder</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	79.00'	<b>1.00 cfs Exfiltration at all elevations</b>

**Discarded OutFlow** Max=1.00 cfs @ 12.07 hrs HW=79.03' (Free Discharge)  
 ←1=Exfiltration (Exfiltration Controls 1.00 cfs)

**Pond 13P:**

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.63"

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Page 46

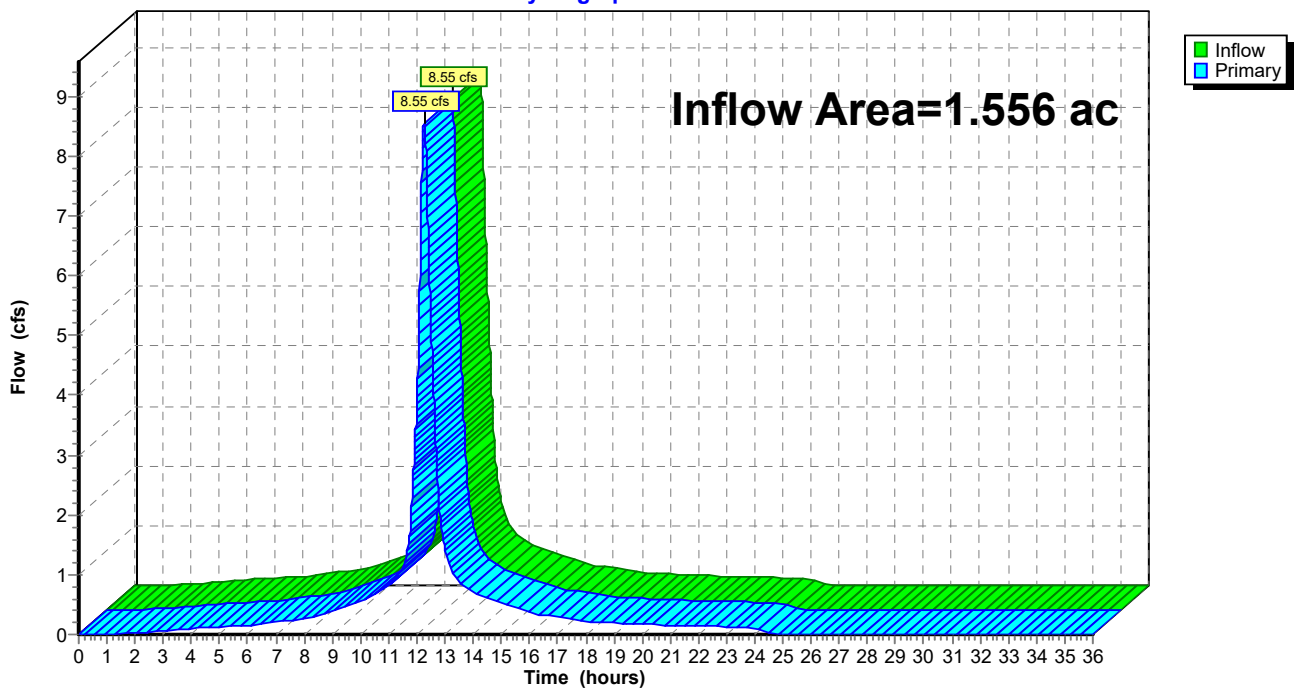
**Summary for Link 10L:**

Inflow Area = 1.556 ac, 76.92% Impervious, Inflow Depth = 7.72" for 100-Year event  
Inflow = 8.55 cfs @ 12.26 hrs, Volume= 1.001 af  
Primary = 8.55 cfs @ 12.26 hrs, Volume= 1.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph












## **Appendix B**

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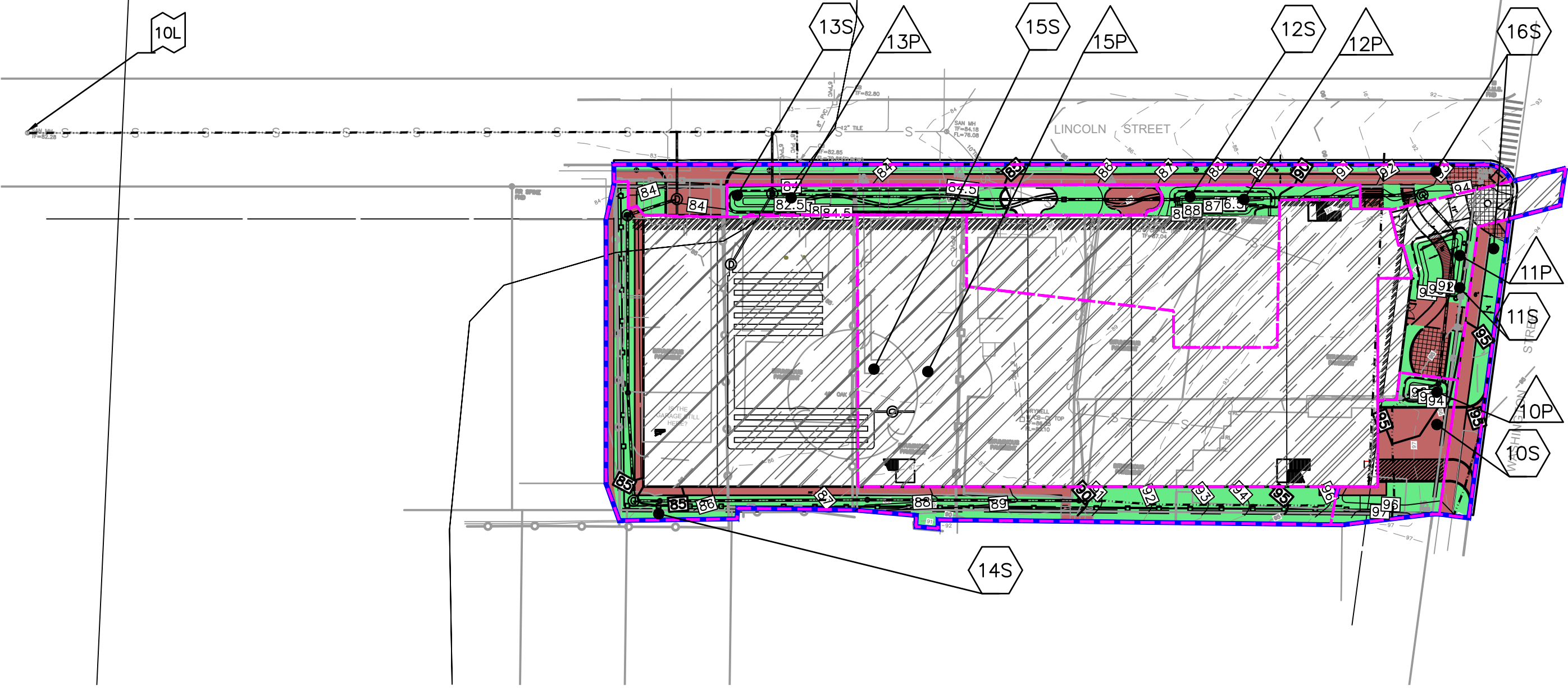
### Proposed Watershed Analysis

File: J:\DWG\2022\0997\A10\_DRA02.dwg Layout: DR-201 Plotted: 2023-04-05 7:43 AM Saved: 2023-04-05 7:43 AM User: TDavis  
PC3: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 STB/CBT: FO.STB  
LAYER STATE:

-  OVERALL WATERSHED BOUNDARY
-  SUB-WATERSHED BOUNDARY
-  TIME OF CONCENTRATION LINE
-  IMPERVIOUS SURFACE - PAVED
-  IMPERVIOUS SURFACE - ROOF
-  PERVIOUS SURFACE - GRASS
-  CATCHMENT AREA
-  POND
-  LINK

C

D



SCALE:	HORZ.: 1" = 50'
	VERT.: 1" = 25'
DATUM:	
	HORZ.: 1" = 50'
	VERT.: 1" = 25'
GRAPHIC SCALE	

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MANCHESTER, CONNECTICUT 06040  
860.646.2469  
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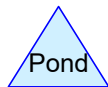
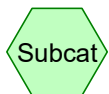
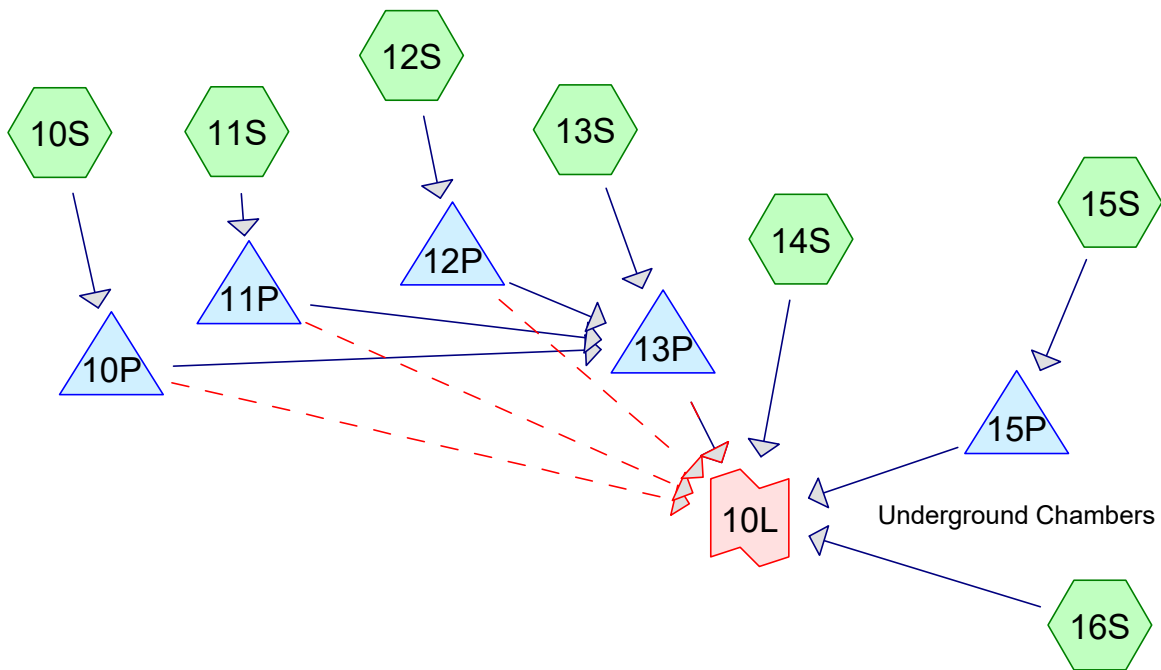
CONNECTICUT

LAZ PARKING REALITY INVESTORS  
PROPOSED WATERSHED AREAS  
WASHINGTON & LINCOLN GARAGE

HARTFORD

PROJ. No.: 20220997.A10  
DATE: APRIL 2023

DR-201



**Routing Diagram for 20220997.A10\_PROPOSED**  
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Page 2

**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.65	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.26	2
3	10-Year	Type III 24-hr		Default	24.00	1	4.86	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.11	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.63	2

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Page 3

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.023	86	<50% Grass cover, Poor, HSG C (13S, 14S, 16S)
0.273	89	<50% Grass cover, Poor, HSG D (10S, 11S, 12S, 13S, 14S, 16S)
0.767	98	Roofs, HSG D (11S, 12S, 15S)
0.029	98	Unconnected pavement, HSG C (14S, 16S)
0.187	98	Unconnected pavement, HSG D (10S, 11S, 13S, 14S, 16S)
0.014	98	Unconnected roofs, HSG C (14S)
0.272	98	Unconnected roofs, HSG D (14S)
<b>1.565</b>	<b>96</b>	<b>TOTAL AREA</b>

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Page 4

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.065	HSG C	13S, 14S, 16S
1.499	HSG D	10S, 11S, 12S, 13S, 14S, 15S, 16S
0.000	Other	
<b>1.565</b>		<b>TOTAL AREA</b>

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**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.023	0.273	0.000	0.296	<50% Grass cover, Poor	10S, 11S, 12S, 13S, 14S, 16S
0.000	0.000	0.000	0.767	0.000	0.767	Roofs	11S, 12S, 15S
0.000	0.000	0.029	0.187	0.000	0.215	Unconnected pavement	10S, 11S, 13S, 14S, 16S
0.000	0.000	0.014	0.272	0.000	0.287	Unconnected roofs	14S
<b>0.000</b>	<b>0.000</b>	<b>0.065</b>	<b>1.499</b>	<b>0.000</b>	<b>1.565</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	14S	0.00	0.00	399.0	0.0251	0.013	0.0	12.0	0.0
2	14S	0.00	0.00	300.0	0.0080	0.013	0.0	12.0	0.0
3	16S	0.00	0.00	15.0	0.0100	0.010	0.0	8.0	0.0
4	16S	0.00	0.00	430.0	0.0080	0.013	0.0	12.0	0.0
5	10P	89.60	88.90	74.0	0.0095	0.013	0.0	12.0	0.0
6	11P	88.90	84.50	136.3	0.0323	0.013	0.0	12.0	0.0
7	12P	84.50	84.00	92.5	0.0054	0.013	0.0	12.0	0.0
8	13P	77.75	76.50	28.6	0.0437	0.013	0.0	8.0	0.0
9	15P	79.00	78.00	32.0	0.0313	0.012	0.0	12.0	0.0

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Type III 24-hr 1-Year Rainfall=2.65"

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Page 7

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S:** Runoff Area=2,542 sf 48.39% Impervious Runoff Depth=1.92"  
 Tc=5.0 min CN=93 Runoff=0.13 cfs 0.009 af

**Subcatchment 11S:** Runoff Area=4,053 sf 82.33% Impervious Runoff Depth=2.21"  
 Tc=5.0 min CN=96 Runoff=0.24 cfs 0.017 af

**Subcatchment 12S:** Runoff Area=7,755 sf 86.25% Impervious Runoff Depth=2.31"  
 Tc=5.0 min CN=97 Runoff=0.46 cfs 0.034 af

**Subcatchment 13S:** Runoff Area=2,785 sf 23.30% Impervious Runoff Depth=1.67"  
 Tc=5.0 min UI Adjusted CN=90 Runoff=0.13 cfs 0.009 af

**Subcatchment 14S:** Runoff Area=19,778 sf 72.49% Impervious Runoff Depth=2.11"  
 Flow Length=820' Tc=8.9 min CN=95 Runoff=0.98 cfs 0.080 af

**Subcatchment 15S:** Runoff Area=24,255 sf 100.00% Impervious Runoff Depth=2.42"  
 Tc=5.0 min CN=98 Runoff=1.48 cfs 0.112 af

**Subcatchment 16S:** Runoff Area=6,983 sf 68.18% Impervious Runoff Depth=2.11"  
 Flow Length=938' Tc=7.4 min CN=95 Runoff=0.36 cfs 0.028 af

**Pond 10P:** Peak Elev=93.81' Storage=269 cf Inflow=0.13 cfs 0.009 af  
 Primary=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

**Pond 11P:** Peak Elev=92.59' Storage=746 cf Inflow=0.24 cfs 0.017 af  
 Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

**Pond 12P:** Peak Elev=87.88' Storage=518 cf Inflow=0.46 cfs 0.034 af  
 Primary=0.46 cfs 0.023 af Secondary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.023 af

**Pond 13P:** Peak Elev=83.72' Storage=749 cf Inflow=0.59 cfs 0.035 af  
 Primary=0.06 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.018 af

**Pond 15P: Underground Chambers** Peak Elev=80.07' Storage=886 cf Inflow=1.48 cfs 0.112 af  
 Outflow=0.50 cfs 0.112 af

**Link 10L:** Inflow=1.79 cfs 0.239 af  
 Primary=1.79 cfs 0.239 af

**Total Runoff Area = 1.565 ac Runoff Volume = 0.290 af Average Runoff Depth = 2.22"**  
**18.92% Pervious = 0.296 ac 81.08% Impervious = 1.269 ac**

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Type III 24-hr 1-Year Rainfall=2.65"

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Page 8

**Summary for Subcatchment 10S:**

Runoff = 0.13 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.92"  
Routed to Pond 10P :

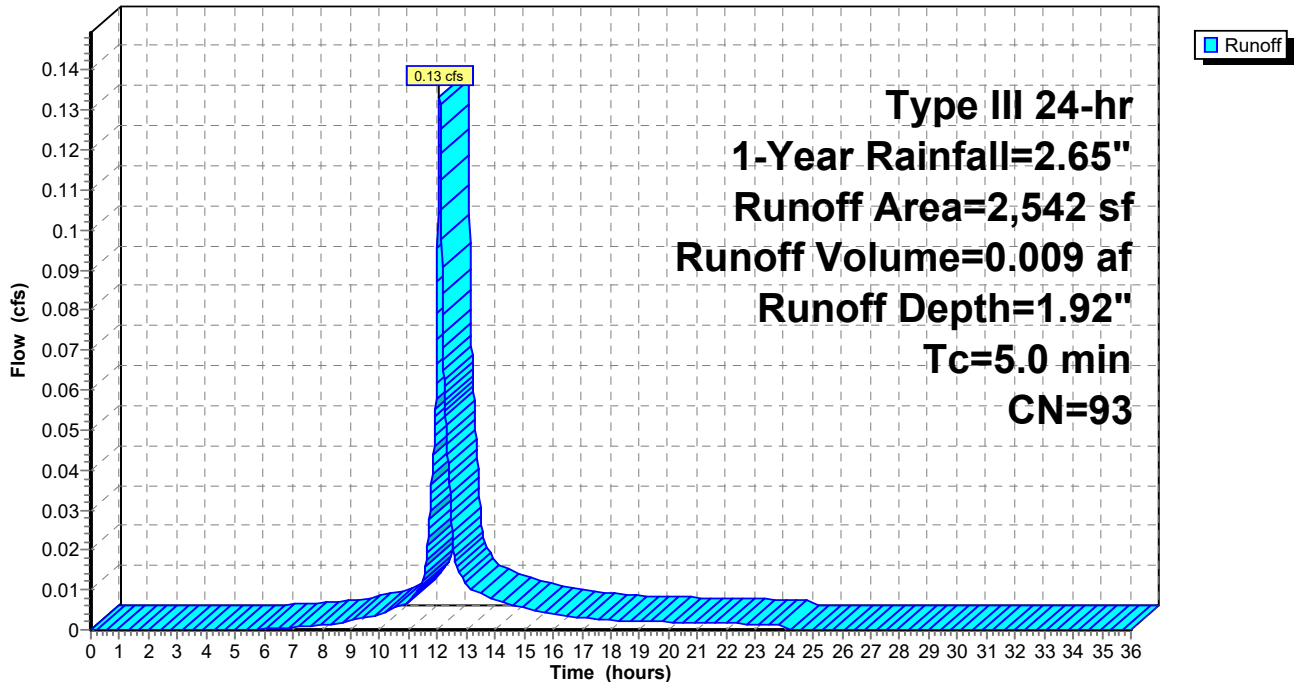
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
1,312	89	<50% Grass cover, Poor, HSG D
1,230	98	Unconnected pavement, HSG D
2,542	93	Weighted Average
1,312		51.61% Pervious Area
1,230		48.39% Impervious Area
1,230		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 10S:**

Hydrograph



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Page 9

**Summary for Subcatchment 11S:**

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 2.21"  
Routed to Pond 11P :

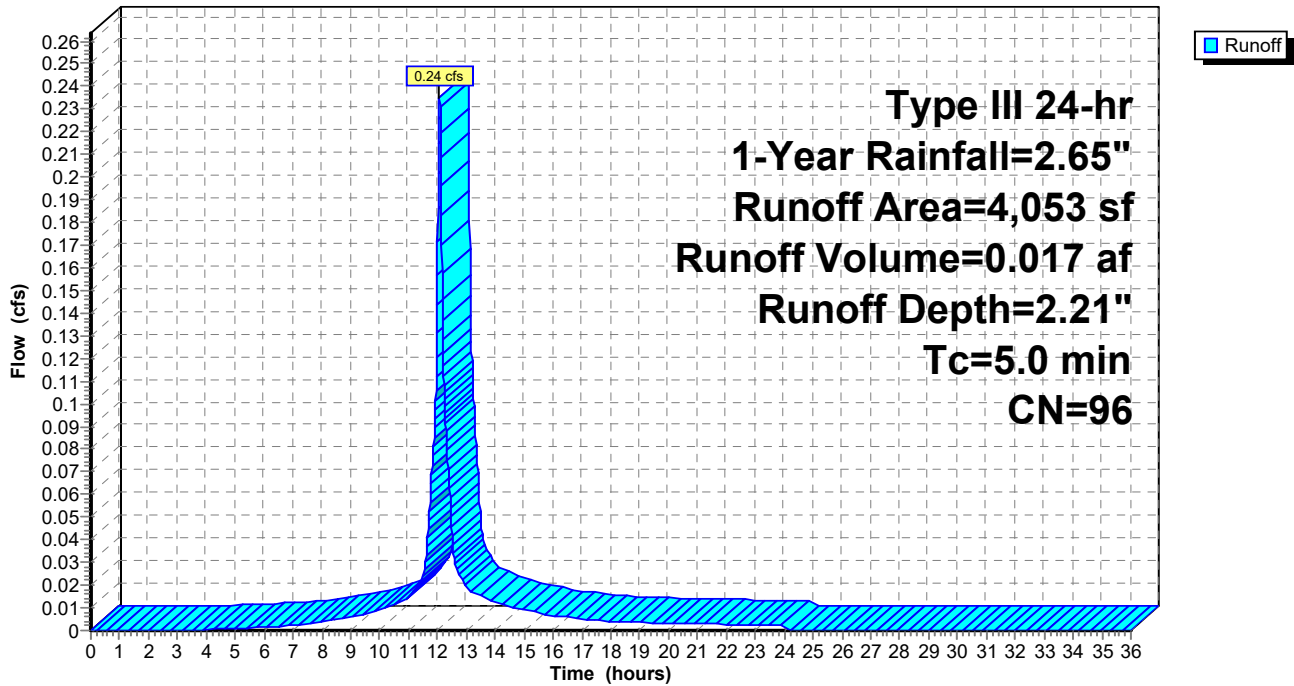
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
716	89	<50% Grass cover, Poor, HSG D
882	98	Unconnected pavement, HSG D
2,455	98	Roofs, HSG D
4,053	96	Weighted Average
716		17.67% Pervious Area
3,337		82.33% Impervious Area
882		26.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 11S:**

Hydrograph





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Page 10

**Summary for Subcatchment 12S:**

Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.034 af, Depth= 2.31"  
Routed to Pond 12P :

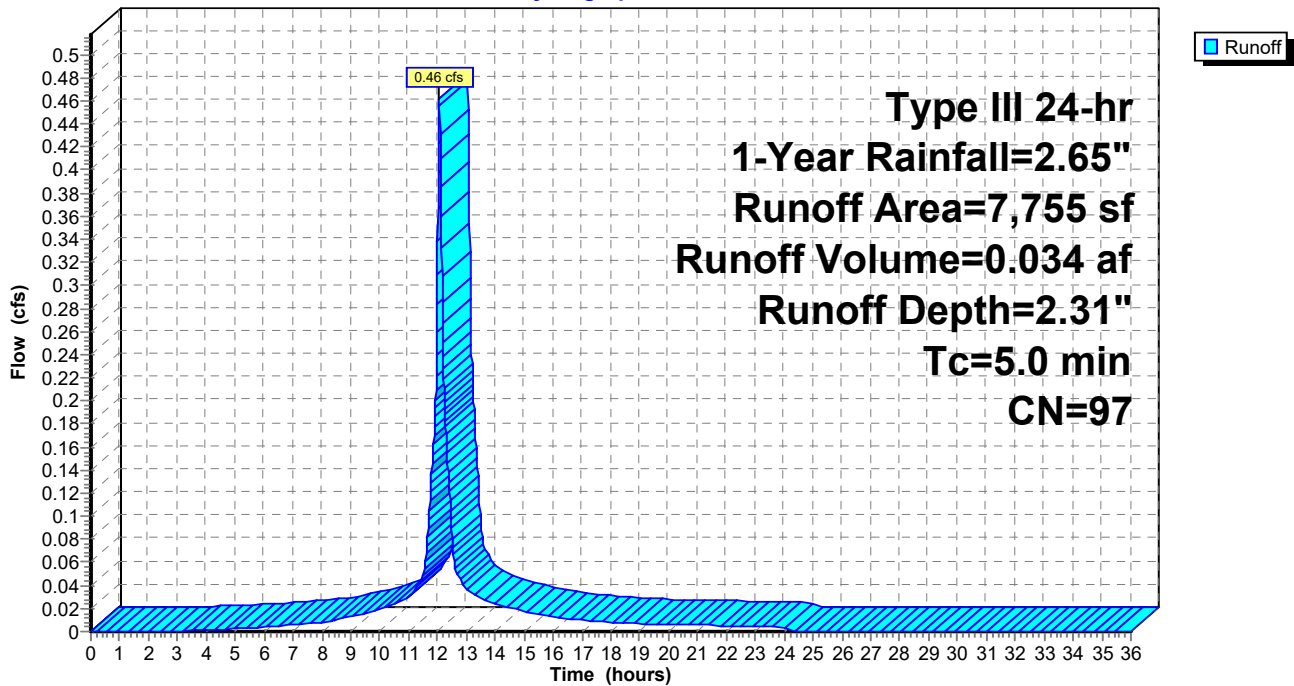
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
1,066	89	<50% Grass cover, Poor, HSG D
6,689	98	Roofs, HSG D
7,755	97	Weighted Average
1,066		13.75% Pervious Area
6,689		86.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 12S:**

Hydrograph



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Page 11

**Summary for Subcatchment 13S:**

Runoff = 0.13 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 1.67"  
Routed to Pond 13P :

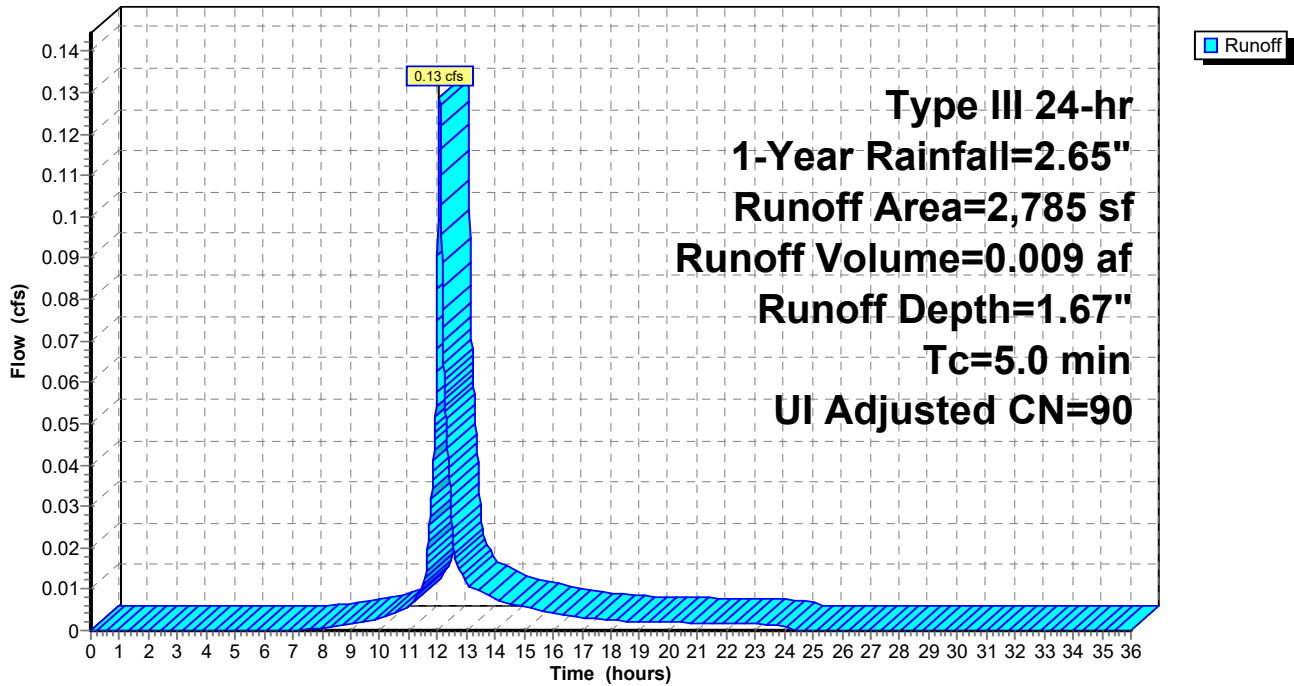
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Adj	Description
1,785	89		<50% Grass cover, Poor, HSG D
649	98		Unconnected pavement, HSG D
351	86		<50% Grass cover, Poor, HSG C
2,785	91	90	Weighted Average, UI Adjusted
2,136			76.70% Pervious Area
649			23.30% Impervious Area
649			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 13S:**

Hydrograph



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Page 12

**Summary for Subcatchment 14S:**

Runoff = 0.98 cfs @ 12.12 hrs, Volume= 0.080 af, Depth= 2.11"  
 Routed to Link 10L :

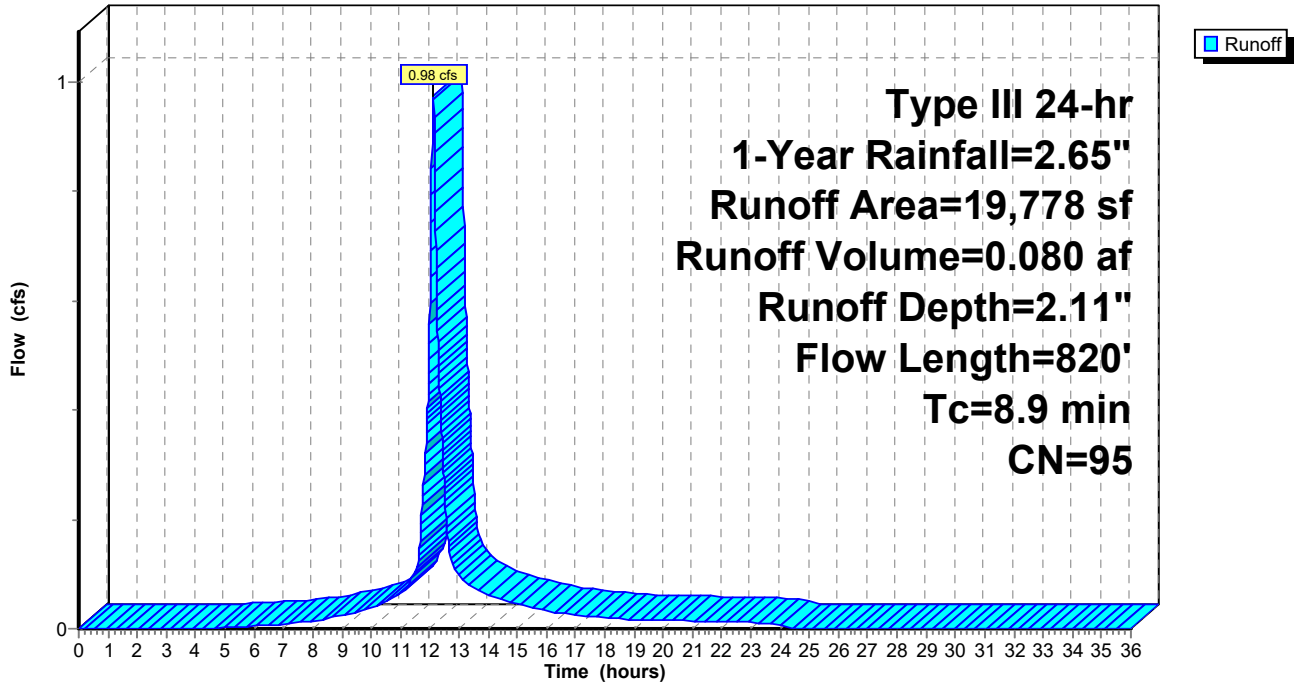
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
5,172	89	<50% Grass cover, Poor, HSG D
1,767	98	Unconnected pavement, HSG D
269	86	<50% Grass cover, Poor, HSG C
87	98	Unconnected pavement, HSG C
11,870	98	Unconnected roofs, HSG D
613	98	Unconnected roofs, HSG C
19,778	95	Weighted Average
5,441		27.51% Pervious Area
14,337		72.49% Impervious Area
14,337		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0510	0.25		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
0.1	21	0.0669	3.88		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.9	399	0.0251	7.19	5.64	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.2	300	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	820	Total			

Subcatchment 14S:

Hydrograph



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Page 14

**Summary for Subcatchment 15S:**

Runoff = 1.48 cfs @ 12.07 hrs, Volume= 0.112 af, Depth= 2.42"  
Routed to Pond 15P : Underground Chambers

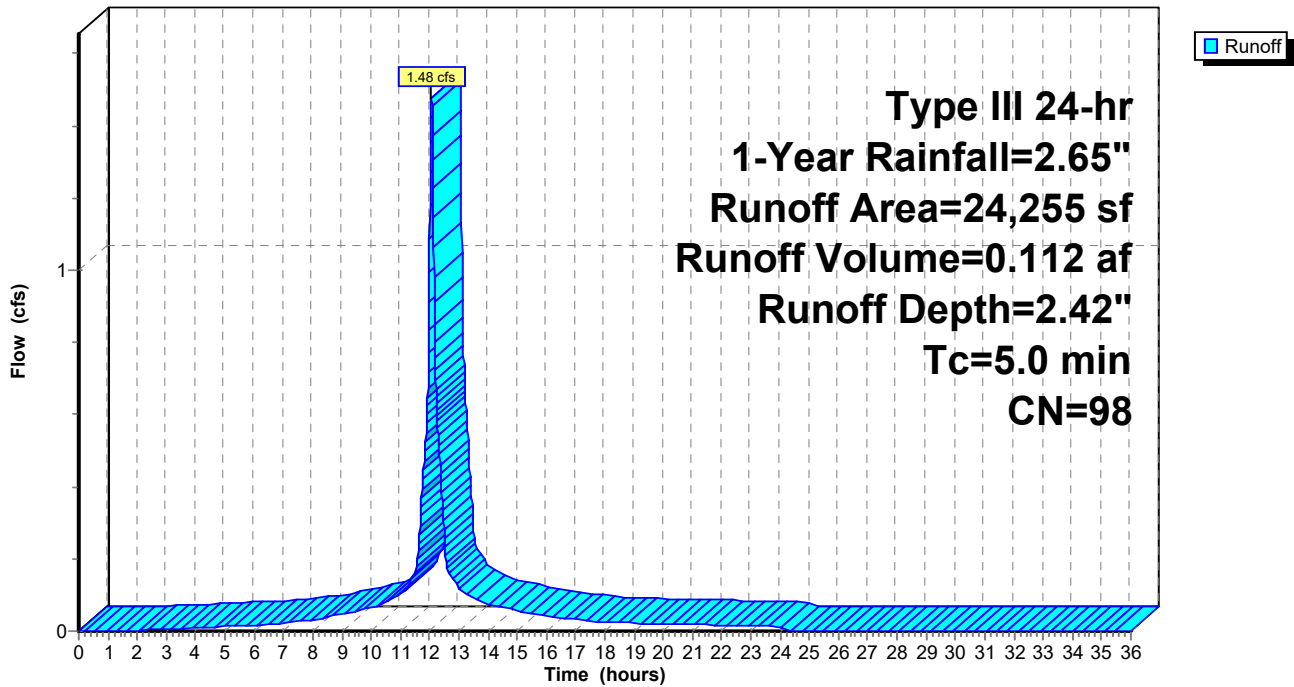
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
24,255	98	Roofs, HSG D
24,255		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 15S:**

Hydrograph



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Page 15

**Summary for Subcatchment 16S:**

Runoff = 0.36 cfs @ 12.10 hrs, Volume= 0.028 af, Depth= 2.11"  
 Routed to Link 10L :

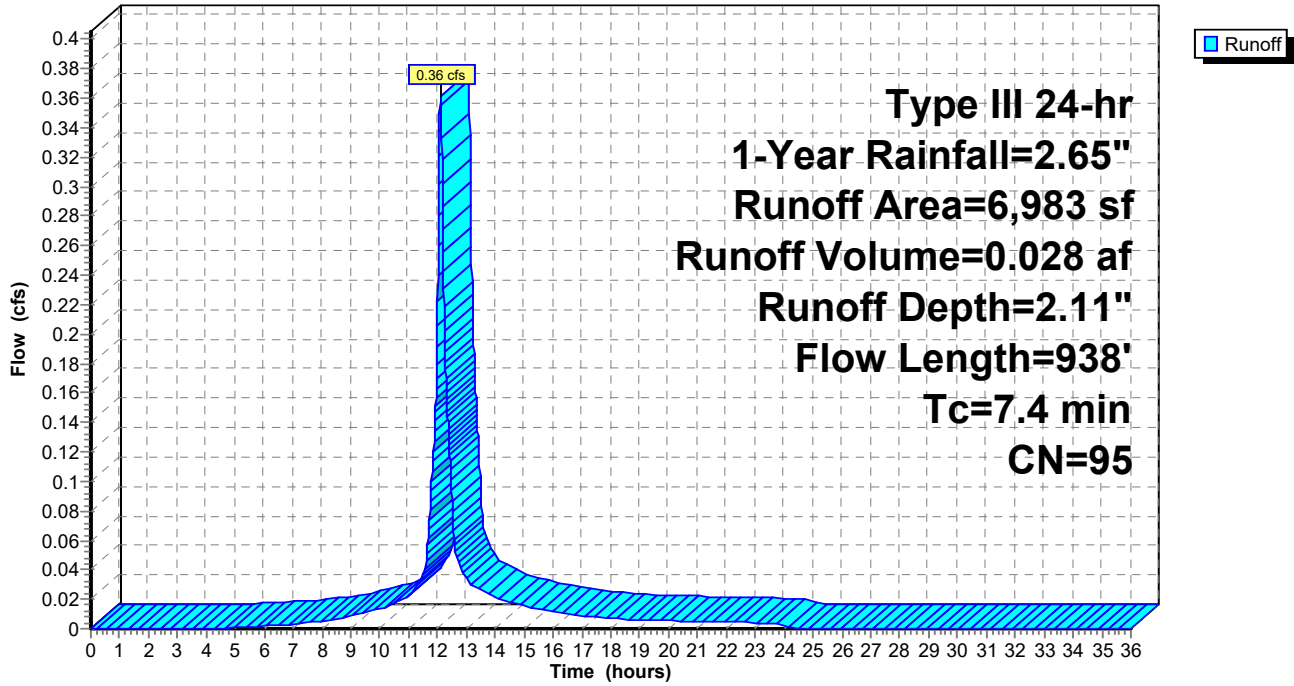
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 1-Year Rainfall=2.65"

Area (sf)	CN	Description
1,854	89	<50% Grass cover, Poor, HSG D
3,603	98	Unconnected pavement, HSG D
368	86	<50% Grass cover, Poor, HSG C
1,158	98	Unconnected pavement, HSG C
6,983	95	Weighted Average
2,222		31.82% Pervious Area
4,761		68.18% Impervious Area
4,761		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	13	0.0115	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
1.2	87	0.0161	1.24		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.26"
1.9	393	0.0294	3.48		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.1	15	0.0100	4.50	1.57	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	430	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
7.4	938	Total			

Subcatchment 16S:

Hydrograph



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Type III 24-hr 1-Year Rainfall=2.65"

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Page 17

**Summary for Pond 10P:**

Inflow Area = 0.058 ac, 48.39% Impervious, Inflow Depth = 1.92" for 1-Year event  
 Inflow = 0.13 cfs @ 12.07 hrs, Volume= 0.009 af  
 Outflow = 0.01 cfs @ 12.97 hrs, Volume= 0.003 af, Atten= 91%, Lag= 54.1 min  
 Primary = 0.01 cfs @ 12.97 hrs, Volume= 0.003 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.81' @ 12.97 hrs Surf.Area= 159 sf Storage= 269 cf

Plug-Flow detention time= 323.2 min calculated for 0.003 af (34% of inflow)  
 Center-of-Mass det. time= 191.2 min ( 989.6 - 798.4 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	457 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	180	53.0	0.0	0	0	180
90.00	180	53.0	20.0	4	4	185
91.00	180	53.0	20.0	36	40	238
92.00	19	24.8	100.0	86	125	417
93.00	84	38.6	100.0	48	173	494
94.00	180	53.0	100.0	129	302	608
94.80	207	56.1	100.0	155	457	659

Device	Routing	Invert	Outlet Devices
#1	Primary	89.60'	<b>12.0" Round Culvert</b> L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 89.60' / 88.90' S= 0.0095 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.70'	<b>66.2' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.01 cfs @ 12.97 hrs HW=93.81' TW=83.72' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.01 cfs of 6.37 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.27 fps)

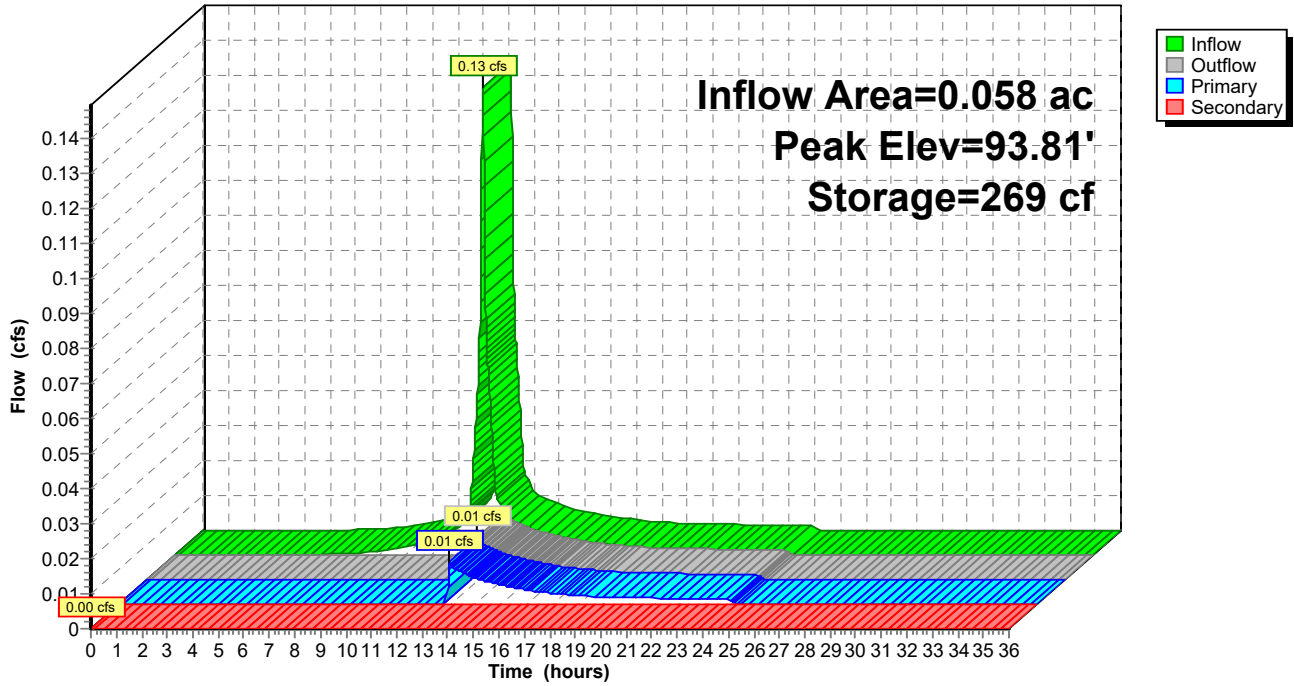
**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



**Pond 10P:**

Hydrograph



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Page 19

**Summary for Pond 11P:**

Inflow Area = 0.093 ac, 82.33% Impervious, Inflow Depth = 2.21" for 1-Year event  
 Inflow = 0.24 cfs @ 12.07 hrs, Volume= 0.017 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 92.59' @ 24.29 hrs Surf.Area= 356 sf Storage= 746 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	1,731 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	607	97.0	0.0	0	0	607
90.00	607	97.0	20.0	12	12	617
91.00	607	97.0	20.0	121	134	714
92.00	270	67.0	100.0	427	561	1,114
93.00	422	82.0	100.0	343	904	1,307
94.00	607	97.0	100.0	512	1,416	1,538
94.50	656	100.0	100.0	316	1,731	1,606

Device	Routing	Invert	Outlet Devices
#1	Primary	88.90'	<b>12.0" Round Culvert</b> L= 136.3' Ke= 0.500 Inlet / Outlet Invert= 88.90' / 84.50' S= 0.0323 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.40'	<b>86.0' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=82.50' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.00 cfs of 2.67 cfs potential flow)

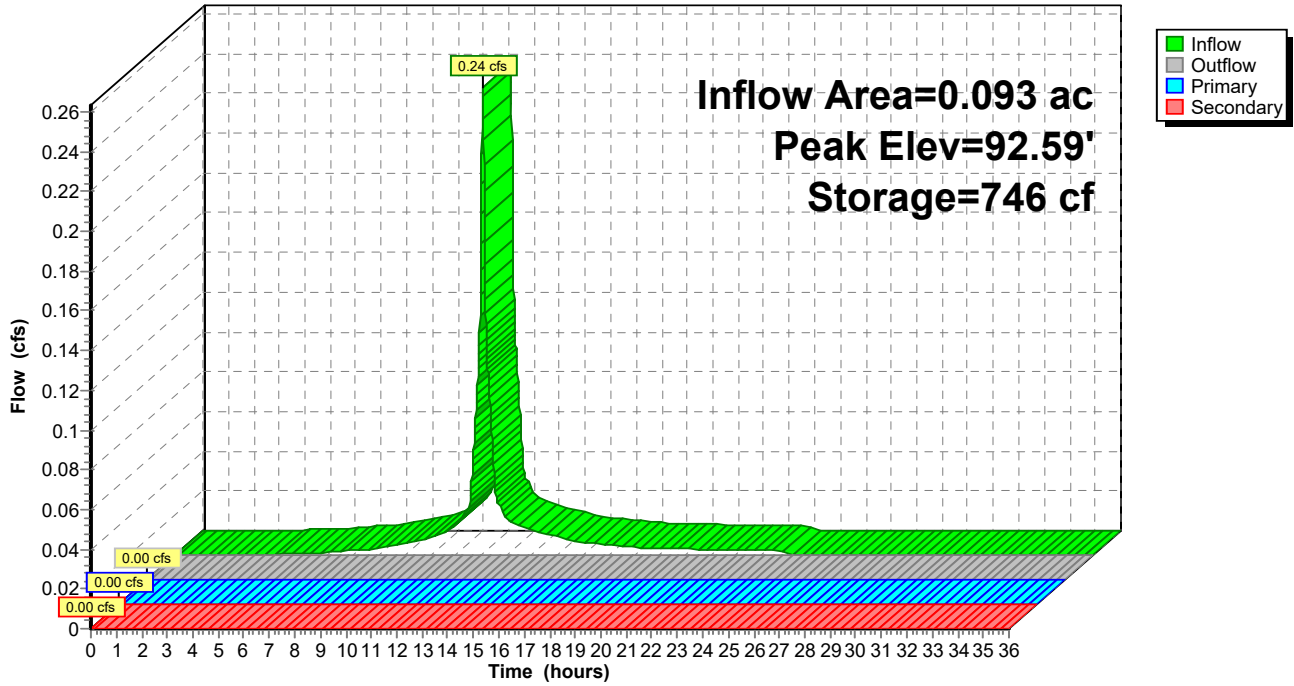
↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Pond 11P:**

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Page 21

**Summary for Pond 12P:**

Inflow Area = 0.178 ac, 86.25% Impervious, Inflow Depth = 2.31" for 1-Year event  
 Inflow = 0.46 cfs @ 12.07 hrs, Volume= 0.034 af  
 Outflow = 0.46 cfs @ 12.08 hrs, Volume= 0.023 af, Atten= 1%, Lag= 0.6 min  
 Primary = 0.46 cfs @ 12.08 hrs, Volume= 0.023 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 87.88' @ 12.08 hrs Surf.Area= 316 sf Storage= 518 cf

Plug-Flow detention time= 174.6 min calculated for 0.023 af (67% of inflow)  
 Center-of-Mass det. time= 78.4 min ( 848.4 - 770.1 )

Volume	Invert	Avail.Storage	Storage Description			
#1	84.40'	668 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.40	343	102.0	0.0	0	0	343
84.50	343	102.0	20.0	7	7	353
85.50	343	102.0	20.0	69	75	455
86.50	68	59.0	100.0	188	263	1,012
87.00	151	84.0	100.0	53	317	1,299
88.00	343	102.0	100.0	241	557	1,581
88.30	394	104.0	100.0	110	668	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	84.50'	<b>12.0" Round Culvert</b> L= 92.5' Ke= 0.500 Inlet / Outlet Invert= 84.50' / 84.00' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	88.20'	<b>114.5' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.46 cfs @ 12.08 hrs HW=87.88' TW=83.09' (Dynamic Tailwater)

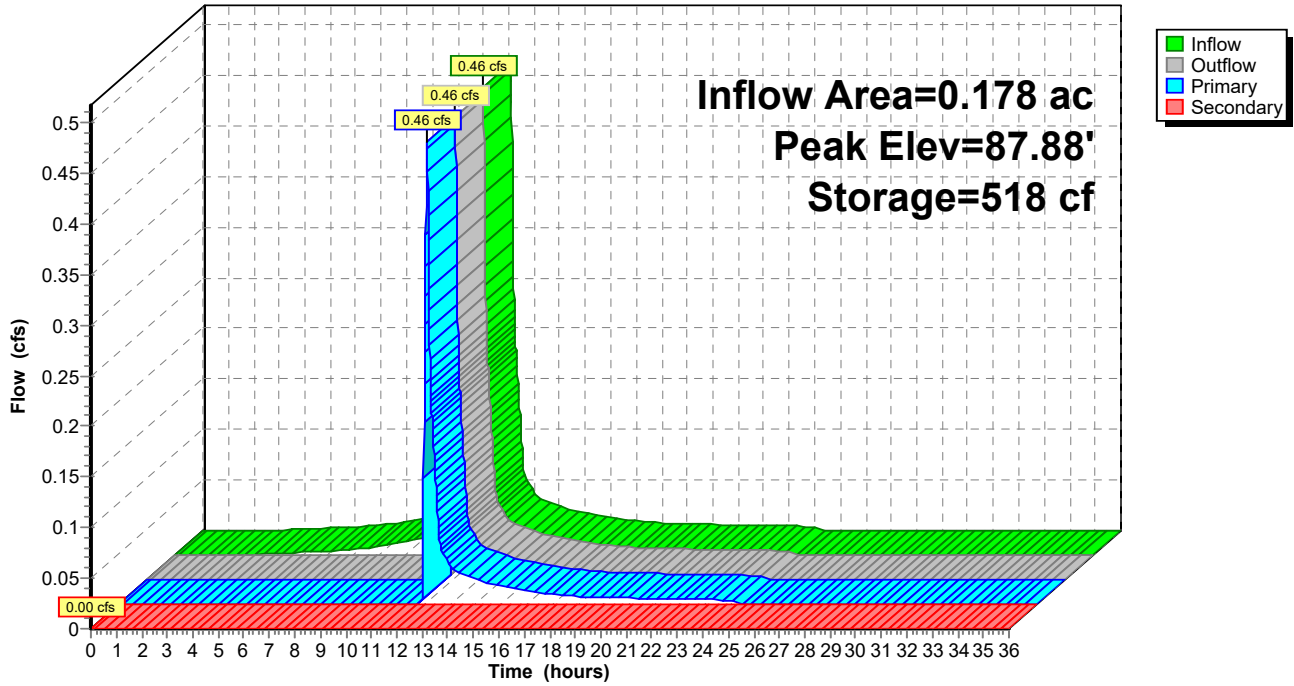
- ↑1=Culvert (Passes 0.46 cfs of 5.10 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 0.46 cfs @ 0.92 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.40' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 12P:**

Hydrograph



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Page 23

**Summary for Pond 13P:**

Inflow Area = 0.393 ac, 69.48% Impervious, Inflow Depth = 1.07" for 1-Year event  
 Inflow = 0.59 cfs @ 12.08 hrs, Volume= 0.035 af  
 Outflow = 0.06 cfs @ 12.99 hrs, Volume= 0.018 af, Atten= 89%, Lag= 54.9 min  
 Primary = 0.06 cfs @ 12.99 hrs, Volume= 0.018 af  
 Routed to Link 10L :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 83.72' @ 12.99 hrs Surf.Area= 892 sf Storage= 749 cf

Plug-Flow detention time= 249.9 min calculated for 0.018 af (52% of inflow)  
 Center-of-Mass det. time= 125.0 min ( 977.4 - 852.4 )

Volume	Invert	Avail.Storage	Storage Description		
#1	82.50'	1,345 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.50	336	217.5	0	0	336
83.00	574	230.8	225	225	824
84.00	1,034	240.8	793	1,018	1,267
84.30	1,152	243.1	328	1,345	1,381

Device	Routing	Invert	Outlet Devices
#1	Primary	77.75'	<b>8.0" Round Culvert</b> L= 28.6' Ke= 0.500 Inlet / Outlet Invert= 77.75' / 76.50' S= 0.0437 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf
#2	Device 1	83.70'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	84.20'	<b>243.1' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.06 cfs @ 12.99 hrs HW=83.72' TW=0.00' (Dynamic Tailwater)

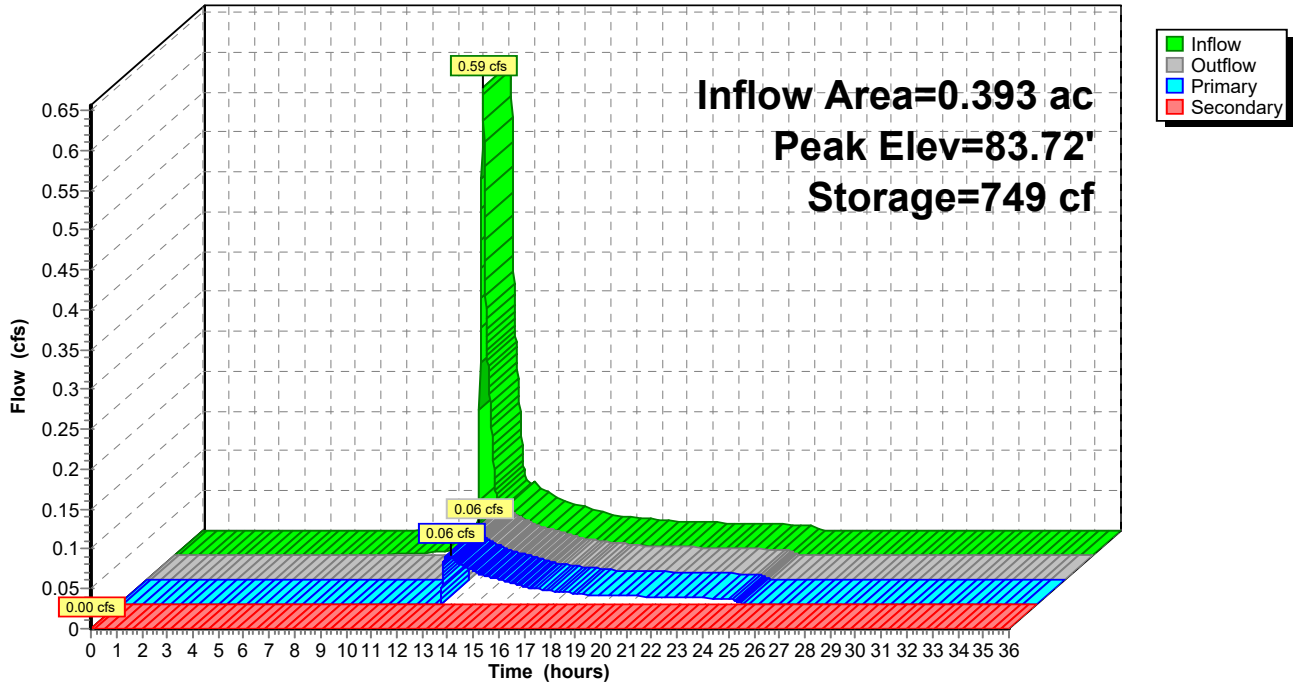
↑**1=Culvert** (Passes 0.06 cfs of 3.99 cfs potential flow)  
 ↑**2=Orifice/Grate** (Weir Controls 0.06 cfs @ 0.47 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=82.50' TW=0.00' (Dynamic Tailwater)

↑**3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Pond 13P:**

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Page 25

**Summary for Pond 15P: Underground Chambers**

Inflow Area = 0.557 ac, 100.00% Impervious, Inflow Depth = 2.42" for 1-Year event  
 Inflow = 1.48 cfs @ 12.07 hrs, Volume= 0.112 af  
 Outflow = 0.50 cfs @ 12.33 hrs, Volume= 0.112 af, Atten= 66%, Lag= 15.4 min  
 Primary = 0.50 cfs @ 12.33 hrs, Volume= 0.112 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 80.07' @ 12.33 hrs Surf.Area= 3,214 sf Storage= 886 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= 9.7 min ( 769.3 - 759.6 )

Volume	Invert	Avail.Storage	Storage Description
#1B	78.50'	0 cf	<b>74.75'W x 43.00'L x 4.50'H Field B</b> 14,464 cf Overall - 4,962 cf Embedded = 9,502 cf x 0.0% Voids
#2B	79.00'	3,976 cf	<b>ADS N-12 36" x 28 Inside #1</b> Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf 28 Chambers in 14 Rows
		3,976 cf	Total Available Storage

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	<b>12.0" Round Culvert</b> L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 79.00' / 78.00' S= 0.0313 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	79.00'	<b>4.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	82.00'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.50 cfs @ 12.33 hrs HW=80.07' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 0.50 cfs of 2.86 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.50 cfs @ 4.53 fps)
- ↑ **3=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)



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Page 26

**Pond 15P: Underground Chambers - Chamber Wizard Field B**

**Chamber Model = ADS N-12 36" (ADS N-12@ Pipe)**

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long = 40.00' Row Length +18.0" End Stone x 2 = 43.00' Base Length

14 Rows x 42.0" Wide + 21.0" Spacing x 13 + 18.0" Side Stone x 2 = 74.75' Base Width

6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

28 Chambers x 142.0 cf = 3,976.0 cf Chamber Storage

28 Chambers x 177.2 cf = 4,962.2 cf Displacement

14,464.1 cf Field - 4,962.2 cf Chambers = 9,501.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,976.0 cf = 0.091 af

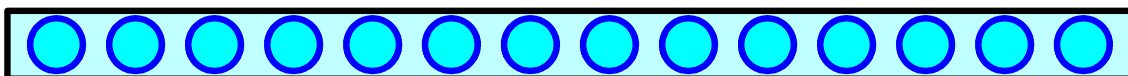
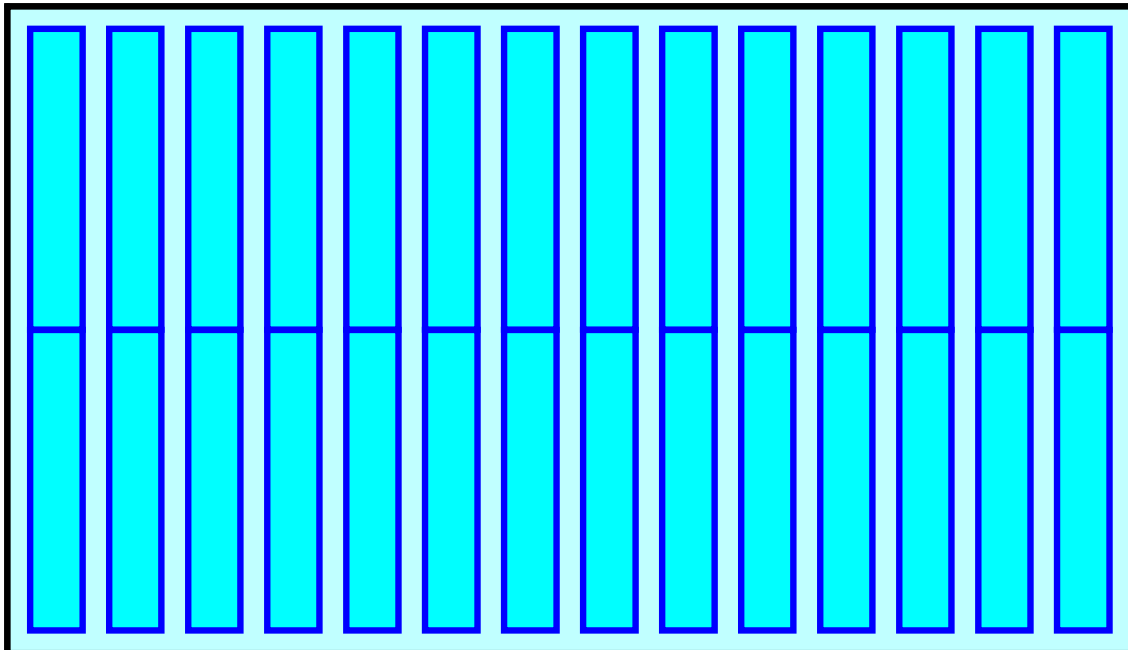
Overall Storage Efficiency = 27.5%

Overall System Size = 43.00' x 74.75' x 4.50'

28 Chambers

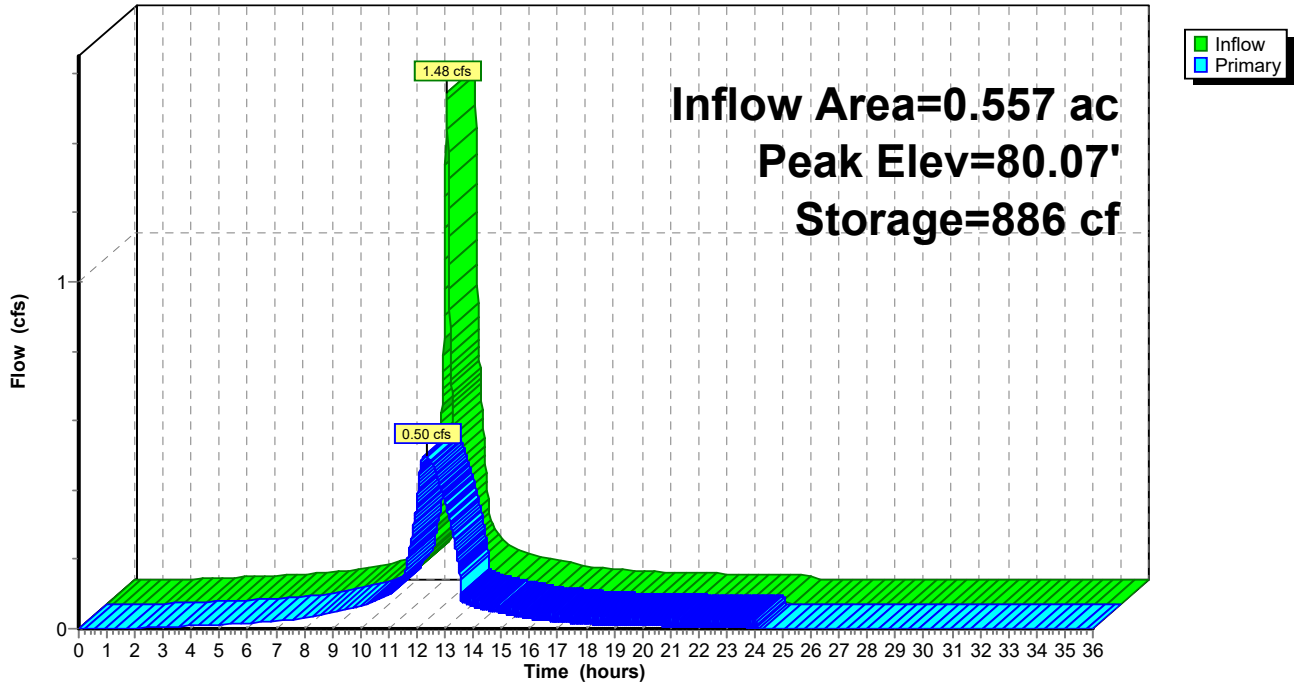
535.7 cy Field

351.9 cy Stone



### Pond 15P: Underground Chambers

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Page 28

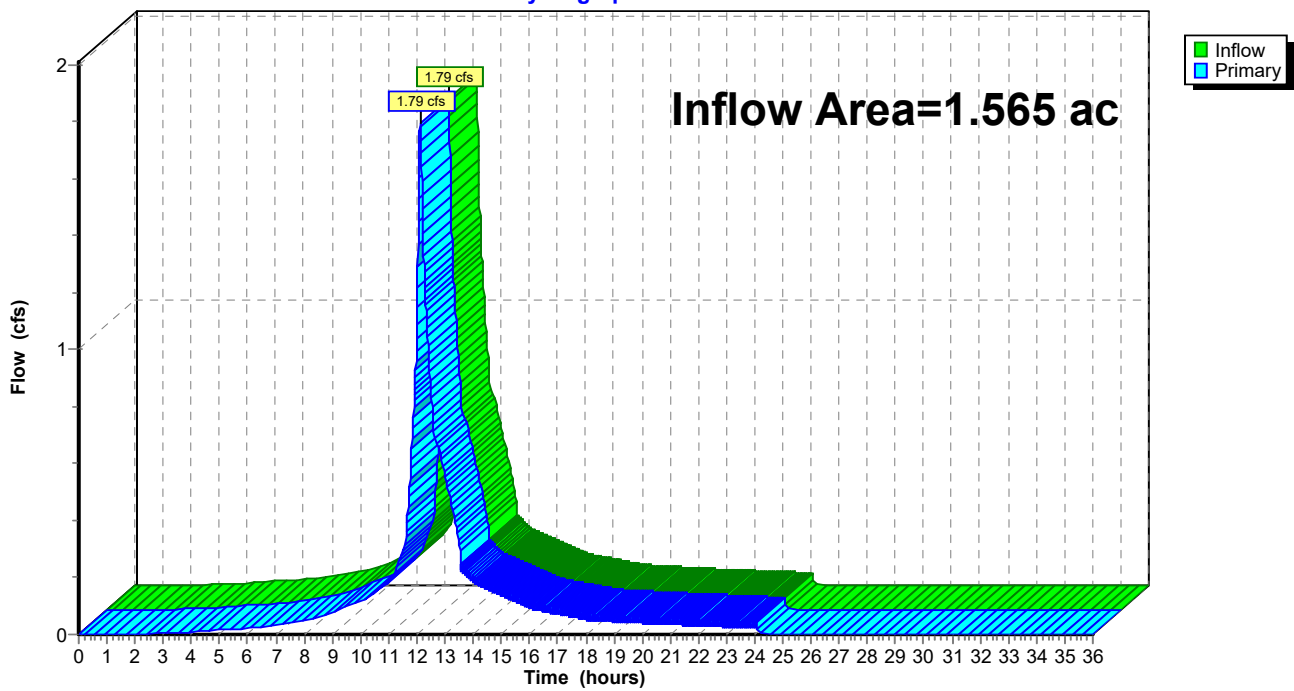
**Summary for Link 10L:**

Inflow Area = 1.565 ac, 81.08% Impervious, Inflow Depth = 1.83" for 1-Year event  
Inflow = 1.79 cfs @ 12.12 hrs, Volume= 0.239 af  
Primary = 1.79 cfs @ 12.12 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

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Page 29

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S:** Runoff Area=2,542 sf 48.39% Impervious Runoff Depth=2.50"  
Tc=5.0 min CN=93 Runoff=0.17 cfs 0.012 af

**Subcatchment 11S:** Runoff Area=4,053 sf 82.33% Impervious Runoff Depth=2.81"  
Tc=5.0 min CN=96 Runoff=0.30 cfs 0.022 af

**Subcatchment 12S:** Runoff Area=7,755 sf 86.25% Impervious Runoff Depth=2.92"  
Tc=5.0 min CN=97 Runoff=0.58 cfs 0.043 af

**Subcatchment 13S:** Runoff Area=2,785 sf 23.30% Impervious Runoff Depth=2.22"  
Tc=5.0 min UI Adjusted CN=90 Runoff=0.17 cfs 0.012 af

**Subcatchment 14S:** Runoff Area=19,778 sf 72.49% Impervious Runoff Depth=2.70"  
Flow Length=820' Tc=8.9 min CN=95 Runoff=1.23 cfs 0.102 af

**Subcatchment 15S:** Runoff Area=24,255 sf 100.00% Impervious Runoff Depth=3.03"  
Tc=5.0 min CN=98 Runoff=1.83 cfs 0.140 af

**Subcatchment 16S:** Runoff Area=6,983 sf 68.18% Impervious Runoff Depth=2.70"  
Flow Length=938' Tc=7.4 min CN=95 Runoff=0.46 cfs 0.036 af

**Pond 10P:** Peak Elev=93.82' Storage=272 cf Inflow=0.17 cfs 0.012 af  
Primary=0.07 cfs 0.006 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.006 af

**Pond 11P:** Peak Elev=93.10' Storage=949 cf Inflow=0.30 cfs 0.022 af  
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

**Pond 12P:** Peak Elev=87.89' Storage=521 cf Inflow=0.58 cfs 0.043 af  
Primary=0.57 cfs 0.032 af Secondary=0.00 cfs 0.000 af Outflow=0.57 cfs 0.032 af

**Pond 13P:** Peak Elev=83.77' Storage=791 cf Inflow=0.74 cfs 0.050 af  
Primary=0.36 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.033 af

**Pond 15P: Underground Chambers** Peak Elev=80.29' Storage=1,228 cf Inflow=1.83 cfs 0.140 af  
Outflow=0.56 cfs 0.140 af

**Link 10L:** Inflow=2.20 cfs 0.312 af  
Primary=2.20 cfs 0.312 af

**Total Runoff Area = 1.565 ac Runoff Volume = 0.368 af Average Runoff Depth = 2.82"**  
**18.92% Pervious = 0.296 ac 81.08% Impervious = 1.269 ac**

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Type III 24-hr 2-Year Rainfall=3.26"

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Page 30

**Summary for Subcatchment 10S:**

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 2.50"  
Routed to Pond 10P :

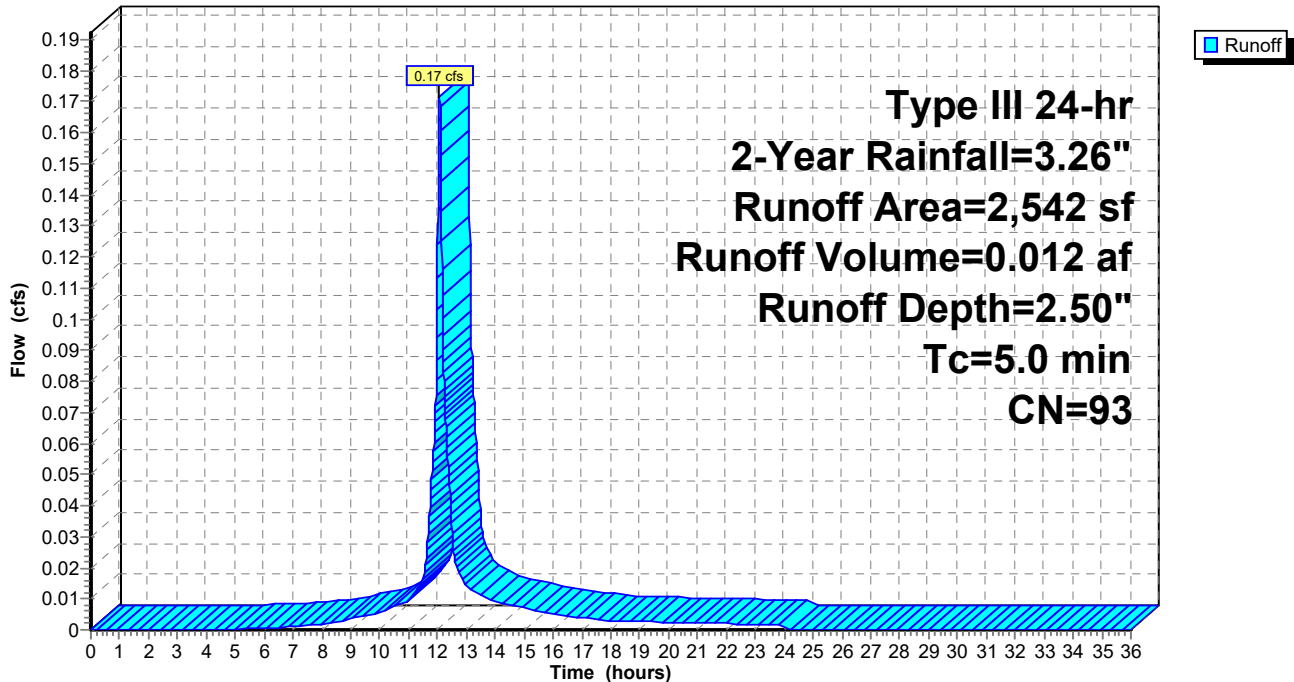
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
1,312	89	<50% Grass cover, Poor, HSG D
1,230	98	Unconnected pavement, HSG D
2,542	93	Weighted Average
1,312		51.61% Pervious Area
1,230		48.39% Impervious Area
1,230		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 10S:**

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Type III 24-hr 2-Year Rainfall=3.26"

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Page 31

**Summary for Subcatchment 11S:**

Runoff = 0.30 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 2.81"  
Routed to Pond 11P :

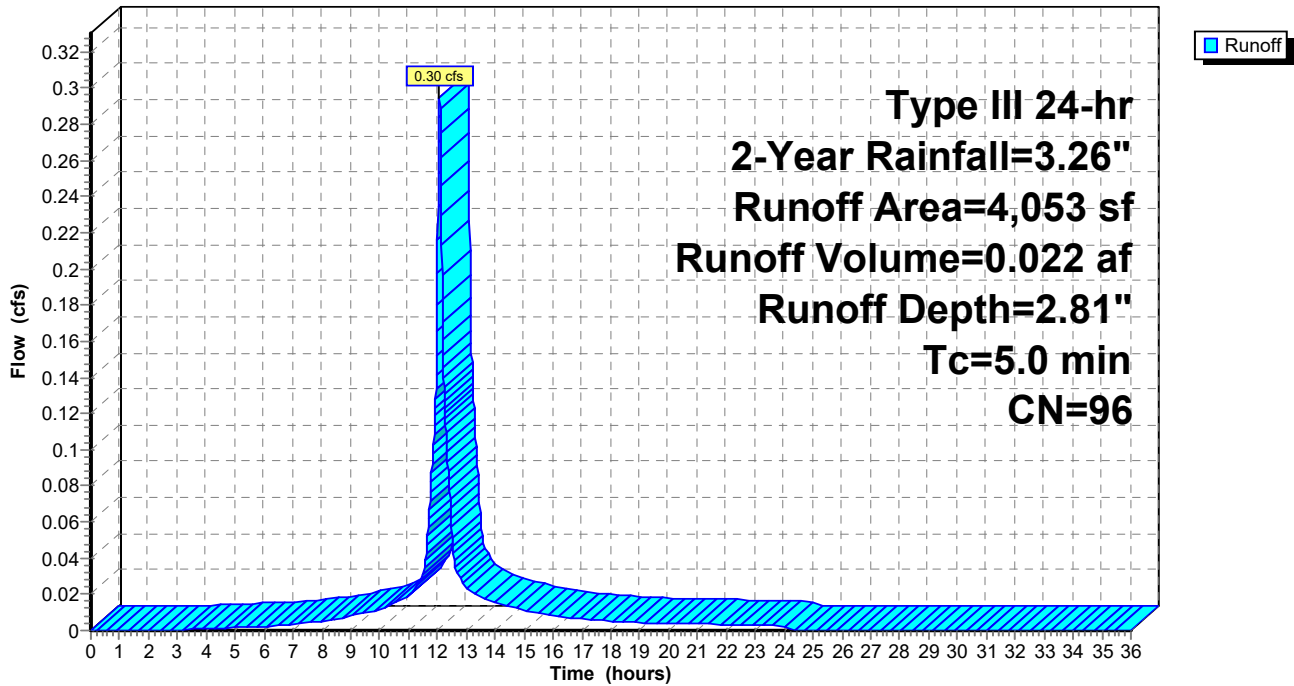
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
716	89	<50% Grass cover, Poor, HSG D
882	98	Unconnected pavement, HSG D
2,455	98	Roofs, HSG D
4,053	96	Weighted Average
716		17.67% Pervious Area
3,337		82.33% Impervious Area
882		26.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 11S:**

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Page 32

**Summary for Subcatchment 12S:**

Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.043 af, Depth= 2.92"  
Routed to Pond 12P :

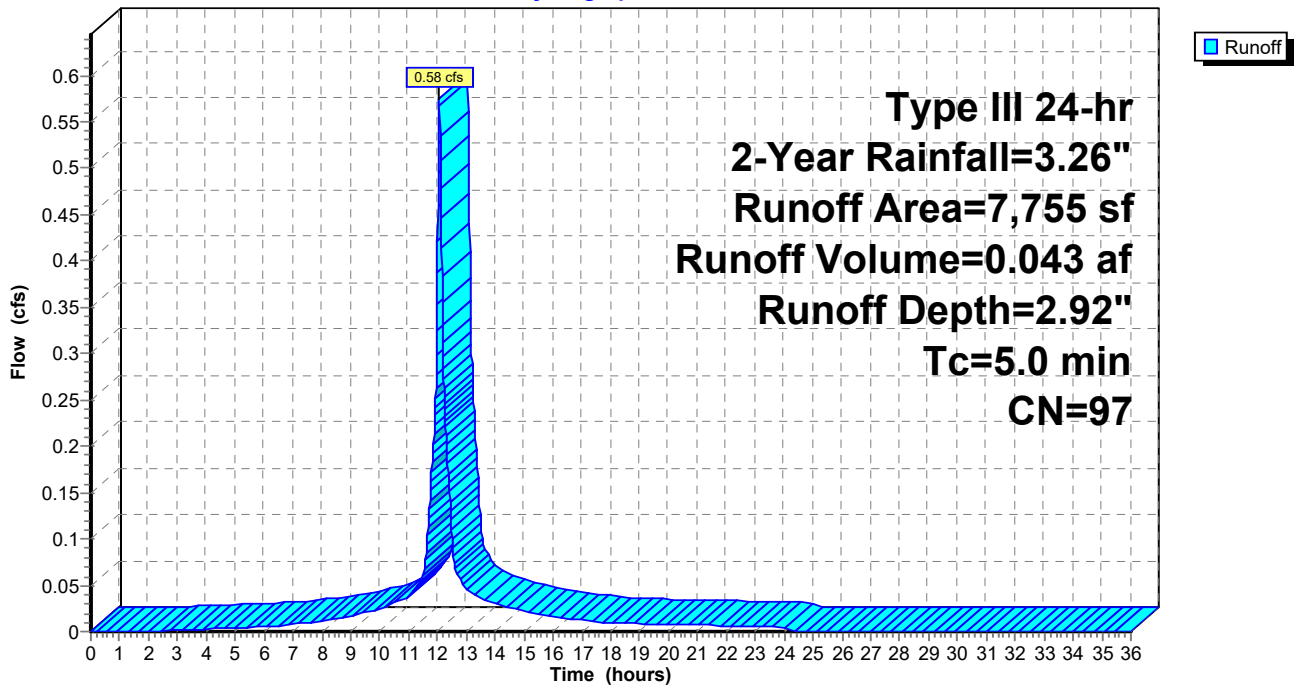
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
1,066	89	<50% Grass cover, Poor, HSG D
6,689	98	Roofs, HSG D
7,755	97	Weighted Average
1,066		13.75% Pervious Area
6,689		86.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 12S:**

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Type III 24-hr 2-Year Rainfall=3.26"

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Page 33

**Summary for Subcatchment 13S:**

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 2.22"  
Routed to Pond 13P :

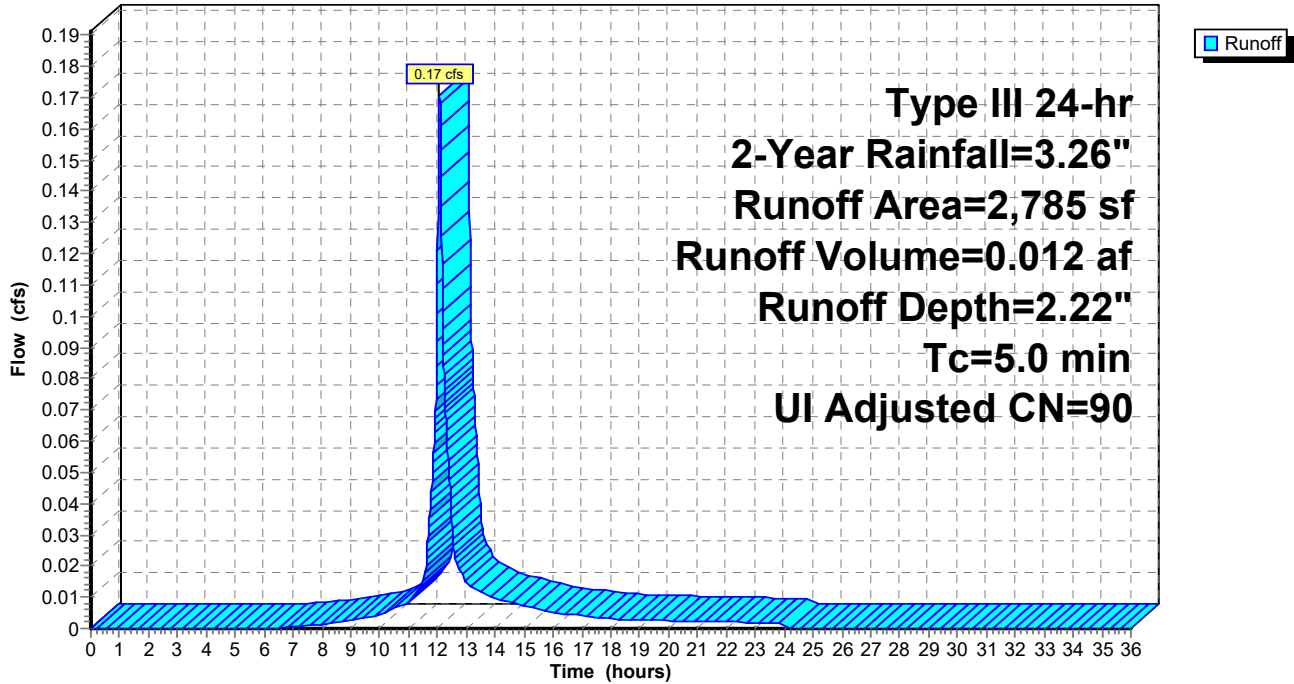
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Adj	Description
1,785	89		<50% Grass cover, Poor, HSG D
649	98		Unconnected pavement, HSG D
351	86		<50% Grass cover, Poor, HSG C
2,785	91	90	Weighted Average, UI Adjusted
2,136			76.70% Pervious Area
649			23.30% Impervious Area
649			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 13S:**

Hydrograph





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Type III 24-hr 2-Year Rainfall=3.26"

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Page 34

**Summary for Subcatchment 14S:**

Runoff = 1.23 cfs @ 12.12 hrs, Volume= 0.102 af, Depth= 2.70"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
5,172	89	<50% Grass cover, Poor, HSG D
1,767	98	Unconnected pavement, HSG D
269	86	<50% Grass cover, Poor, HSG C
87	98	Unconnected pavement, HSG C
11,870	98	Unconnected roofs, HSG D
613	98	Unconnected roofs, HSG C
19,778	95	Weighted Average
5,441		27.51% Pervious Area
14,337		72.49% Impervious Area
14,337		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0510	0.25		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
0.1	21	0.0669	3.88		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.9	399	0.0251	7.19	5.64	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.2	300	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	820	Total			

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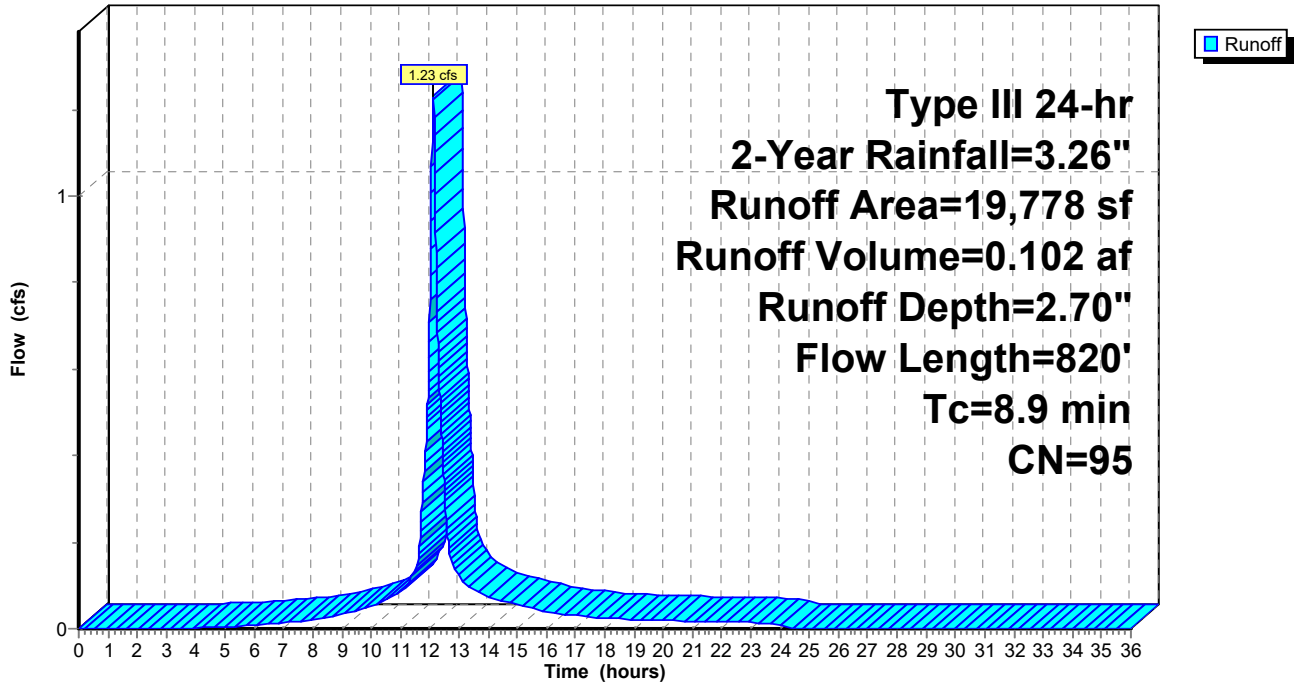
Type III 24-hr 2-Year Rainfall=3.26"

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Page 35

**Subcatchment 14S:**

Hydrograph



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Page 36

**Summary for Subcatchment 15S:**

Runoff = 1.83 cfs @ 12.07 hrs, Volume= 0.140 af, Depth= 3.03"  
Routed to Pond 15P : Underground Chambers

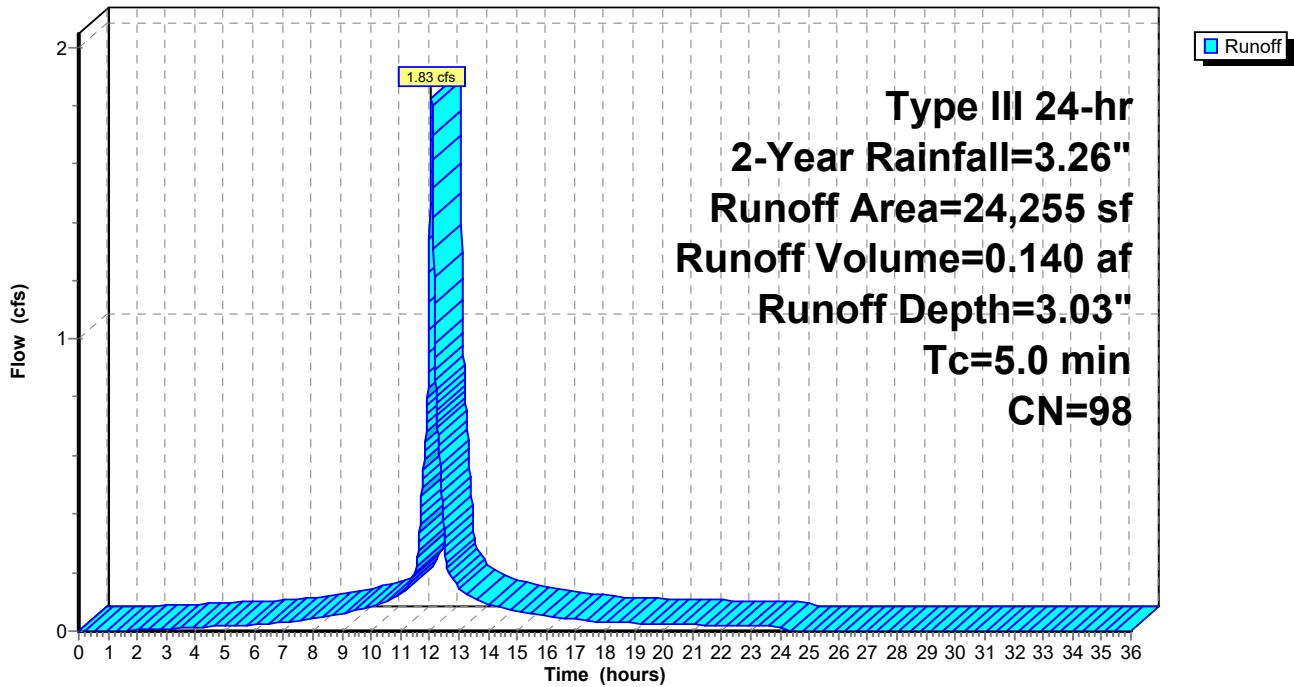
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
24,255	98	Roofs, HSG D
24,255		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 15S:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.26"

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Page 37

**Summary for Subcatchment 16S:**

Runoff = 0.46 cfs @ 12.10 hrs, Volume= 0.036 af, Depth= 2.70"  
 Routed to Link 10L :

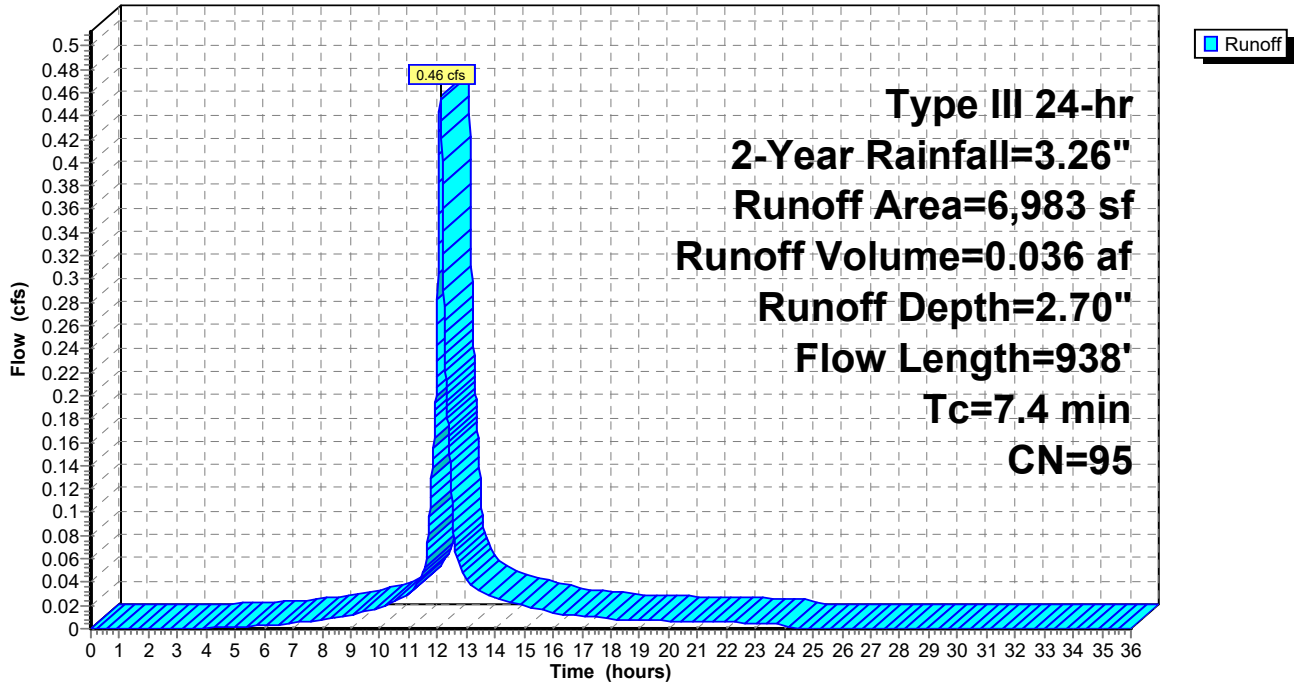
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
1,854	89	<50% Grass cover, Poor, HSG D
3,603	98	Unconnected pavement, HSG D
368	86	<50% Grass cover, Poor, HSG C
1,158	98	Unconnected pavement, HSG C
6,983	95	Weighted Average
2,222		31.82% Pervious Area
4,761		68.18% Impervious Area
4,761		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	13	0.0115	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
1.2	87	0.0161	1.24		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.26"
1.9	393	0.0294	3.48		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.1	15	0.0100	4.50	1.57	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	430	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
7.4	938	Total			

Subcatchment 16S:

Hydrograph



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Page 39

**Summary for Pond 10P:**

Inflow Area = 0.058 ac, 48.39% Impervious, Inflow Depth = 2.50" for 2-Year event  
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af  
 Outflow = 0.07 cfs @ 12.25 hrs, Volume= 0.006 af, Atten= 57%, Lag= 10.8 min  
 Primary = 0.07 cfs @ 12.25 hrs, Volume= 0.006 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.82' @ 12.25 hrs Surf.Area= 160 sf Storage= 272 cf

Plug-Flow detention time= 230.7 min calculated for 0.006 af (49% of inflow)  
 Center-of-Mass det. time= 117.0 min ( 908.1 - 791.1 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	457 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	180	53.0	0.0	0	0	180
90.00	180	53.0	20.0	4	4	185
91.00	180	53.0	20.0	36	40	238
92.00	19	24.8	100.0	86	125	417
93.00	84	38.6	100.0	48	173	494
94.00	180	53.0	100.0	129	302	608
94.80	207	56.1	100.0	155	457	659

Device	Routing	Invert	Outlet Devices
#1	Primary	89.60'	<b>12.0" Round Culvert</b> L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 89.60' / 88.90' S= 0.0095 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.70'	<b>66.2' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.07 cfs @ 12.25 hrs HW=93.82' TW=83.76' (Dynamic Tailwater)

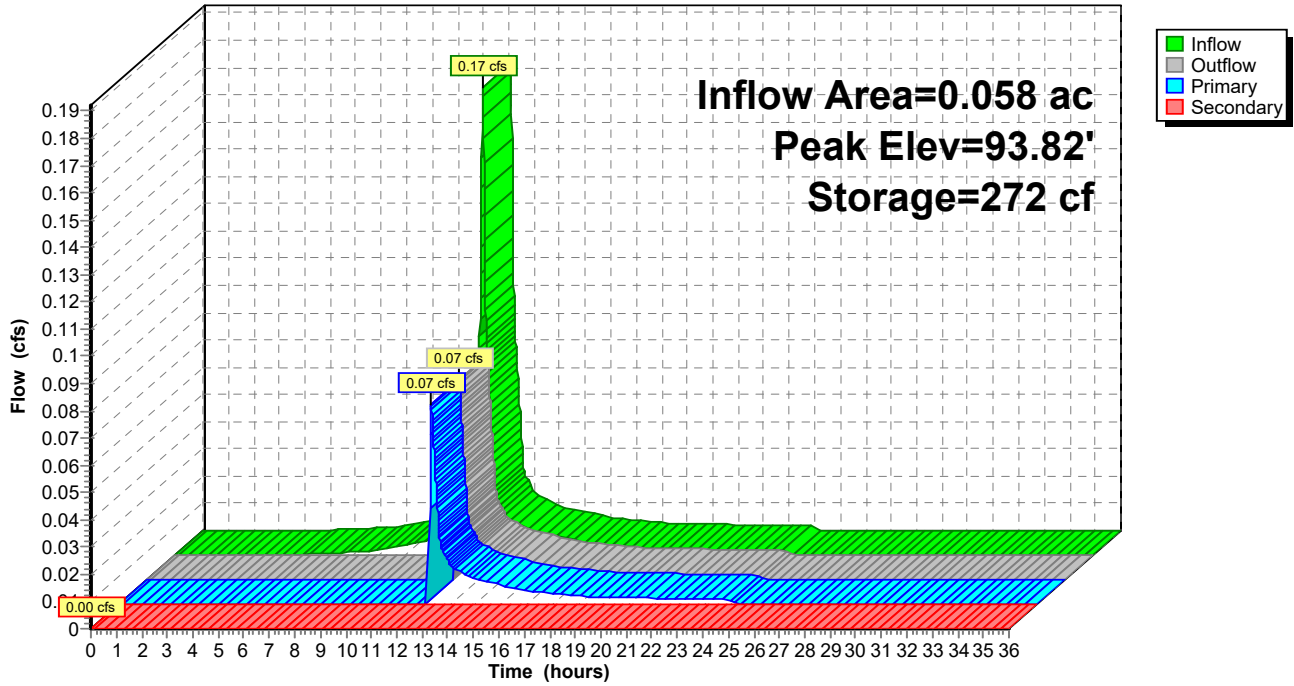
↑ **1=Culvert** (Passes 0.07 cfs of 6.38 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.07 cfs @ 0.50 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

Pond 10P:

Hydrograph



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Page 41

**Summary for Pond 11P:**

Inflow Area = 0.093 ac, 82.33% Impervious, Inflow Depth = 2.81" for 2-Year event  
 Inflow = 0.30 cfs @ 12.07 hrs, Volume= 0.022 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.10' @ 24.29 hrs Surf.Area= 440 sf Storage= 949 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	1,731 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	607	97.0	0.0	0	0	607
90.00	607	97.0	20.0	12	12	617
91.00	607	97.0	20.0	121	134	714
92.00	270	67.0	100.0	427	561	1,114
93.00	422	82.0	100.0	343	904	1,307
94.00	607	97.0	100.0	512	1,416	1,538
94.50	656	100.0	100.0	316	1,731	1,606

Device	Routing	Invert	Outlet Devices
#1	Primary	88.90'	<b>12.0" Round Culvert</b> L= 136.3' Ke= 0.500 Inlet / Outlet Invert= 88.90' / 84.50' S= 0.0323 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.40'	<b>86.0' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=82.50' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.00 cfs of 2.67 cfs potential flow)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

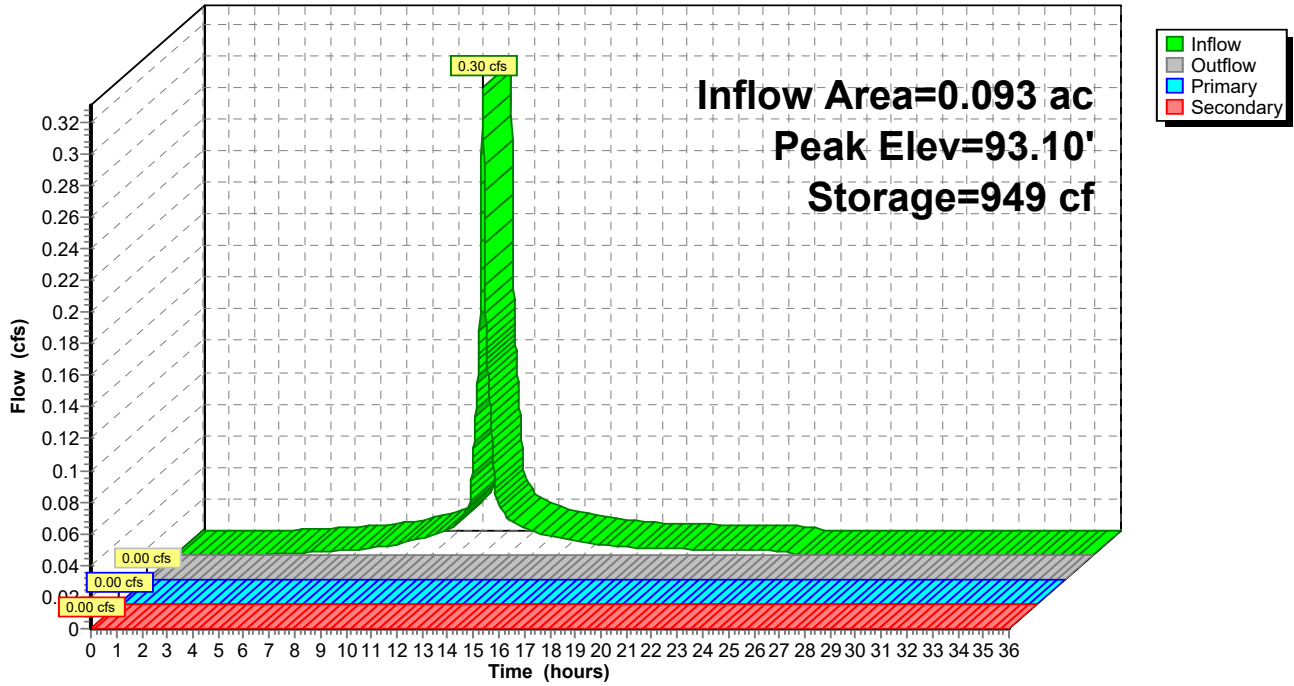
**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



### Pond 11P:

Hydrograph



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Page 43

**Summary for Pond 12P:**

Inflow Area = 0.178 ac, 86.25% Impervious, Inflow Depth = 2.92" for 2-Year event  
 Inflow = 0.58 cfs @ 12.07 hrs, Volume= 0.043 af  
 Outflow = 0.57 cfs @ 12.08 hrs, Volume= 0.032 af, Atten= 1%, Lag= 0.6 min  
 Primary = 0.57 cfs @ 12.08 hrs, Volume= 0.032 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 87.89' @ 12.08 hrs Surf.Area= 318 sf Storage= 521 cf

Plug-Flow detention time= 155.4 min calculated for 0.032 af (74% of inflow)  
 Center-of-Mass det. time= 68.5 min ( 833.2 - 764.6 )

Volume	Invert	Avail.Storage	Storage Description			
#1	84.40'	668 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.40	343	102.0	0.0	0	0	343
84.50	343	102.0	20.0	7	7	353
85.50	343	102.0	20.0	69	75	455
86.50	68	59.0	100.0	188	263	1,012
87.00	151	84.0	100.0	53	317	1,299
88.00	343	102.0	100.0	241	557	1,581
88.30	394	104.0	100.0	110	668	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	84.50'	<b>12.0" Round Culvert</b> L= 92.5' Ke= 0.500 Inlet / Outlet Invert= 84.50' / 84.00' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	88.20'	<b>114.5' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.57 cfs @ 12.08 hrs HW=87.89' TW=83.44' (Dynamic Tailwater)

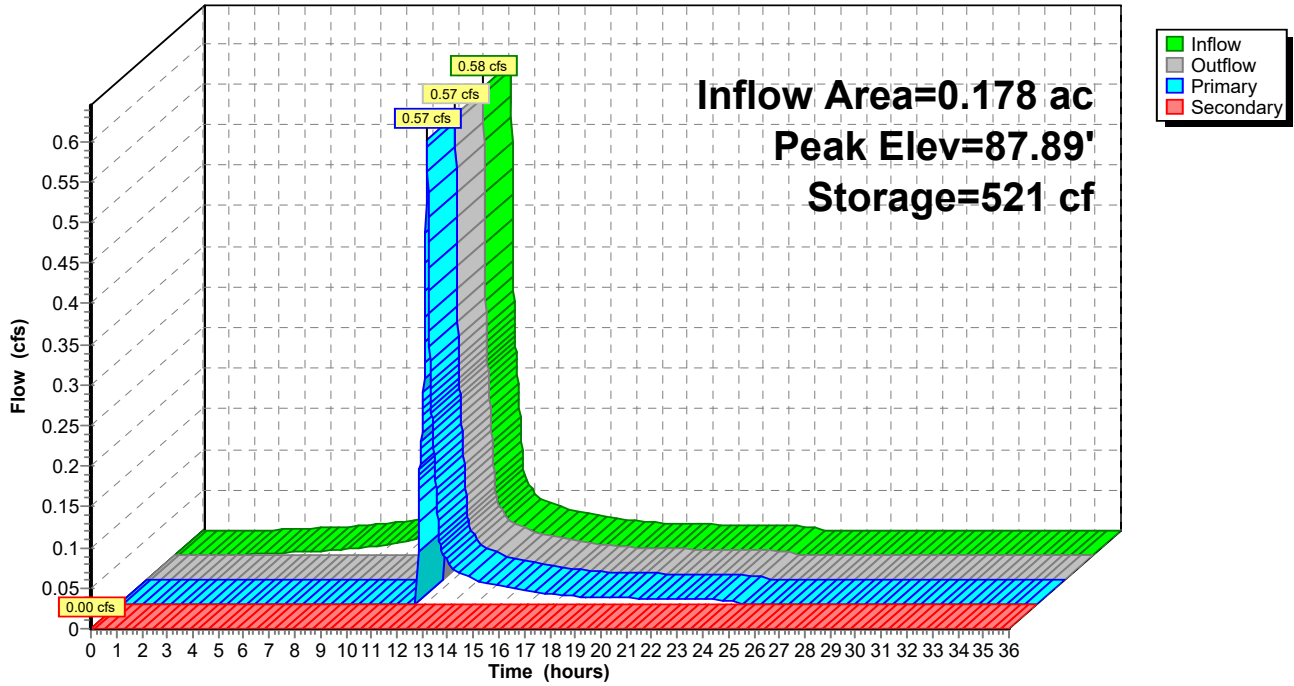
↑ **1=Culvert** (Passes 0.57 cfs of 5.11 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.57 cfs @ 0.99 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.40' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Pond 12P:**

Hydrograph



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Page 45

**Summary for Pond 13P:**

Inflow Area = 0.393 ac, 69.48% Impervious, Inflow Depth = 1.52" for 2-Year event  
 Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.050 af  
 Outflow = 0.36 cfs @ 12.29 hrs, Volume= 0.033 af, Atten= 51%, Lag= 12.5 min  
 Primary = 0.36 cfs @ 12.29 hrs, Volume= 0.033 af  
 Routed to Link 10L :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 83.77' @ 12.29 hrs Surf.Area= 915 sf Storage= 791 cf

Plug-Flow detention time= 170.7 min calculated for 0.033 af (66% of inflow)  
 Center-of-Mass det. time= 69.1 min ( 904.7 - 835.6 )

Volume	Invert	Avail.Storage	Storage Description		
#1	82.50'	1,345 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.50	336	217.5	0	0	336
83.00	574	230.8	225	225	824
84.00	1,034	240.8	793	1,018	1,267
84.30	1,152	243.1	328	1,345	1,381

Device	Routing	Invert	Outlet Devices
#1	Primary	77.75'	<b>8.0" Round Culvert</b> L= 28.6' Ke= 0.500 Inlet / Outlet Invert= 77.75' / 76.50' S= 0.0437 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf
#2	Device 1	83.70'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	84.20'	<b>243.1' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.36 cfs @ 12.29 hrs HW=83.77' TW=0.00' (Dynamic Tailwater)

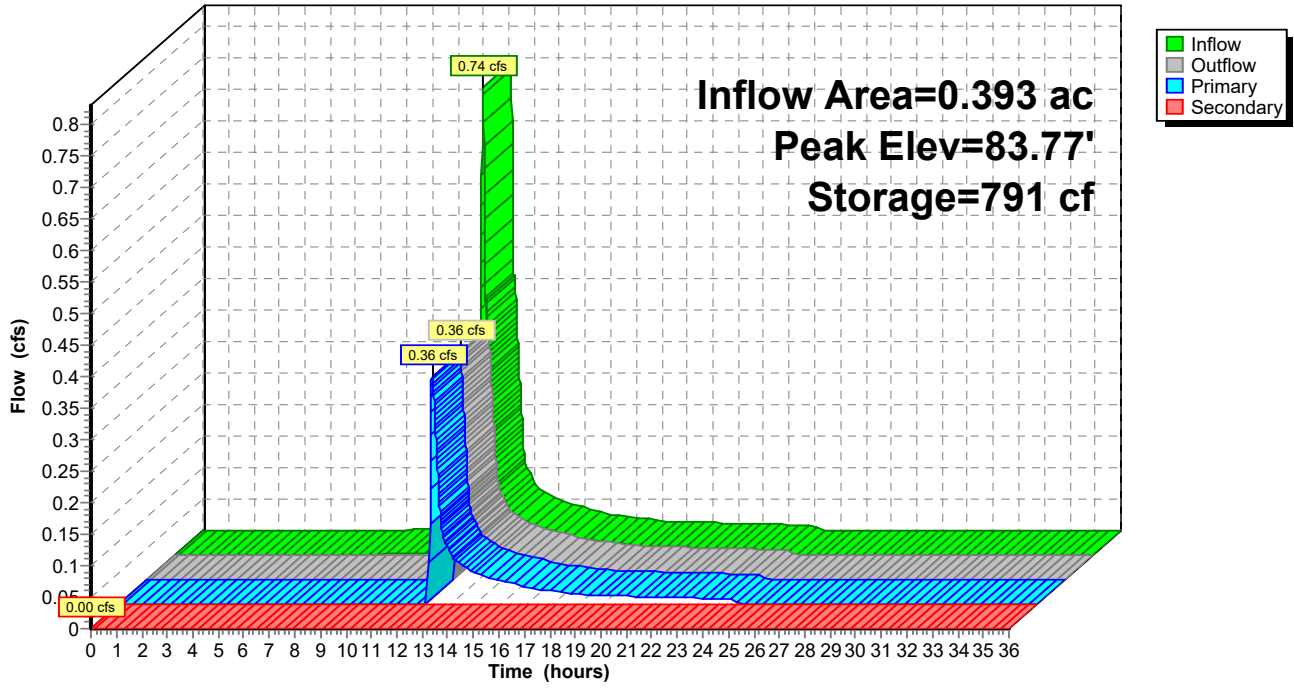
↑**1=Culvert** (Passes 0.36 cfs of 4.01 cfs potential flow)  
 ↑**2=Orifice/Grate** (Weir Controls 0.36 cfs @ 0.85 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=82.50' TW=0.00' (Dynamic Tailwater)

↑**3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Pond 13P:**

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Page 47

## Summary for Pond 15P: Underground Chambers

Inflow Area = 0.557 ac, 100.00% Impervious, Inflow Depth = 3.03" for 2-Year event  
Inflow = 1.83 cfs @ 12.07 hrs, Volume= 0.140 af  
Outflow = 0.56 cfs @ 12.36 hrs, Volume= 0.140 af, Atten= 69%, Lag= 17.6 min  
Primary = 0.56 cfs @ 12.36 hrs, Volume= 0.140 af  
Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 80.29' @ 12.36 hrs Surf.Area= 3,214 sf Storage= 1,228 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 12.6 min ( 767.6 - 755.1 )

Volume	Invert	Avail.Storage	Storage Description
#1B	78.50'	0 cf	<b>74.75'W x 43.00'L x 4.50'H Field B</b> 14,464 cf Overall - 4,962 cf Embedded = 9,502 cf x 0.0% Voids
#2B	79.00'	3,976 cf	<b>ADS N-12 36" x 28 Inside #1</b> Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf 28 Chambers in 14 Rows
		3,976 cf	Total Available Storage

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	<b>12.0" Round Culvert</b> L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 79.00' / 78.00' S= 0.0313 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	79.00'	<b>4.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	82.00'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.56 cfs @ 12.36 hrs HW=80.29' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 0.56 cfs of 3.36 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.56 cfs @ 5.06 fps)
- ↑ **3=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

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Page 48

**Pond 15P: Underground Chambers - Chamber Wizard Field B**

**Chamber Model = ADS N-12 36" (ADS N-12® Pipe)**

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long = 40.00' Row Length +18.0" End Stone x 2 = 43.00' Base Length

14 Rows x 42.0" Wide + 21.0" Spacing x 13 + 18.0" Side Stone x 2 = 74.75' Base Width

6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

28 Chambers x 142.0 cf = 3,976.0 cf Chamber Storage

28 Chambers x 177.2 cf = 4,962.2 cf Displacement

14,464.1 cf Field - 4,962.2 cf Chambers = 9,501.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,976.0 cf = 0.091 af

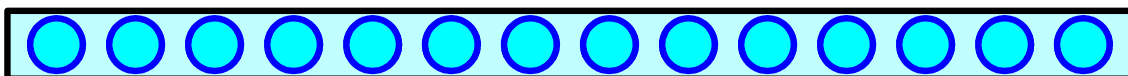
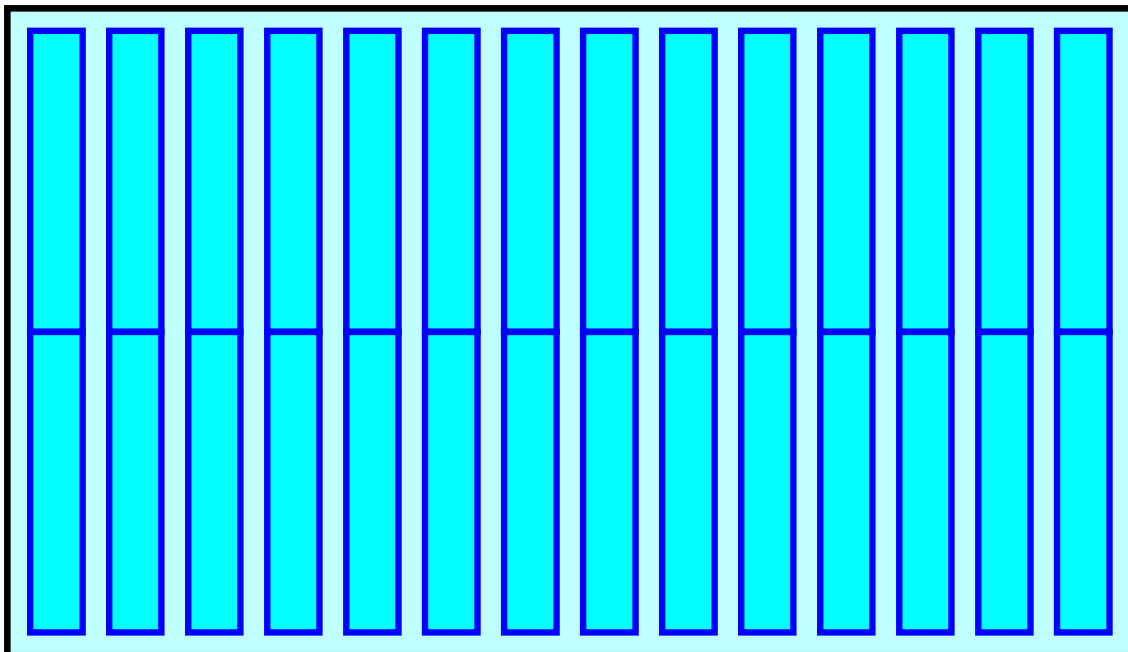
Overall Storage Efficiency = 27.5%

Overall System Size = 43.00' x 74.75' x 4.50'

28 Chambers

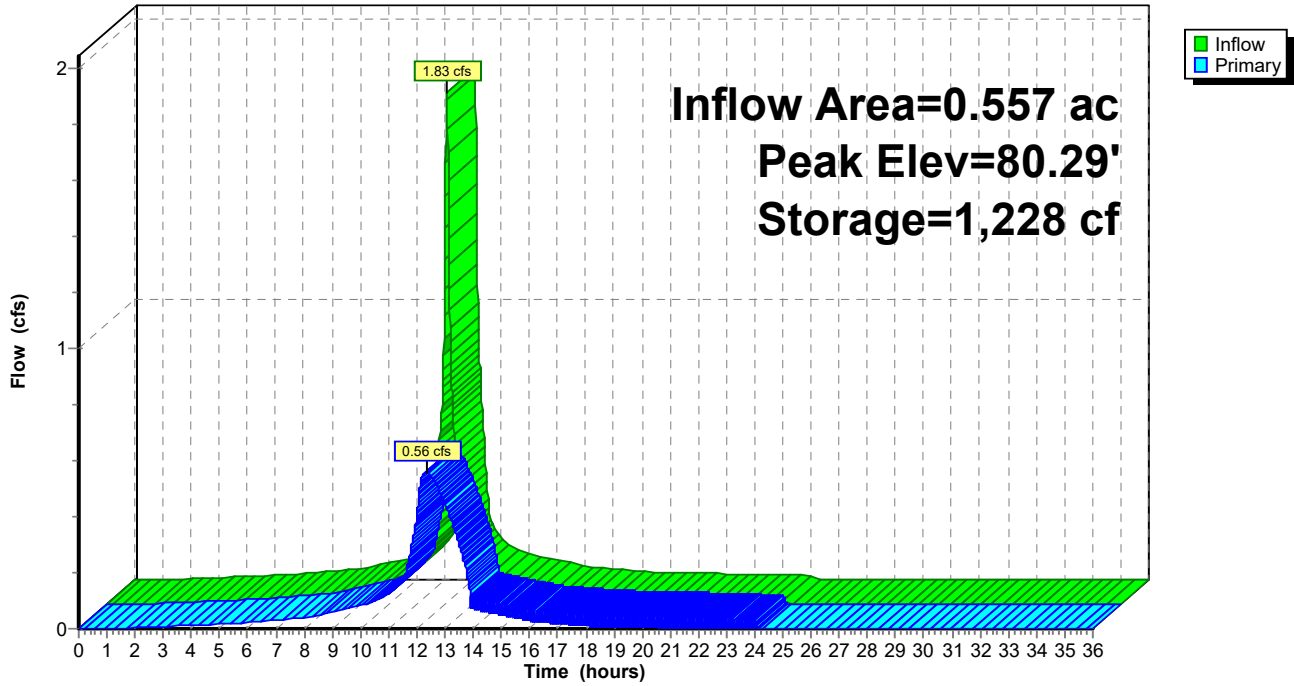
535.7 cy Field

351.9 cy Stone



### Pond 15P: Underground Chambers

Hydrograph





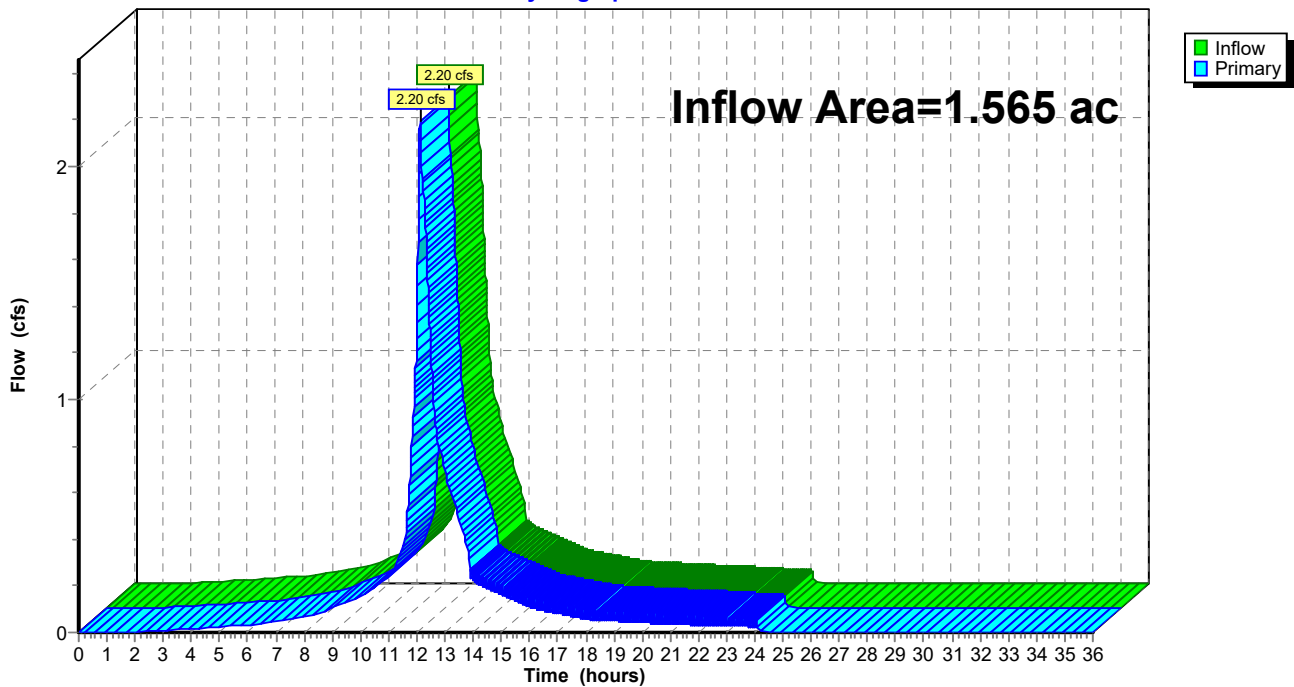
### Summary for Link 10L:

Inflow Area = 1.565 ac, 81.08% Impervious, Inflow Depth = 2.39" for 2-Year event  
Inflow = 2.20 cfs @ 12.12 hrs, Volume= 0.312 af  
Primary = 2.20 cfs @ 12.12 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

### Link 10L:

Hydrograph



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Page 51

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S:** Runoff Area=2,542 sf 48.39% Impervious Runoff Depth=4.06"  
 Tc=5.0 min CN=93 Runoff=0.27 cfs 0.020 af

**Subcatchment 11S:** Runoff Area=4,053 sf 82.33% Impervious Runoff Depth=4.39"  
 Tc=5.0 min CN=96 Runoff=0.45 cfs 0.034 af

**Subcatchment 12S:** Runoff Area=7,755 sf 86.25% Impervious Runoff Depth=4.51"  
 Tc=5.0 min CN=97 Runoff=0.87 cfs 0.067 af

**Subcatchment 13S:** Runoff Area=2,785 sf 23.30% Impervious Runoff Depth=3.74"  
 Tc=5.0 min UI Adjusted CN=90 Runoff=0.28 cfs 0.020 af

**Subcatchment 14S:** Runoff Area=19,778 sf 72.49% Impervious Runoff Depth=4.28"  
 Flow Length=820' Tc=8.9 min CN=95 Runoff=1.90 cfs 0.162 af

**Subcatchment 15S:** Runoff Area=24,255 sf 100.00% Impervious Runoff Depth=4.62"  
 Tc=5.0 min CN=98 Runoff=2.74 cfs 0.215 af

**Subcatchment 16S:** Runoff Area=6,983 sf 68.18% Impervious Runoff Depth=4.28"  
 Flow Length=938' Tc=7.4 min CN=95 Runoff=0.71 cfs 0.057 af

**Pond 10P:** Peak Elev=93.86' Storage=277 cf Inflow=0.27 cfs 0.020 af  
 Primary=0.27 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.014 af

**Pond 11P:** Peak Elev=93.81' Storage=1,302 cf Inflow=0.45 cfs 0.034 af  
 Primary=0.01 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af

**Pond 12P:** Peak Elev=87.92' Storage=531 cf Inflow=0.87 cfs 0.067 af  
 Primary=0.86 cfs 0.056 af Secondary=0.00 cfs 0.000 af Outflow=0.86 cfs 0.056 af

**Pond 13P:** Peak Elev=83.86' Storage=882 cf Inflow=1.41 cfs 0.093 af  
 Primary=1.36 cfs 0.077 af Secondary=0.00 cfs 0.000 af Outflow=1.36 cfs 0.077 af

**Pond 15P: Underground Chambers** Peak Elev=80.89' Storage=2,217 cf Inflow=2.74 cfs 0.215 af  
 Outflow=0.69 cfs 0.215 af

**Link 10L:** Inflow=4.56 cfs 0.510 af  
 Primary=4.56 cfs 0.510 af

**Total Runoff Area = 1.565 ac Runoff Volume = 0.574 af Average Runoff Depth = 4.41"**  
**18.92% Pervious = 0.296 ac 81.08% Impervious = 1.269 ac**

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Type III 24-hr 10-Year Rainfall=4.86"

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Page 52

**Summary for Subcatchment 10S:**

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 4.06"  
Routed to Pond 10P :

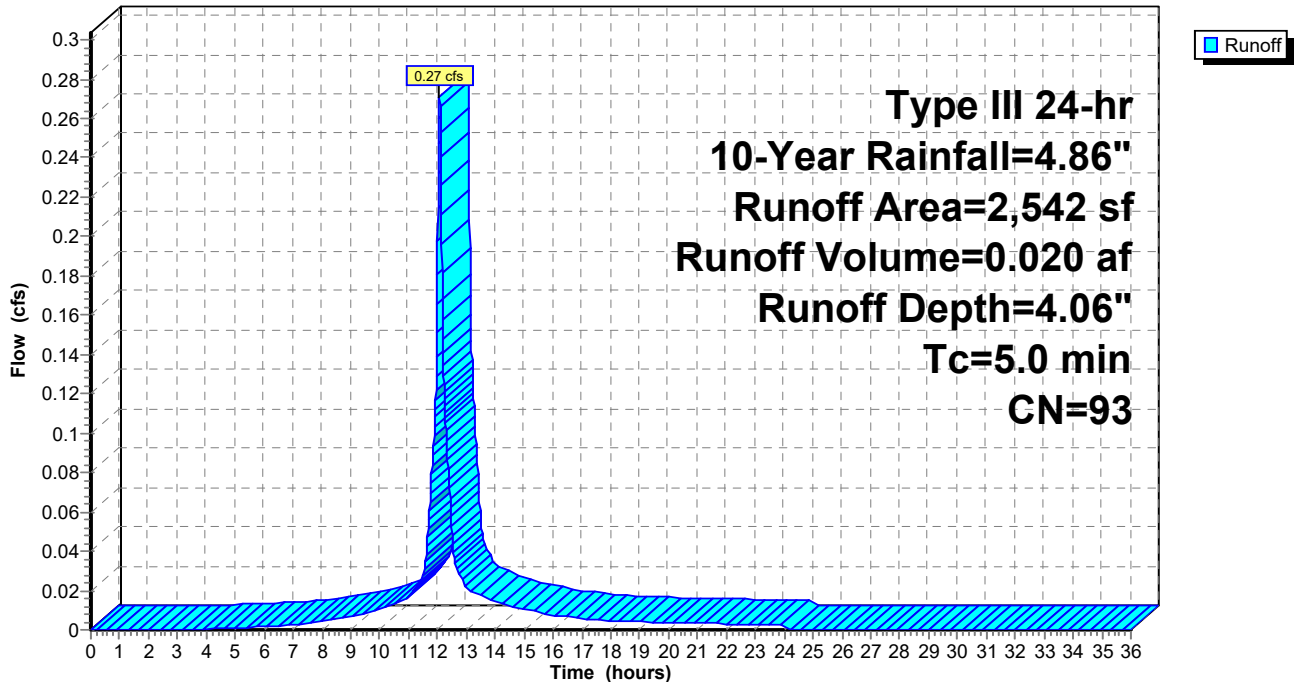
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
1,312	89	<50% Grass cover, Poor, HSG D
1,230	98	Unconnected pavement, HSG D
2,542	93	Weighted Average
1,312		51.61% Pervious Area
1,230		48.39% Impervious Area
1,230		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 10S:**

Hydrograph



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Page 53

**Summary for Subcatchment 11S:**

Runoff = 0.45 cfs @ 12.07 hrs, Volume= 0.034 af, Depth= 4.39"  
Routed to Pond 11P :

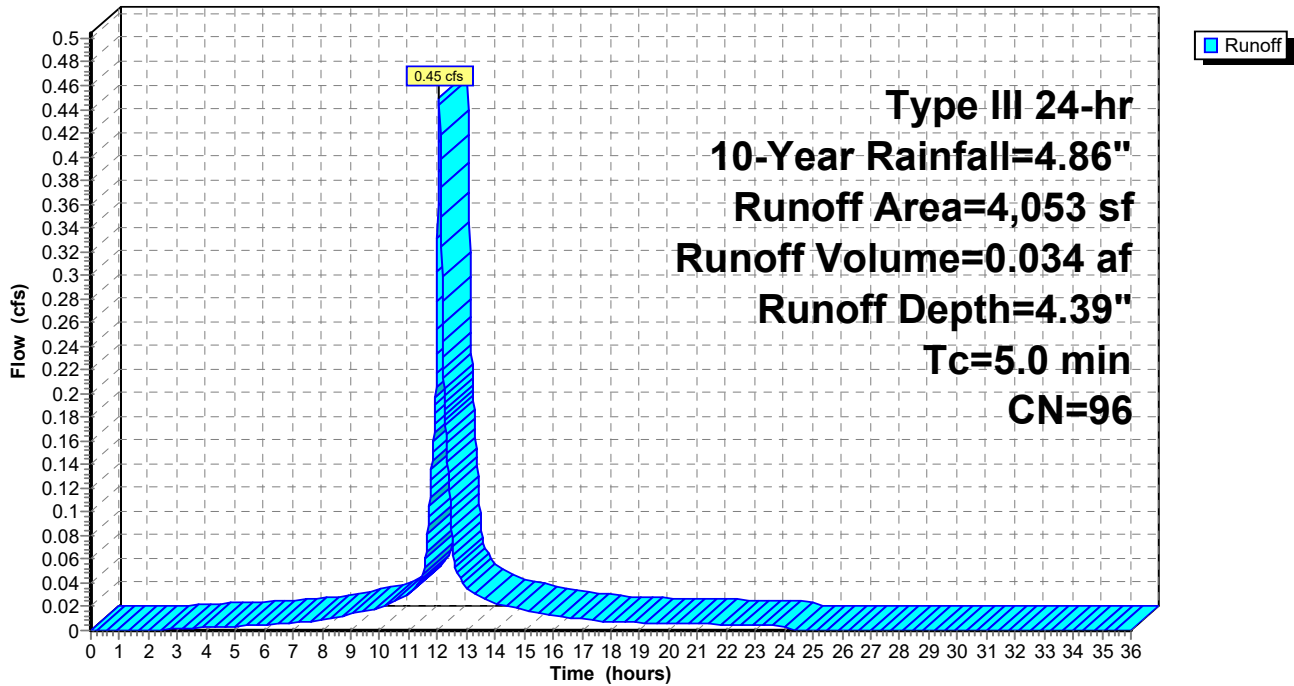
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
716	89	<50% Grass cover, Poor, HSG D
882	98	Unconnected pavement, HSG D
2,455	98	Roofs, HSG D
4,053	96	Weighted Average
716		17.67% Pervious Area
3,337		82.33% Impervious Area
882		26.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 11S:**

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Page 54

**Summary for Subcatchment 12S:**

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.067 af, Depth= 4.51"  
Routed to Pond 12P :

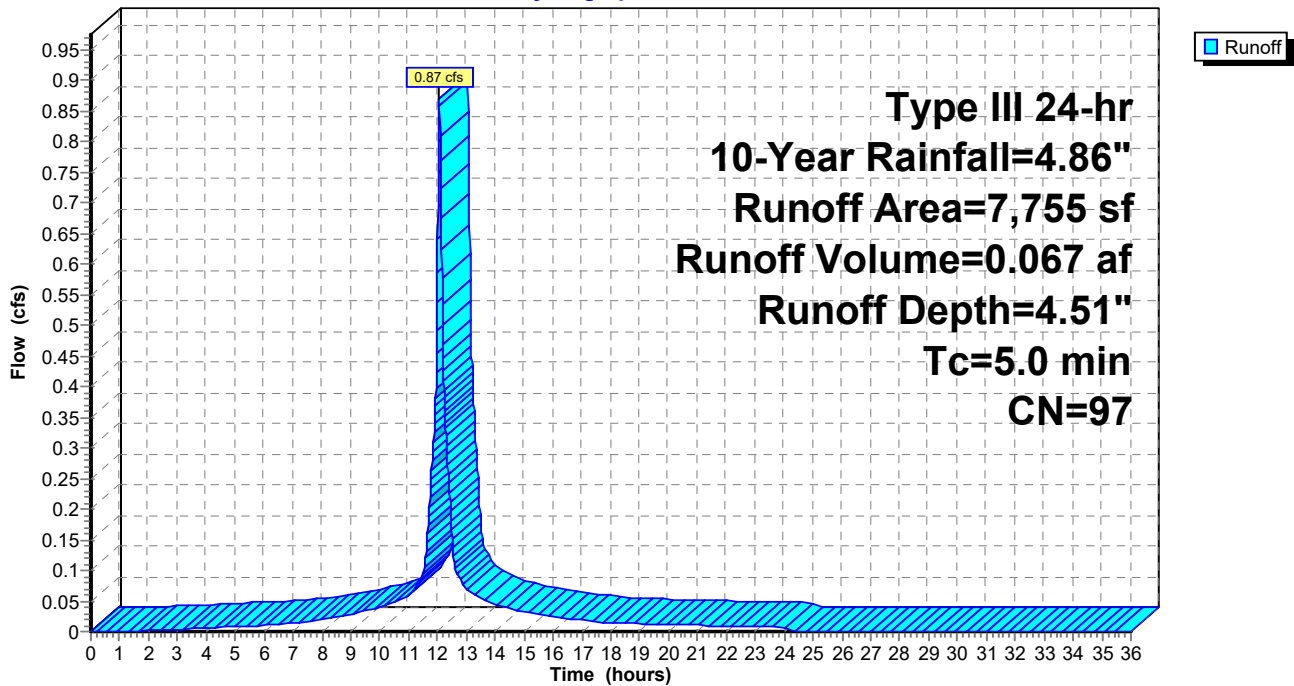
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
1,066	89	<50% Grass cover, Poor, HSG D
6,689	98	Roofs, HSG D
7,755	97	Weighted Average
1,066		13.75% Pervious Area
6,689		86.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 12S:**

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Page 55

**Summary for Subcatchment 13S:**

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 3.74"  
Routed to Pond 13P :

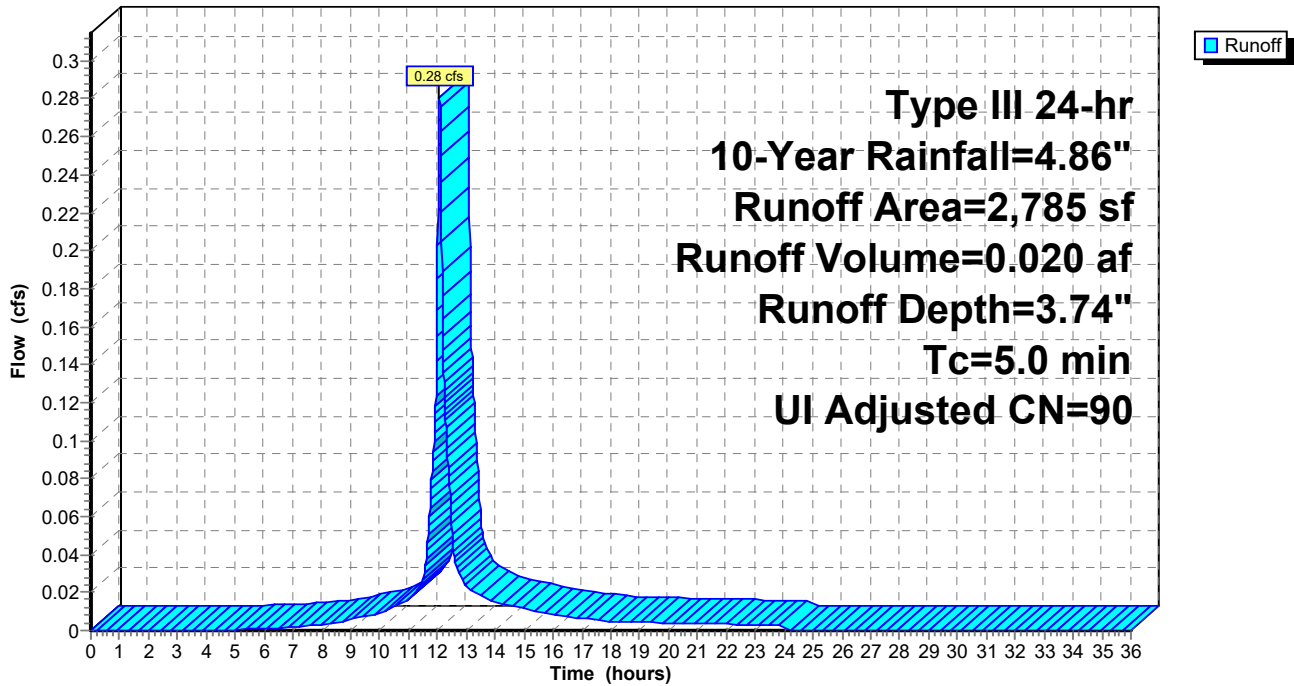
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Adj	Description
1,785	89		<50% Grass cover, Poor, HSG D
649	98		Unconnected pavement, HSG D
351	86		<50% Grass cover, Poor, HSG C
2,785	91	90	Weighted Average, UI Adjusted
2,136			76.70% Pervious Area
649			23.30% Impervious Area
649			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 13S:**

Hydrograph



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Page 56

**Summary for Subcatchment 14S:**

Runoff = 1.90 cfs @ 12.12 hrs, Volume= 0.162 af, Depth= 4.28"  
Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
5,172	89	<50% Grass cover, Poor, HSG D
1,767	98	Unconnected pavement, HSG D
269	86	<50% Grass cover, Poor, HSG C
87	98	Unconnected pavement, HSG C
11,870	98	Unconnected roofs, HSG D
613	98	Unconnected roofs, HSG C
19,778	95	Weighted Average
5,441		27.51% Pervious Area
14,337		72.49% Impervious Area
14,337		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0510	0.25		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
0.1	21	0.0669	3.88		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.9	399	0.0251	7.19	5.64	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.2	300	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	820	Total			

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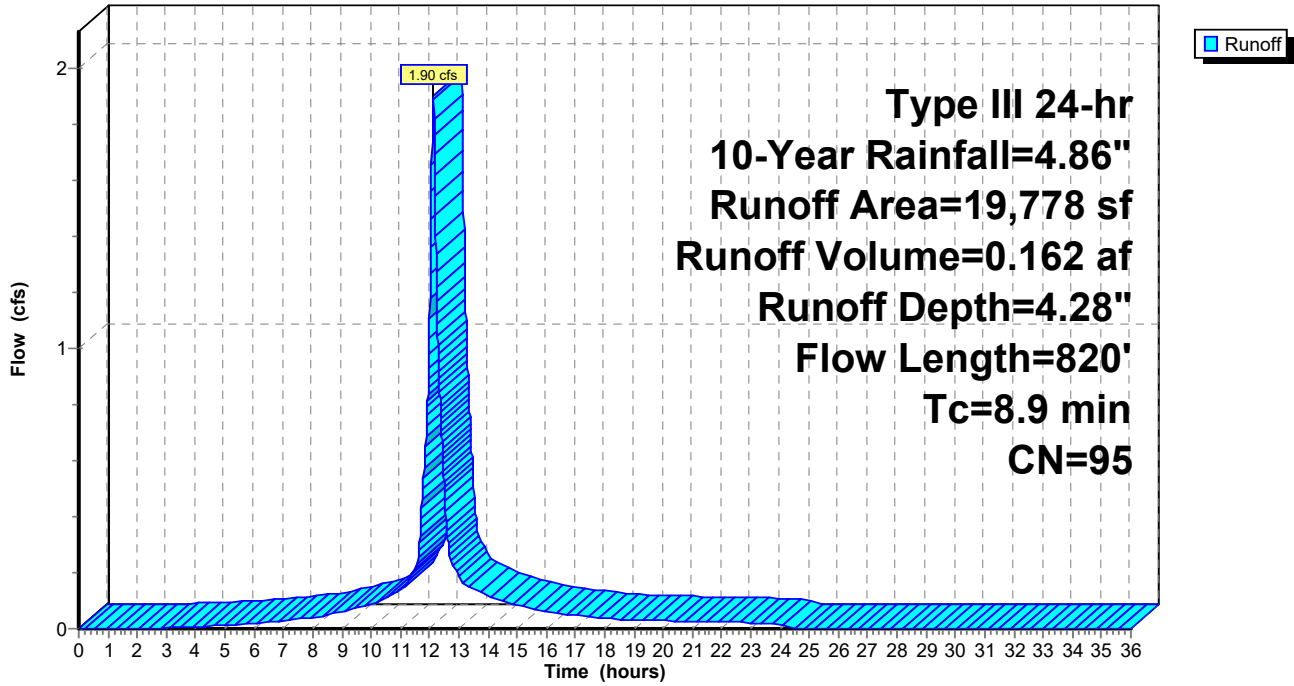
Type III 24-hr 10-Year Rainfall=4.86"

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Page 57

**Subcatchment 14S:**

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Page 58

**Summary for Subcatchment 15S:**

Runoff = 2.74 cfs @ 12.07 hrs, Volume= 0.215 af, Depth= 4.62"  
Routed to Pond 15P : Underground Chambers

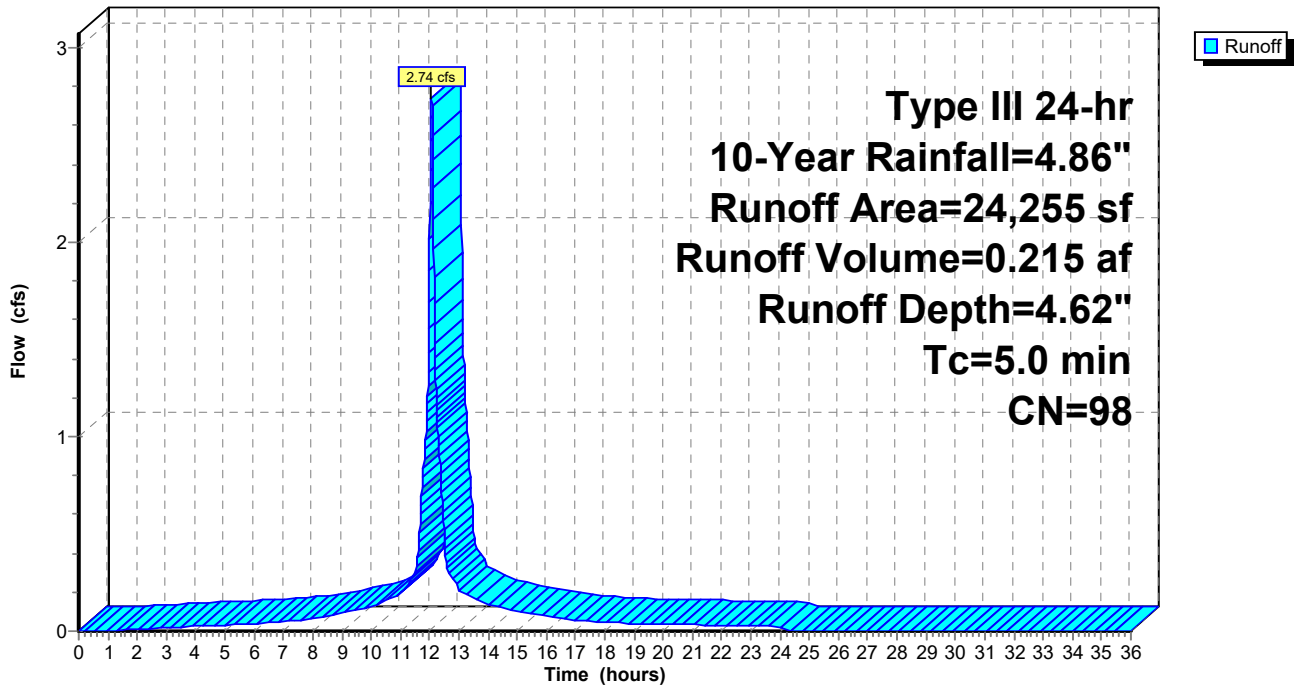
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.86"

Area (sf)	CN	Description
24,255	98	Roofs, HSG D
24,255		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 15S:**

Hydrograph



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Page 59

**Summary for Subcatchment 16S:**

Runoff = 0.71 cfs @ 12.10 hrs, Volume= 0.057 af, Depth= 4.28"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Rainfall=4.86"

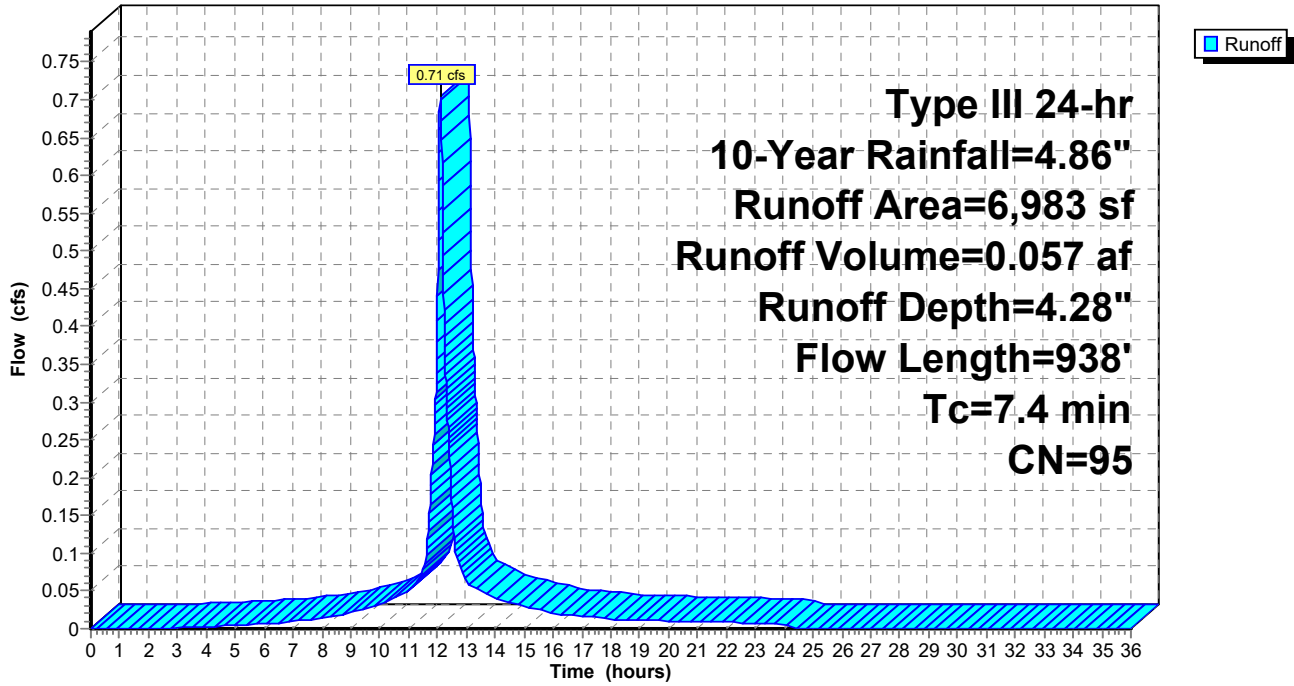
Area (sf)	CN	Description
1,854	89	<50% Grass cover, Poor, HSG D
3,603	98	Unconnected pavement, HSG D
368	86	<50% Grass cover, Poor, HSG C
1,158	98	Unconnected pavement, HSG C
6,983	95	Weighted Average
2,222		31.82% Pervious Area
4,761		68.18% Impervious Area
4,761		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	13	0.0115	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
1.2	87	0.0161	1.24		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.26"
1.9	393	0.0294	3.48		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.1	15	0.0100	4.50	1.57	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	430	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
7.4	938	Total			

**Subcatchment 16S:**

**Hydrograph**



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Page 61

**Summary for Pond 10P:**

Inflow Area = 0.058 ac, 48.39% Impervious, Inflow Depth = 4.06" for 10-Year event  
 Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af  
 Outflow = 0.27 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.4 min  
 Primary = 0.27 cfs @ 12.08 hrs, Volume= 0.014 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.86' @ 12.08 hrs Surf.Area= 164 sf Storage= 277 cf

Plug-Flow detention time= 163.9 min calculated for 0.014 af (69% of inflow)  
 Center-of-Mass det. time= 70.4 min ( 848.6 - 778.2 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	457 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	180	53.0	0.0	0	0	180
90.00	180	53.0	20.0	4	4	185
91.00	180	53.0	20.0	36	40	238
92.00	19	24.8	100.0	86	125	417
93.00	84	38.6	100.0	48	173	494
94.00	180	53.0	100.0	129	302	608
94.80	207	56.1	100.0	155	457	659

Device	Routing	Invert	Outlet Devices
#1	Primary	89.60'	<b>12.0" Round Culvert</b> L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 89.60' / 88.90' S= 0.0095 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.70'	<b>66.2' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.27 cfs @ 12.08 hrs HW=93.86' TW=83.86' (Dynamic Tailwater)

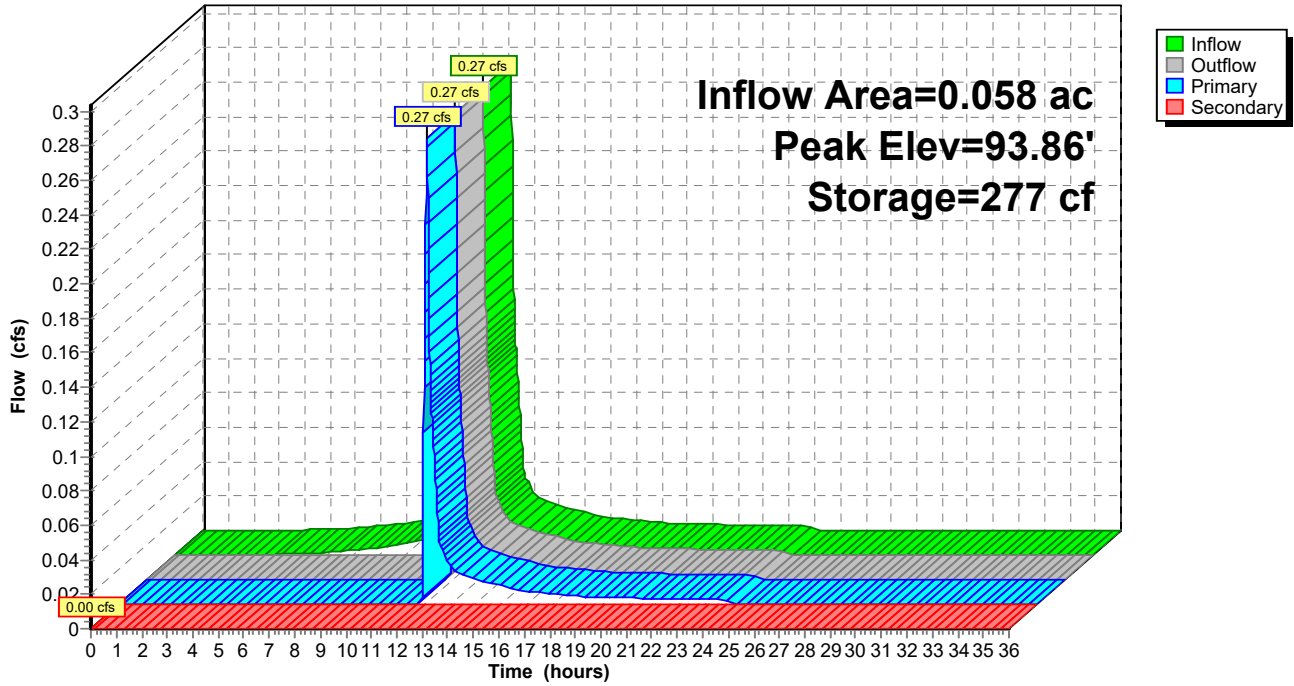
↑ **1=Culvert** (Passes 0.27 cfs of 6.41 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.27 cfs @ 0.77 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

Pond 10P:

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.86"

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Page 63

**Summary for Pond 11P:**

Inflow Area = 0.093 ac, 82.33% Impervious, Inflow Depth = 4.39" for 10-Year event  
 Inflow = 0.45 cfs @ 12.07 hrs, Volume= 0.034 af  
 Outflow = 0.01 cfs @ 16.40 hrs, Volume= 0.004 af, Atten= 98%, Lag= 259.9 min  
 Primary = 0.01 cfs @ 16.40 hrs, Volume= 0.004 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.81' @ 16.40 hrs Surf.Area= 569 sf Storage= 1,302 cf

Plug-Flow detention time= 702.2 min calculated for 0.004 af (13% of inflow)  
 Center-of-Mass det. time= 407.8 min ( 1,170.0 - 762.1 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	1,731 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	607	97.0	0.0	0	0	607
90.00	607	97.0	20.0	12	12	617
91.00	607	97.0	20.0	121	134	714
92.00	270	67.0	100.0	427	561	1,114
93.00	422	82.0	100.0	343	904	1,307
94.00	607	97.0	100.0	512	1,416	1,538
94.50	656	100.0	100.0	316	1,731	1,606

Device	Routing	Invert	Outlet Devices
#1	Primary	88.90'	<b>12.0" Round Culvert</b> L= 136.3' Ke= 0.500 Inlet / Outlet Invert= 88.90' / 84.50' S= 0.0323 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.40'	<b>86.0' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

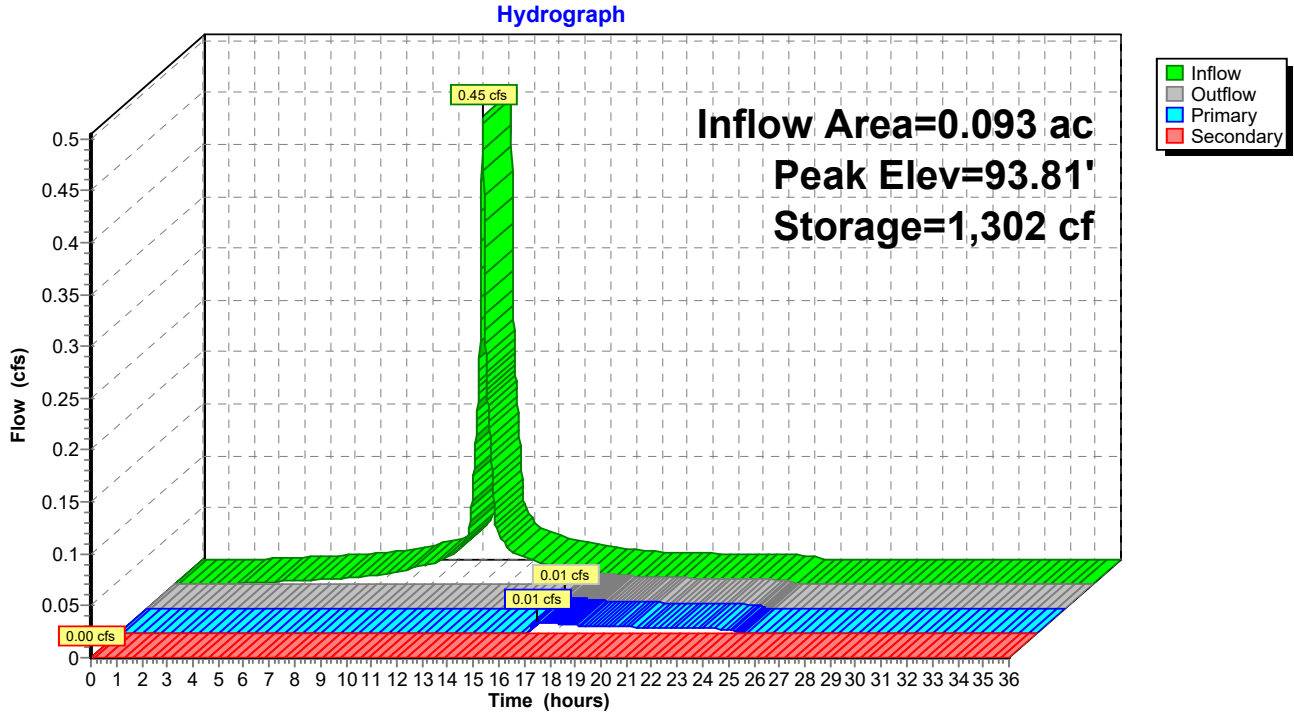
**Primary OutFlow** Max=0.01 cfs @ 16.40 hrs HW=93.81' TW=83.72' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.01 cfs of 7.56 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.27 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

Pond 11P:



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Page 65

**Summary for Pond 12P:**

Inflow Area = 0.178 ac, 86.25% Impervious, Inflow Depth = 4.51" for 10-Year event  
 Inflow = 0.87 cfs @ 12.07 hrs, Volume= 0.067 af  
 Outflow = 0.86 cfs @ 12.08 hrs, Volume= 0.056 af, Atten= 1%, Lag= 0.5 min  
 Primary = 0.86 cfs @ 12.08 hrs, Volume= 0.056 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 87.92' @ 12.08 hrs Surf.Area= 325 sf Storage= 531 cf

Plug-Flow detention time= 125.8 min calculated for 0.056 af (83% of inflow)  
 Center-of-Mass det. time= 56.3 min ( 811.8 - 755.4 )

Volume	Invert	Avail.Storage	Storage Description			
#1	84.40'	668 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.40	343	102.0	0.0	0	0	343
84.50	343	102.0	20.0	7	7	353
85.50	343	102.0	20.0	69	75	455
86.50	68	59.0	100.0	188	263	1,012
87.00	151	84.0	100.0	53	317	1,299
88.00	343	102.0	100.0	241	557	1,581
88.30	394	104.0	100.0	110	668	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	84.50'	<b>12.0" Round Culvert</b> L= 92.5' Ke= 0.500 Inlet / Outlet Invert= 84.50' / 84.00' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	88.20'	<b>114.5' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.86 cfs @ 12.08 hrs HW=87.92' TW=83.86' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.86 cfs of 5.13 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.86 cfs @ 1.14 fps)

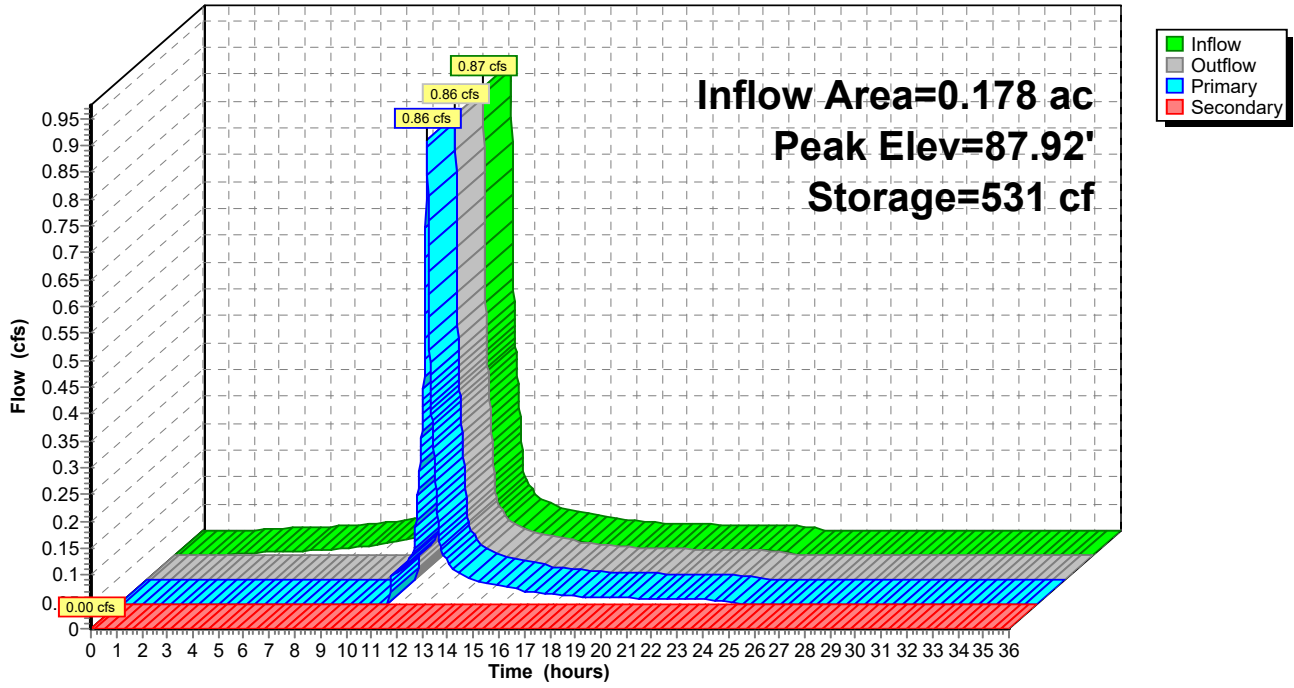
**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.40' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



**Pond 12P:**

Hydrograph



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Page 67

**Summary for Pond 13P:**

Inflow Area = 0.393 ac, 69.48% Impervious, Inflow Depth = 2.85" for 10-Year event  
 Inflow = 1.41 cfs @ 12.08 hrs, Volume= 0.093 af  
 Outflow = 1.36 cfs @ 12.10 hrs, Volume= 0.077 af, Atten= 4%, Lag= 1.3 min  
 Primary = 1.36 cfs @ 12.10 hrs, Volume= 0.077 af  
 Routed to Link 10L :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 83.86' @ 12.10 hrs Surf.Area= 963 sf Storage= 882 cf

Plug-Flow detention time= 114.7 min calculated for 0.077 af (82% of inflow)  
 Center-of-Mass det. time= 38.1 min ( 867.1 - 829.0 )

Volume	Invert	Avail.Storage	Storage Description		
#1	82.50'	1,345 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.50	336	217.5	0	0	336
83.00	574	230.8	225	225	824
84.00	1,034	240.8	793	1,018	1,267
84.30	1,152	243.1	328	1,345	1,381

Device	Routing	Invert	Outlet Devices
#1	Primary	77.75'	<b>8.0" Round Culvert</b> L= 28.6' Ke= 0.500 Inlet / Outlet Invert= 77.75' / 76.50' S= 0.0437 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf
#2	Device 1	83.70'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	84.20'	<b>243.1' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

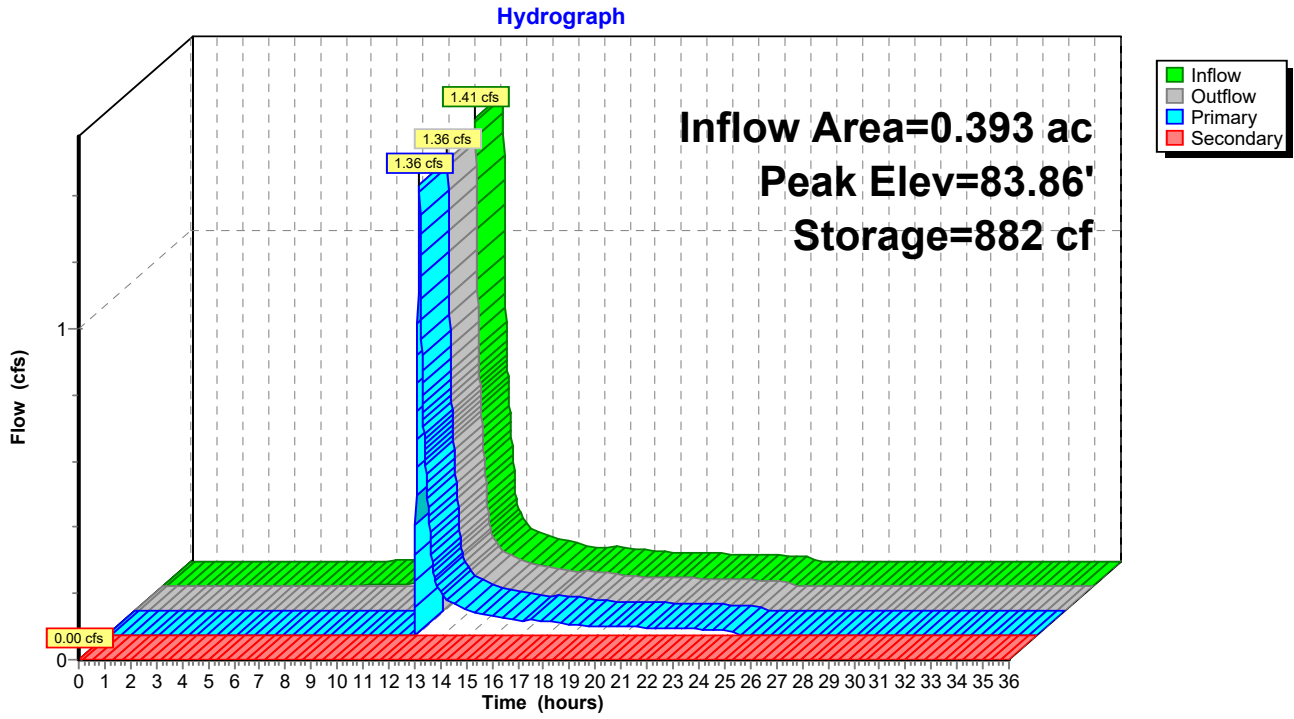
**Primary OutFlow** Max=1.36 cfs @ 12.10 hrs HW=83.86' TW=0.00' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 1.36 cfs of 4.04 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 1.36 cfs @ 1.32 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=82.50' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Pond 13P:**



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Type III 24-hr 10-Year Rainfall=4.86"

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Page 69

## Summary for Pond 15P: Underground Chambers

Inflow Area = 0.557 ac, 100.00% Impervious, Inflow Depth = 4.62" for 10-Year event  
Inflow = 2.74 cfs @ 12.07 hrs, Volume= 0.215 af  
Outflow = 0.69 cfs @ 12.42 hrs, Volume= 0.215 af, Atten= 75%, Lag= 21.2 min  
Primary = 0.69 cfs @ 12.42 hrs, Volume= 0.215 af  
Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 80.89' @ 12.42 hrs Surf.Area= 3,214 sf Storage= 2,217 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 19.8 min ( 767.4 - 747.6 )

Volume	Invert	Avail.Storage	Storage Description
#1B	78.50'	0 cf	<b>74.75'W x 43.00'L x 4.50'H Field B</b> 14,464 cf Overall - 4,962 cf Embedded = 9,502 cf x 0.0% Voids
#2B	79.00'	3,976 cf	<b>ADS N-12 36" x 28 Inside #1</b> Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf 28 Chambers in 14 Rows
		3,976 cf	Total Available Storage

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	<b>12.0" Round Culvert</b> L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 79.00' / 78.00' S= 0.0313 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	79.00'	<b>4.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	82.00'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.69 cfs @ 12.42 hrs HW=80.89' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 0.69 cfs of 4.45 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.69 cfs @ 6.27 fps)
- ↑ **3=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

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Page 70

**Pond 15P: Underground Chambers - Chamber Wizard Field B**

**Chamber Model = ADS N-12 36" (ADS N-12® Pipe)**

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long = 40.00' Row Length +18.0" End Stone x 2 = 43.00' Base Length

14 Rows x 42.0" Wide + 21.0" Spacing x 13 + 18.0" Side Stone x 2 = 74.75' Base Width

6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

28 Chambers x 142.0 cf = 3,976.0 cf Chamber Storage

28 Chambers x 177.2 cf = 4,962.2 cf Displacement

14,464.1 cf Field - 4,962.2 cf Chambers = 9,501.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,976.0 cf = 0.091 af

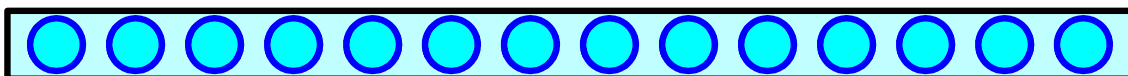
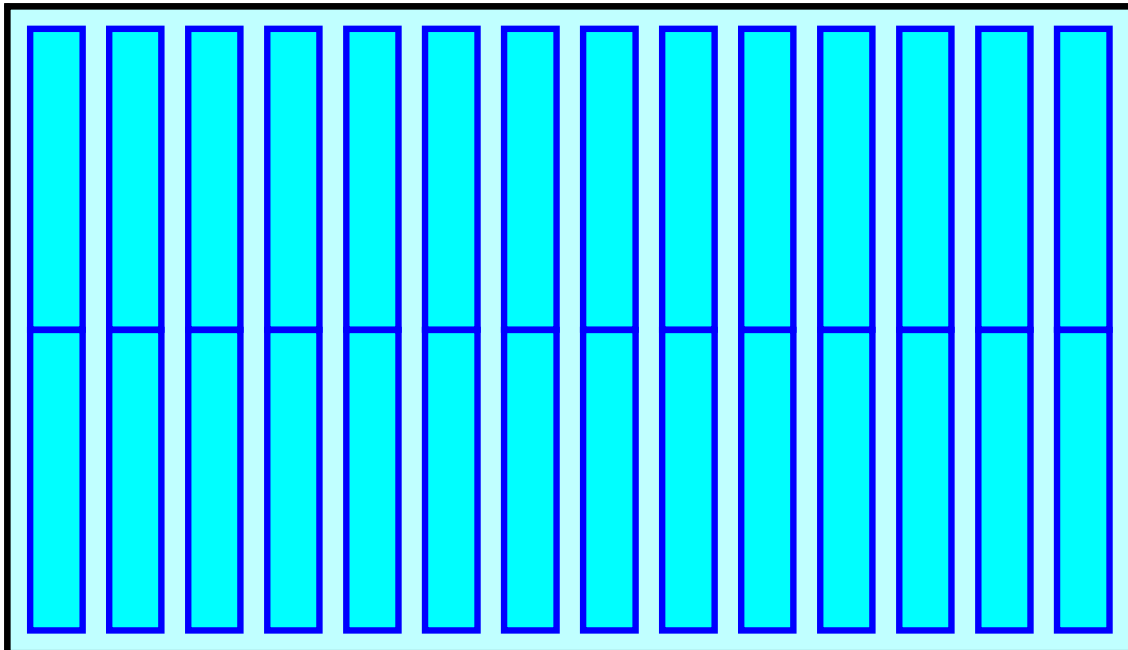
Overall Storage Efficiency = 27.5%

Overall System Size = 43.00' x 74.75' x 4.50'

28 Chambers

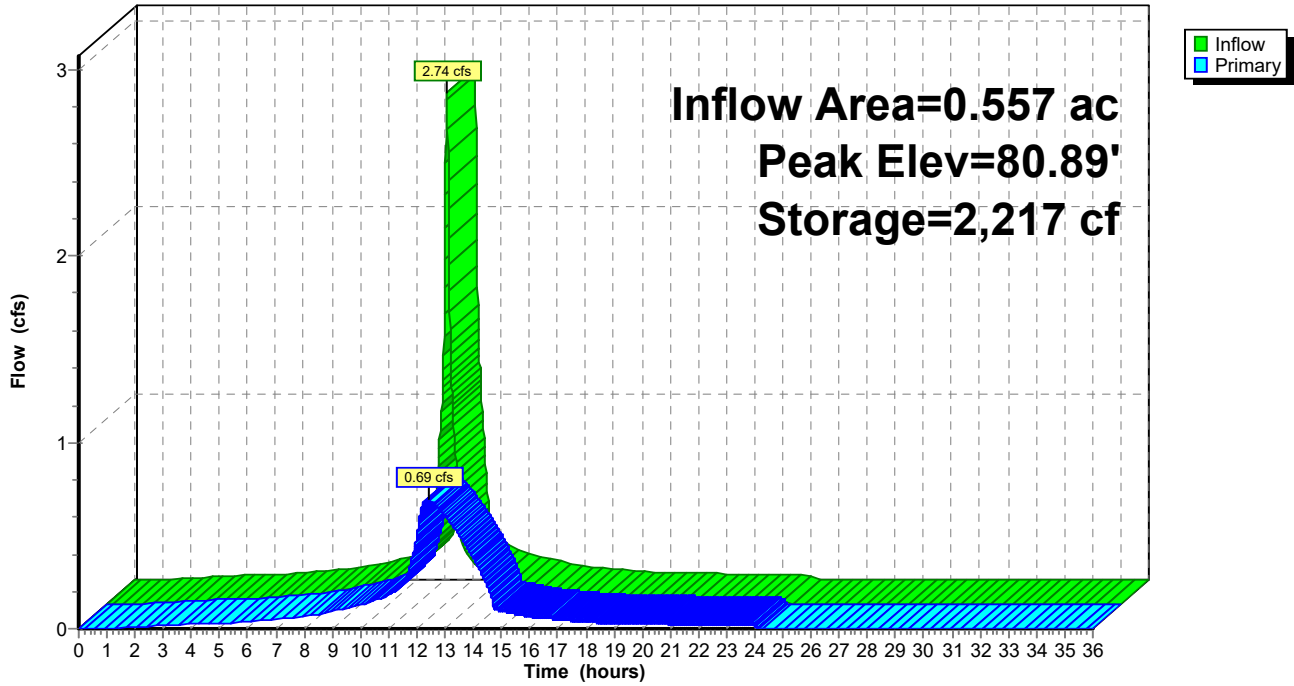
535.7 cy Field

351.9 cy Stone



### Pond 15P: Underground Chambers

Hydrograph



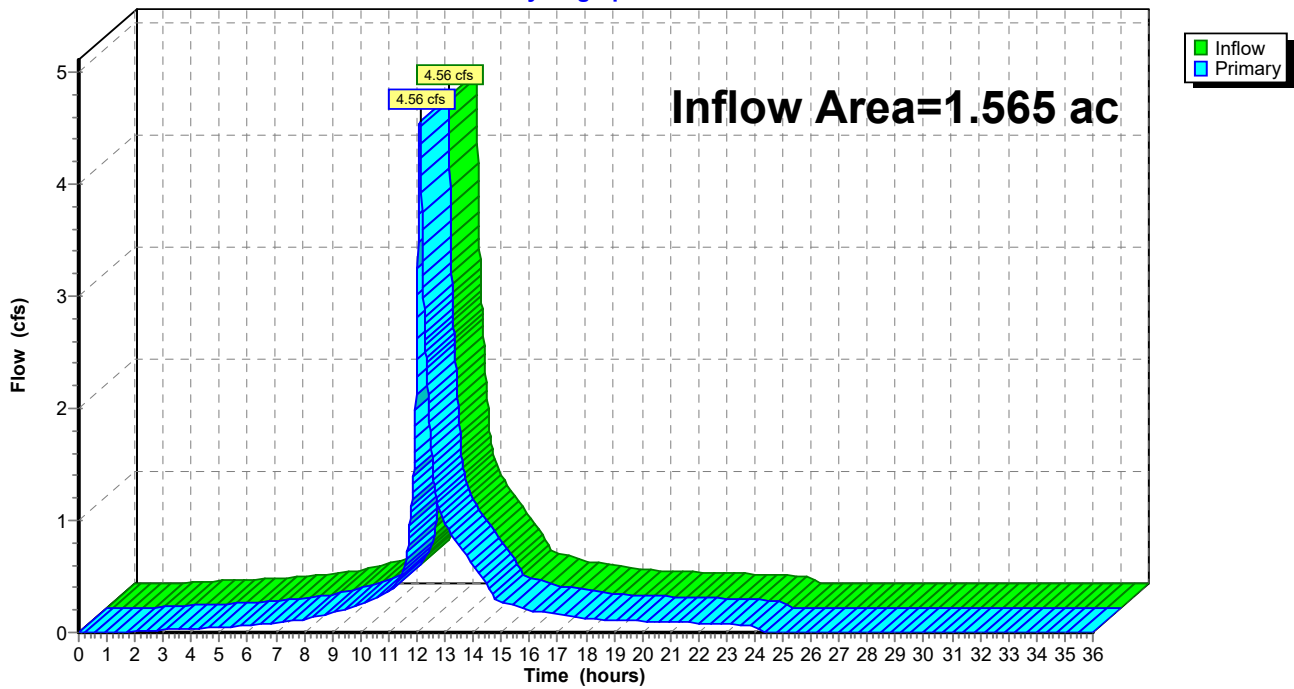
### Summary for Link 10L:

Inflow Area = 1.565 ac, 81.08% Impervious, Inflow Depth = 3.91" for 10-Year event  
Inflow = 4.56 cfs @ 12.11 hrs, Volume= 0.510 af  
Primary = 4.56 cfs @ 12.11 hrs, Volume= 0.510 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

### Link 10L:

Hydrograph



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Page 73

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S:** Runoff Area=2,542 sf 48.39% Impervious Runoff Depth=5.29"  
 Tc=5.0 min CN=93 Runoff=0.35 cfs 0.026 af

**Subcatchment 11S:** Runoff Area=4,053 sf 82.33% Impervious Runoff Depth=5.64"  
 Tc=5.0 min CN=96 Runoff=0.57 cfs 0.044 af

**Subcatchment 12S:** Runoff Area=7,755 sf 86.25% Impervious Runoff Depth=5.75"  
 Tc=5.0 min CN=97 Runoff=1.10 cfs 0.085 af

**Subcatchment 13S:** Runoff Area=2,785 sf 23.30% Impervious Runoff Depth=4.95"  
 Tc=5.0 min UI Adjusted CN=90 Runoff=0.37 cfs 0.026 af

**Subcatchment 14S:** Runoff Area=19,778 sf 72.49% Impervious Runoff Depth=5.52"  
 Flow Length=820' Tc=8.9 min CN=95 Runoff=2.42 cfs 0.209 af

**Subcatchment 15S:** Runoff Area=24,255 sf 100.00% Impervious Runoff Depth=5.87"  
 Tc=5.0 min CN=98 Runoff=3.45 cfs 0.272 af

**Subcatchment 16S:** Runoff Area=6,983 sf 68.18% Impervious Runoff Depth=5.52"  
 Flow Length=938' Tc=7.4 min CN=95 Runoff=0.90 cfs 0.074 af

**Pond 10P:** Peak Elev=93.87' Storage=279 cf Inflow=0.35 cfs 0.026 af  
 Primary=0.35 cfs 0.020 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.020 af

**Pond 11P:** Peak Elev=93.82' Storage=1,310 cf Inflow=0.57 cfs 0.044 af  
 Primary=0.06 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.014 af

**Pond 12P:** Peak Elev=87.94' Storage=538 cf Inflow=1.10 cfs 0.085 af  
 Primary=1.09 cfs 0.074 af Secondary=0.00 cfs 0.000 af Outflow=1.09 cfs 0.074 af

**Pond 13P:** Peak Elev=83.89' Storage=910 cf Inflow=1.80 cfs 0.134 af  
 Primary=1.75 cfs 0.117 af Secondary=0.00 cfs 0.000 af Outflow=1.75 cfs 0.117 af

**Pond 15P: Underground Chambers** Peak Elev=81.40' Storage=3,049 cf Inflow=3.45 cfs 0.272 af  
 Outflow=0.79 cfs 0.272 af

**Link 10L:** Inflow=5.71 cfs 0.672 af  
 Primary=5.71 cfs 0.672 af

**Total Runoff Area = 1.565 ac Runoff Volume = 0.736 af Average Runoff Depth = 5.65"**  
**18.92% Pervious = 0.296 ac 81.08% Impervious = 1.269 ac**



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 74

**Summary for Subcatchment 10S:**

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.026 af, Depth= 5.29"  
Routed to Pond 10P :

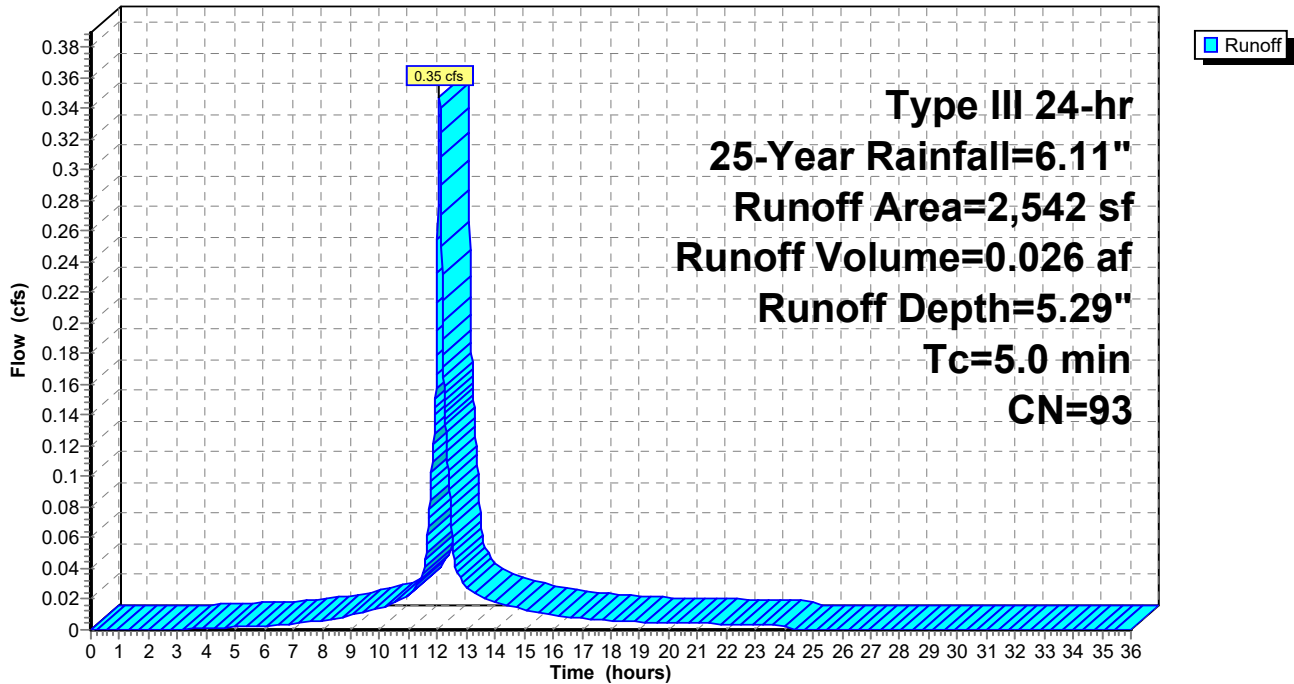
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
1,312	89	<50% Grass cover, Poor, HSG D
1,230	98	Unconnected pavement, HSG D
2,542	93	Weighted Average
1,312		51.61% Pervious Area
1,230		48.39% Impervious Area
1,230		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 10S:**

Hydrograph



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Page 75

**Summary for Subcatchment 11S:**

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.044 af, Depth= 5.64"  
Routed to Pond 11P :

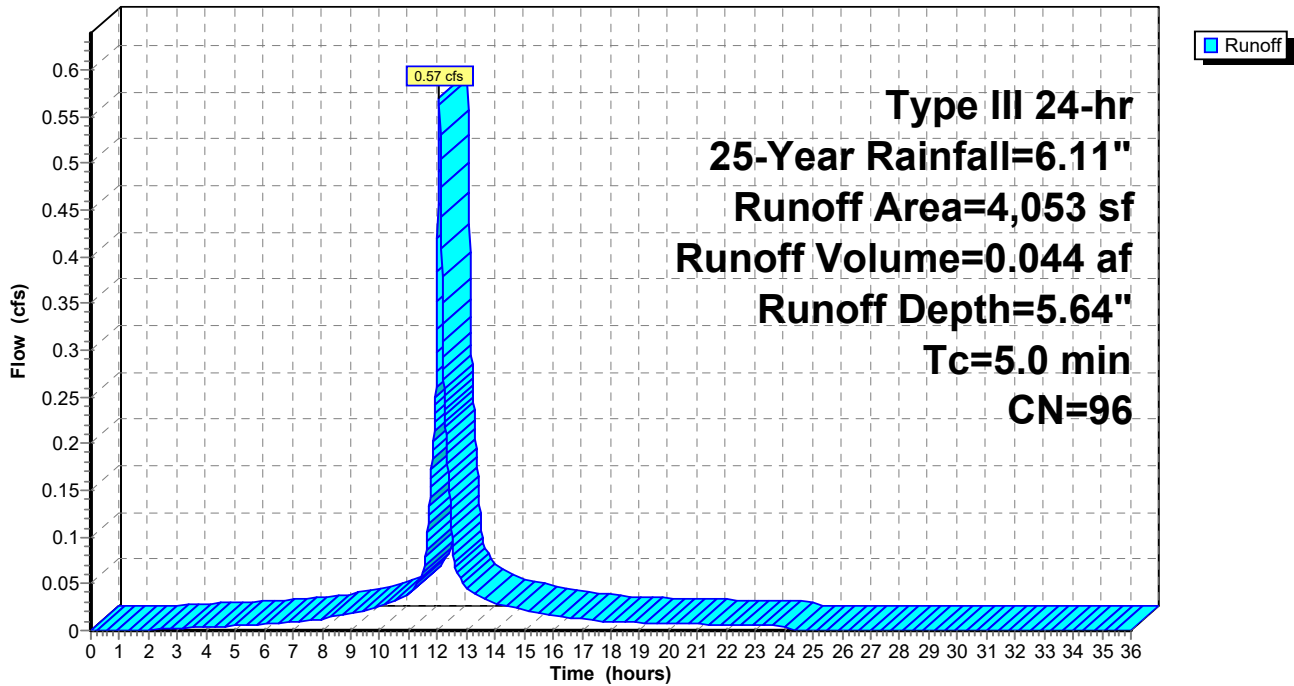
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
716	89	<50% Grass cover, Poor, HSG D
882	98	Unconnected pavement, HSG D
2,455	98	Roofs, HSG D
4,053	96	Weighted Average
716		17.67% Pervious Area
3,337		82.33% Impervious Area
882		26.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 11S:**

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Page 76

**Summary for Subcatchment 12S:**

Runoff = 1.10 cfs @ 12.07 hrs, Volume= 0.085 af, Depth= 5.75"  
Routed to Pond 12P :

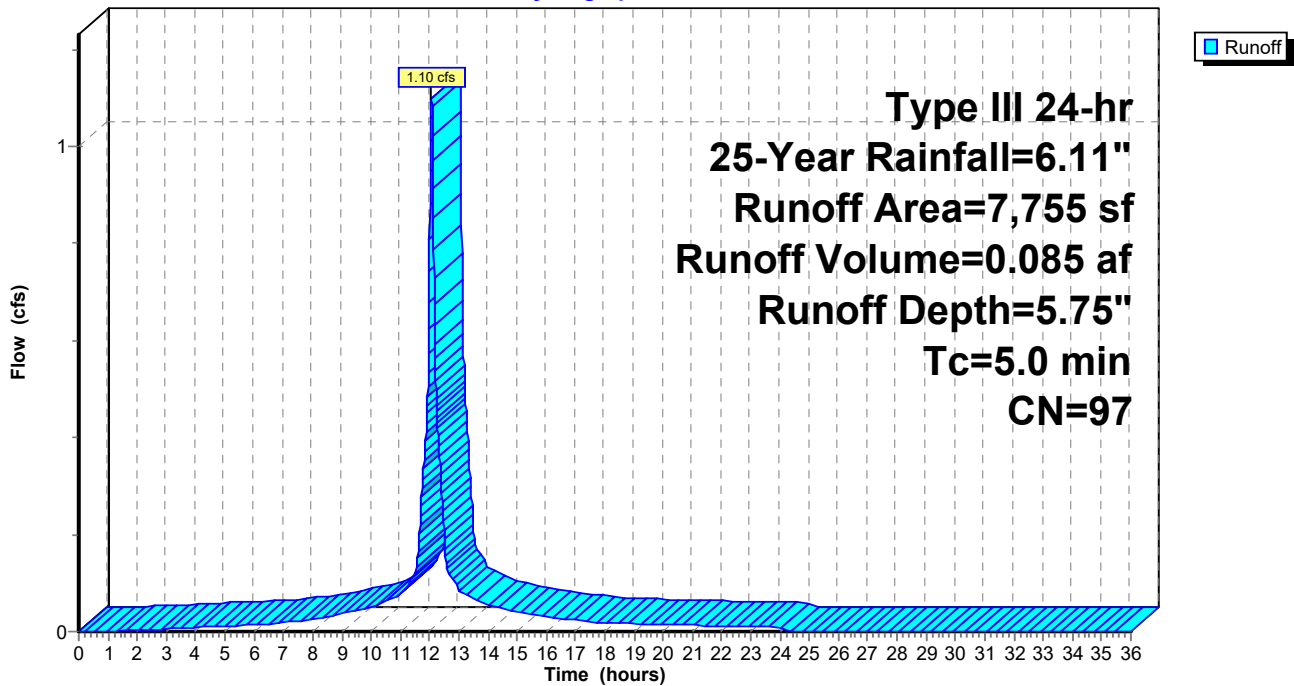
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
1,066	89	<50% Grass cover, Poor, HSG D
6,689	98	Roofs, HSG D
7,755	97	Weighted Average
1,066		13.75% Pervious Area
6,689		86.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 12S:**

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Page 77

**Summary for Subcatchment 13S:**

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 0.026 af, Depth= 4.95"  
Routed to Pond 13P :

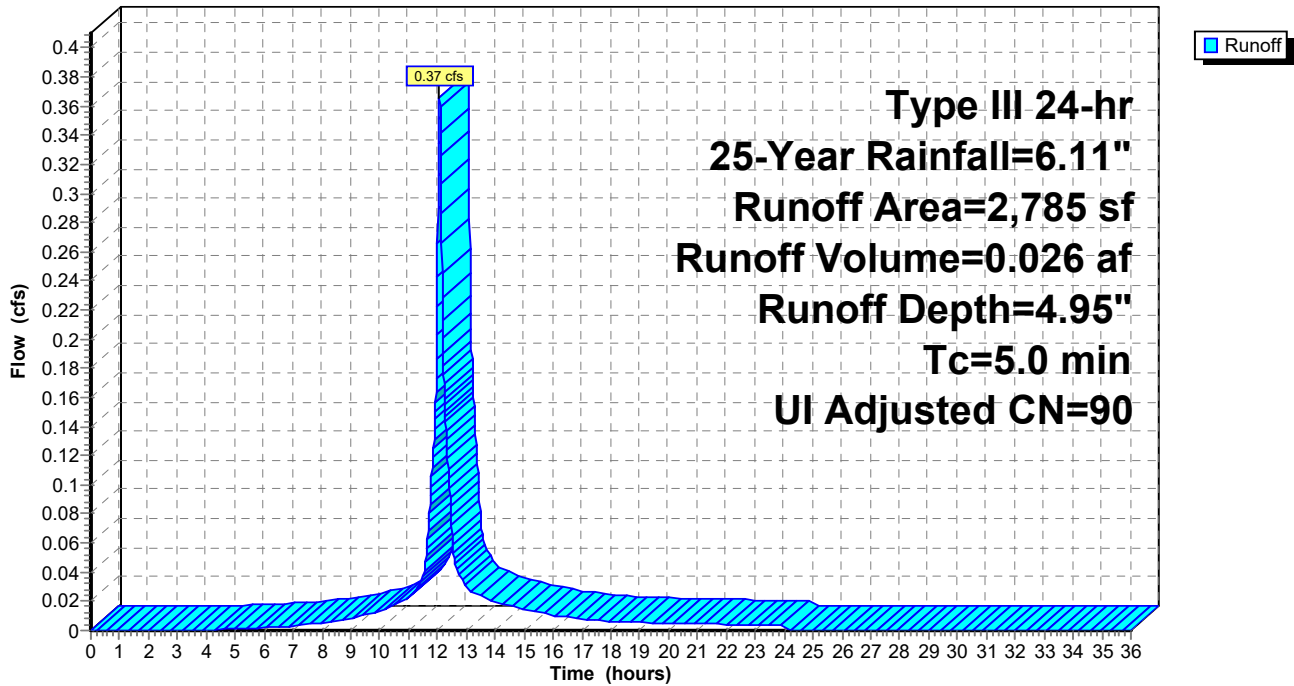
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Adj	Description
1,785	89		<50% Grass cover, Poor, HSG D
649	98		Unconnected pavement, HSG D
351	86		<50% Grass cover, Poor, HSG C
2,785	91	90	Weighted Average, UI Adjusted
2,136			76.70% Pervious Area
649			23.30% Impervious Area
649			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 13S:**

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Type III 24-hr 25-Year Rainfall=6.11"

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Page 78

**Summary for Subcatchment 14S:**

Runoff = 2.42 cfs @ 12.12 hrs, Volume= 0.209 af, Depth= 5.52"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
5,172	89	<50% Grass cover, Poor, HSG D
1,767	98	Unconnected pavement, HSG D
269	86	<50% Grass cover, Poor, HSG C
87	98	Unconnected pavement, HSG C
11,870	98	Unconnected roofs, HSG D
613	98	Unconnected roofs, HSG C
19,778	95	Weighted Average
5,441		27.51% Pervious Area
14,337		72.49% Impervious Area
14,337		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0510	0.25		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
0.1	21	0.0669	3.88		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.9	399	0.0251	7.19	5.64	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.2	300	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	820	Total			

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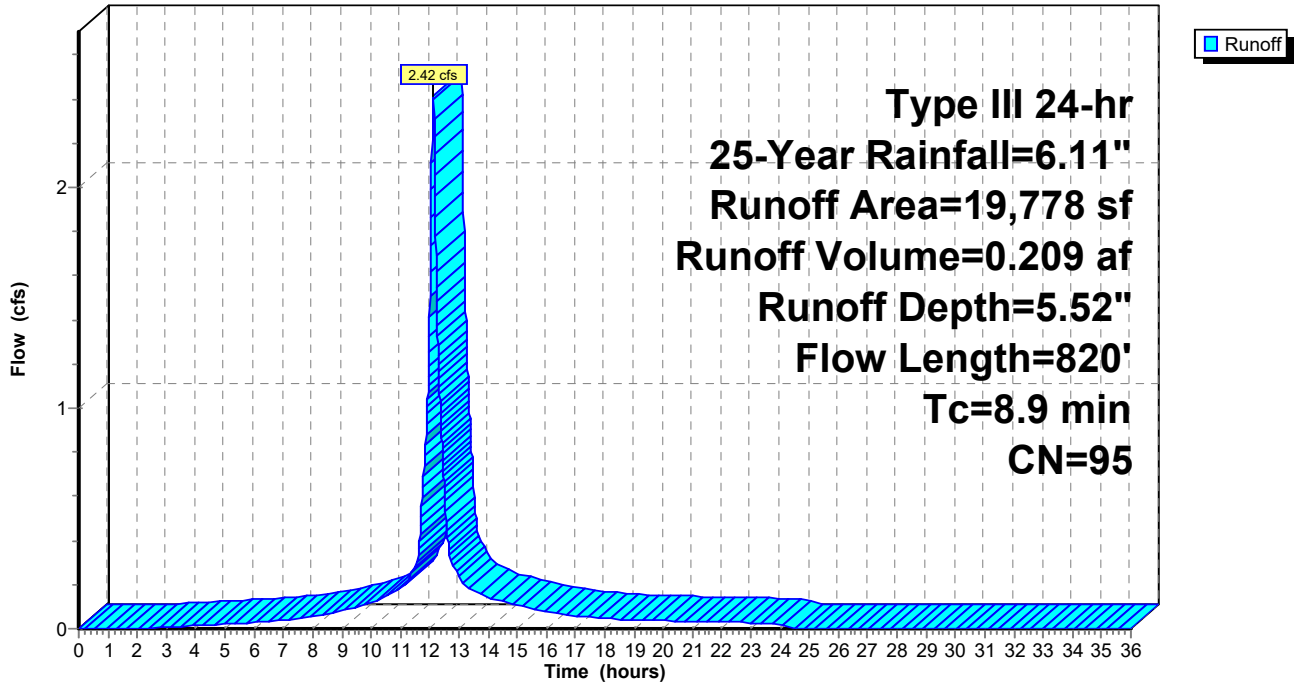
Type III 24-hr 25-Year Rainfall=6.11"

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Page 79

**Subcatchment 14S:**

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Page 80

**Summary for Subcatchment 15S:**

Runoff = 3.45 cfs @ 12.07 hrs, Volume= 0.272 af, Depth= 5.87"  
Routed to Pond 15P : Underground Chambers

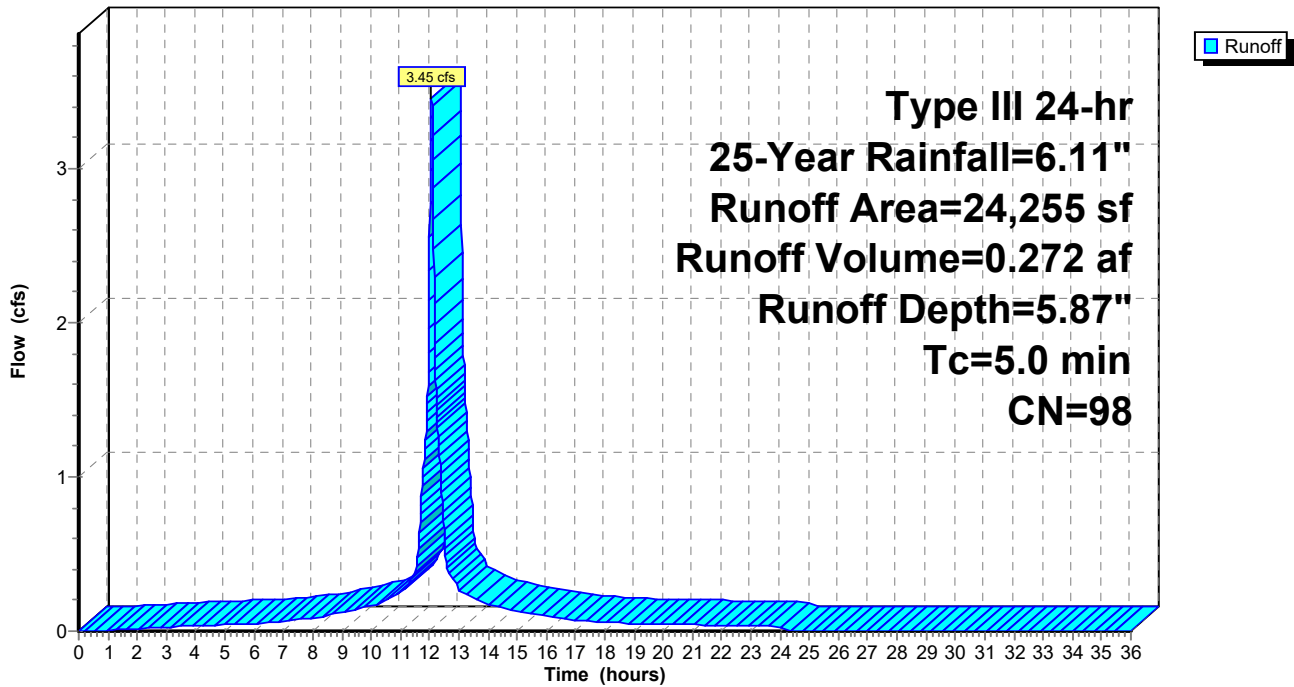
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 25-Year Rainfall=6.11"

Area (sf)	CN	Description
24,255	98	Roofs, HSG D
24,255		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 15S:**

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Page 81

**Summary for Subcatchment 16S:**

Runoff = 0.90 cfs @ 12.10 hrs, Volume= 0.074 af, Depth= 5.52"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 25-Year Rainfall=6.11"

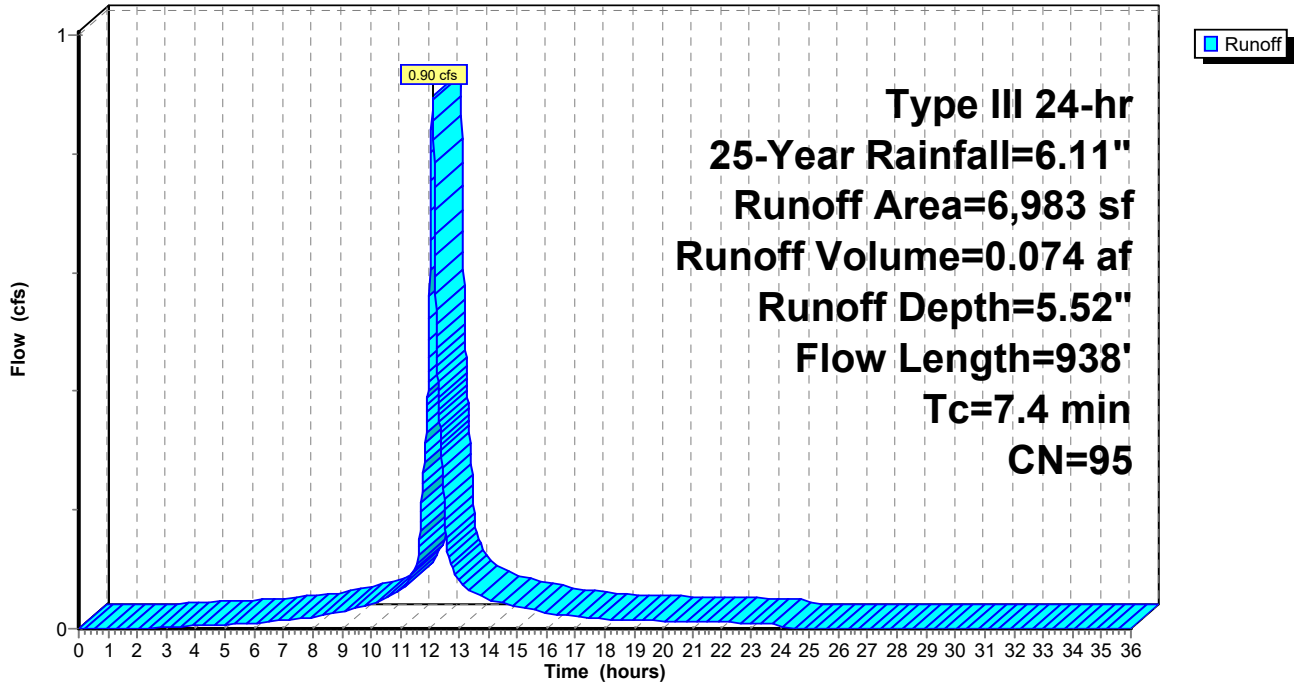
Area (sf)	CN	Description
1,854	89	<50% Grass cover, Poor, HSG D
3,603	98	Unconnected pavement, HSG D
368	86	<50% Grass cover, Poor, HSG C
1,158	98	Unconnected pavement, HSG C
6,983	95	Weighted Average
2,222		31.82% Pervious Area
4,761		68.18% Impervious Area
4,761		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	13	0.0115	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
1.2	87	0.0161	1.24		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.26"
1.9	393	0.0294	3.48		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.1	15	0.0100	4.50	1.57	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	430	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
7.4	938	Total			



Subcatchment 16S:

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Page 83

**Summary for Pond 10P:**

Inflow Area = 0.058 ac, 48.39% Impervious, Inflow Depth = 5.29" for 25-Year event  
 Inflow = 0.35 cfs @ 12.07 hrs, Volume= 0.026 af  
 Outflow = 0.35 cfs @ 12.08 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.4 min  
 Primary = 0.35 cfs @ 12.08 hrs, Volume= 0.020 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.87' @ 12.08 hrs Surf.Area= 165 sf Storage= 279 cf

Plug-Flow detention time= 143.4 min calculated for 0.020 af (76% of inflow)  
 Center-of-Mass det. time= 60.4 min ( 832.0 - 771.6 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	457 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	180	53.0	0.0	0	0	180
90.00	180	53.0	20.0	4	4	185
91.00	180	53.0	20.0	36	40	238
92.00	19	24.8	100.0	86	125	417
93.00	84	38.6	100.0	48	173	494
94.00	180	53.0	100.0	129	302	608
94.80	207	56.1	100.0	155	457	659

Device	Routing	Invert	Outlet Devices
#1	Primary	89.60'	<b>12.0" Round Culvert</b> L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 89.60' / 88.90' S= 0.0095 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.70'	<b>66.2' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.35 cfs @ 12.08 hrs HW=93.87' TW=83.89' (Dynamic Tailwater)

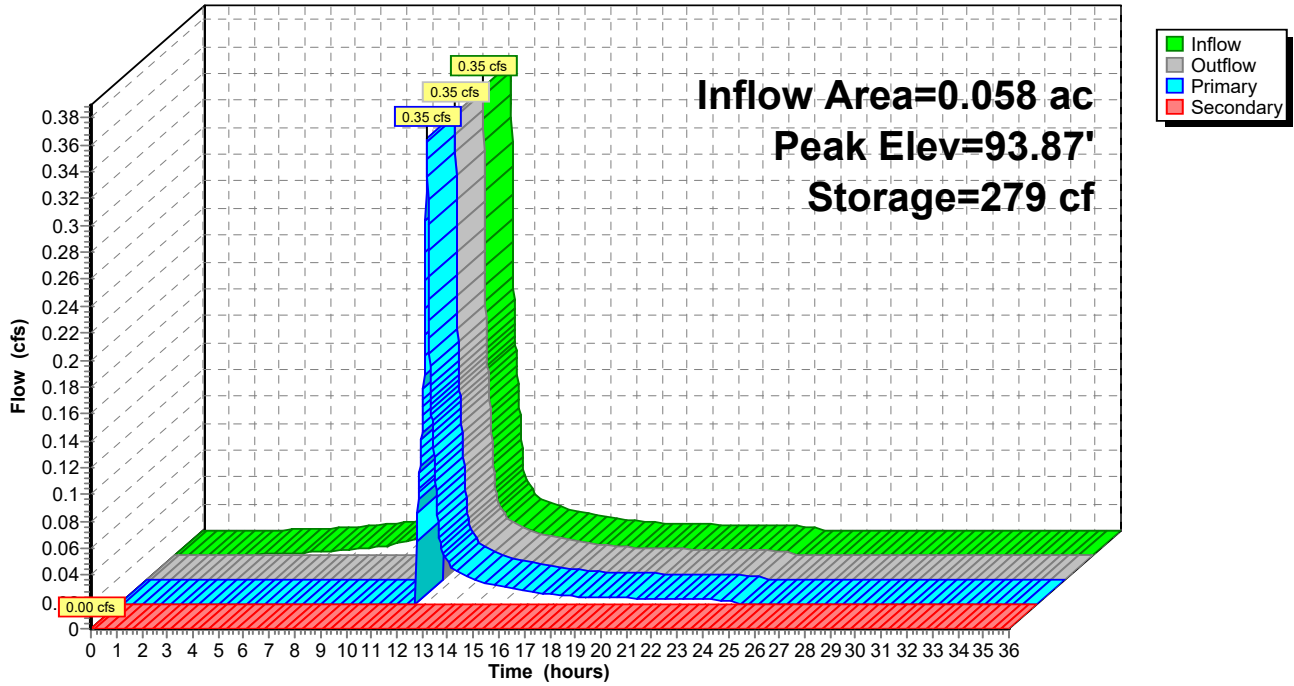
- ↑1=Culvert (Passes 0.35 cfs of 6.42 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 0.35 cfs @ 0.84 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

Pond 10P:

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 85

**Summary for Pond 11P:**

Inflow Area = 0.093 ac, 82.33% Impervious, Inflow Depth = 5.64" for 25-Year event  
 Inflow = 0.57 cfs @ 12.07 hrs, Volume= 0.044 af  
 Outflow = 0.06 cfs @ 12.75 hrs, Volume= 0.014 af, Atten= 90%, Lag= 40.9 min  
 Primary = 0.06 cfs @ 12.75 hrs, Volume= 0.014 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.82' @ 12.75 hrs Surf.Area= 571 sf Storage= 1,310 cf

Plug-Flow detention time= 385.5 min calculated for 0.014 af (32% of inflow)  
 Center-of-Mass det. time= 211.3 min ( 968.2 - 756.9 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	1,731 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	607	97.0	0.0	0	0	607
90.00	607	97.0	20.0	12	12	617
91.00	607	97.0	20.0	121	134	714
92.00	270	67.0	100.0	427	561	1,114
93.00	422	82.0	100.0	343	904	1,307
94.00	607	97.0	100.0	512	1,416	1,538
94.50	656	100.0	100.0	316	1,731	1,606

Device	Routing	Invert	Outlet Devices
#1	Primary	88.90'	<b>12.0" Round Culvert</b> L= 136.3' Ke= 0.500 Inlet / Outlet Invert= 88.90' / 84.50' S= 0.0323 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.40'	<b>86.0' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.06 cfs @ 12.75 hrs HW=93.82' TW=83.75' (Dynamic Tailwater)

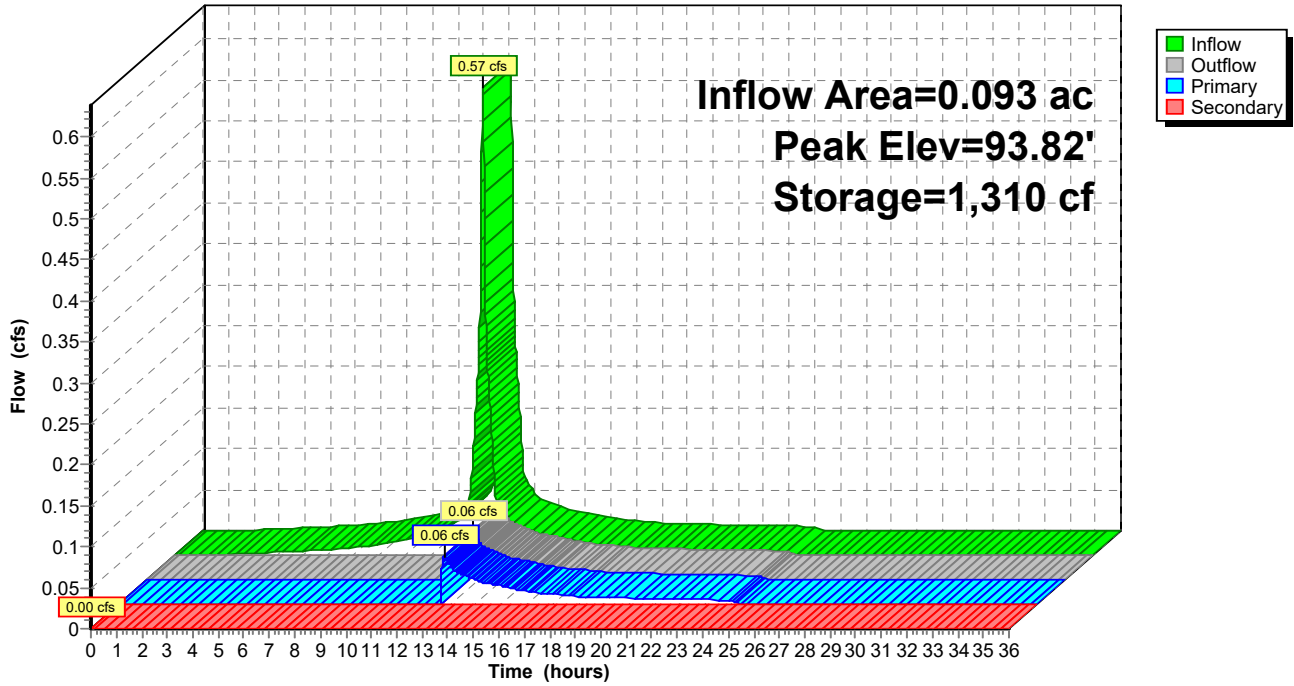
- ↑1=Culvert (Passes 0.06 cfs of 7.56 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 0.06 cfs @ 0.46 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 11P:**

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 87

**Summary for Pond 12P:**

Inflow Area = 0.178 ac, 86.25% Impervious, Inflow Depth = 5.75" for 25-Year event  
 Inflow = 1.10 cfs @ 12.07 hrs, Volume= 0.085 af  
 Outflow = 1.09 cfs @ 12.08 hrs, Volume= 0.074 af, Atten= 1%, Lag= 0.5 min  
 Primary = 1.09 cfs @ 12.08 hrs, Volume= 0.074 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 87.94' @ 12.08 hrs Surf.Area= 330 sf Storage= 538 cf

Plug-Flow detention time= 110.2 min calculated for 0.074 af (87% of inflow)  
 Center-of-Mass det. time= 50.1 min ( 801.0 - 750.9 )

Volume	Invert	Avail.Storage	Storage Description			
#1	84.40'	668 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.40	343	102.0	0.0	0	0	343
84.50	343	102.0	20.0	7	7	353
85.50	343	102.0	20.0	69	75	455
86.50	68	59.0	100.0	188	263	1,012
87.00	151	84.0	100.0	53	317	1,299
88.00	343	102.0	100.0	241	557	1,581
88.30	394	104.0	100.0	110	668	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	84.50'	<b>12.0" Round Culvert</b> L= 92.5' Ke= 0.500 Inlet / Outlet Invert= 84.50' / 84.00' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	88.20'	<b>114.5' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

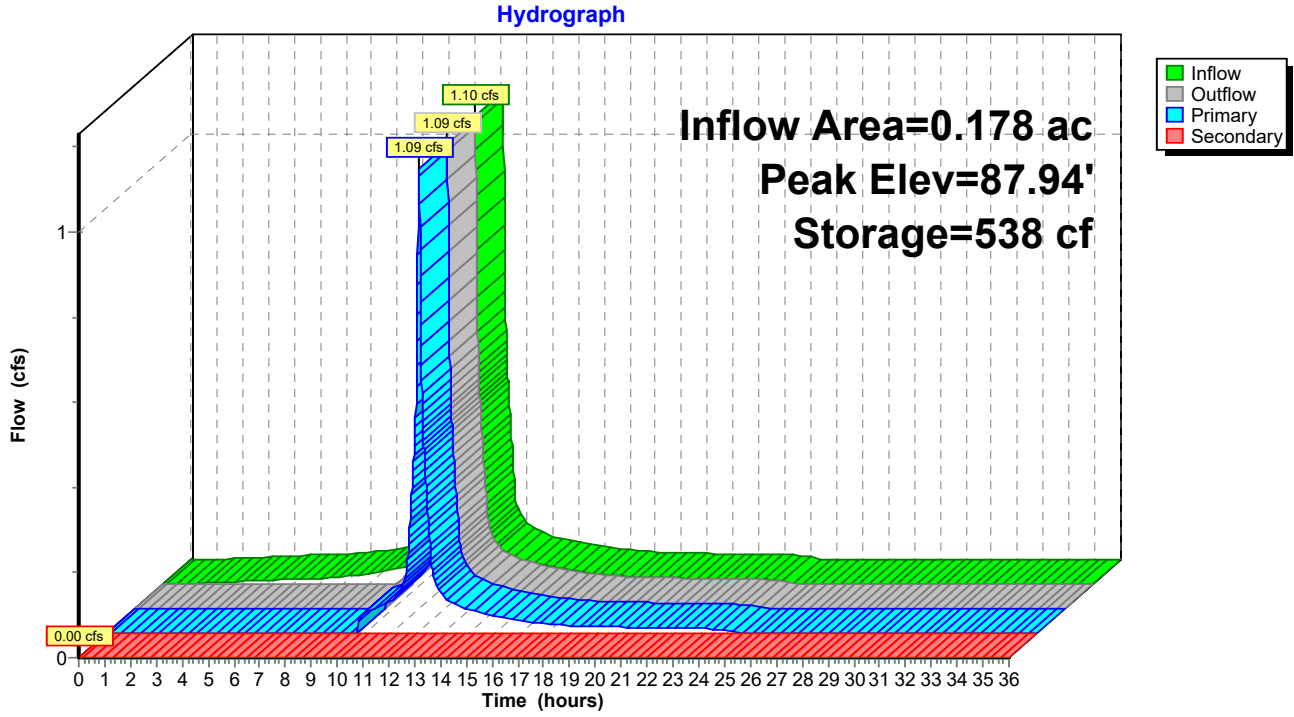
**Primary OutFlow** Max=1.09 cfs @ 12.08 hrs HW=87.94' TW=83.89' (Dynamic Tailwater)

- ↑1=Culvert (Passes 1.09 cfs of 5.15 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 1.09 cfs @ 1.23 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.40' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

Pond 12P:



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Page 89

**Summary for Pond 13P:**

Inflow Area = 0.393 ac, 69.48% Impervious, Inflow Depth = 4.08" for 25-Year event  
 Inflow = 1.80 cfs @ 12.08 hrs, Volume= 0.134 af  
 Outflow = 1.75 cfs @ 12.10 hrs, Volume= 0.117 af, Atten= 3%, Lag= 1.2 min  
 Primary = 1.75 cfs @ 12.10 hrs, Volume= 0.117 af  
   Routed to Link 10L :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
   Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 83.89' @ 12.10 hrs Surf.Area= 979 sf Storage= 910 cf

Plug-Flow detention time= 87.5 min calculated for 0.117 af (87% of inflow)  
 Center-of-Mass det. time= 30.0 min ( 849.4 - 819.4 )

Volume	Invert	Avail.Storage	Storage Description		
#1	82.50'	1,345 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.50	336	217.5	0	0	336
83.00	574	230.8	225	225	824
84.00	1,034	240.8	793	1,018	1,267
84.30	1,152	243.1	328	1,345	1,381

Device	Routing	Invert	Outlet Devices
#1	Primary	77.75'	<b>8.0" Round Culvert</b> L= 28.6' Ke= 0.500 Inlet / Outlet Invert= 77.75' / 76.50' S= 0.0437 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf
#2	Device 1	83.70'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	84.20'	<b>243.1' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=1.74 cfs @ 12.10 hrs HW=83.89' TW=0.00' (Dynamic Tailwater)

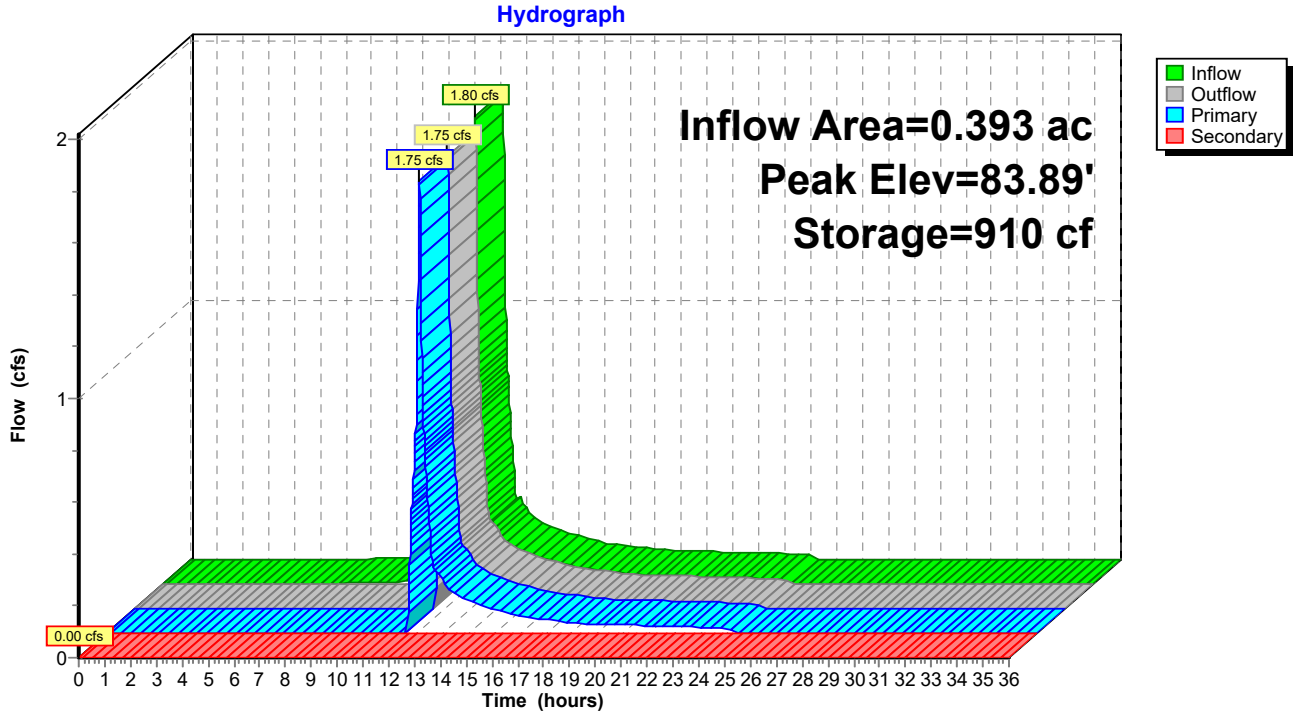
↑**1=Culvert** (Passes 1.74 cfs of 4.05 cfs potential flow)  
 ↑**2=Orifice/Grate** (Weir Controls 1.74 cfs @ 1.44 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=82.50' TW=0.00' (Dynamic Tailwater)

↑**3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



Pond 13P:



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Type III 24-hr 25-Year Rainfall=6.11"

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Page 91

## Summary for Pond 15P: Underground Chambers

Inflow Area = 0.557 ac, 100.00% Impervious, Inflow Depth = 5.87" for 25-Year event  
 Inflow = 3.45 cfs @ 12.07 hrs, Volume= 0.272 af  
 Outflow = 0.79 cfs @ 12.45 hrs, Volume= 0.272 af, Atten= 77%, Lag= 22.8 min  
 Primary = 0.79 cfs @ 12.45 hrs, Volume= 0.272 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 81.40' @ 12.45 hrs Surf.Area= 3,214 sf Storage= 3,049 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= 25.3 min ( 769.3 - 743.9 )

Volume	Invert	Avail.Storage	Storage Description
#1B	78.50'	0 cf	<b>74.75'W x 43.00'L x 4.50'H Field B</b> 14,464 cf Overall - 4,962 cf Embedded = 9,502 cf x 0.0% Voids
#2B	79.00'	3,976 cf	<b>ADS N-12 36" x 28 Inside #1</b> Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf 28 Chambers in 14 Rows
		3,976 cf	Total Available Storage

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	<b>12.0" Round Culvert</b> L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 79.00' / 78.00' S= 0.0313 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	79.00'	<b>4.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	82.00'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.79 cfs @ 12.45 hrs HW=81.40' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 0.79 cfs of 5.21 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.79 cfs @ 7.16 fps)
- ↑ **3=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

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Type III 24-hr 25-Year Rainfall=6.11"

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Page 92

**Pond 15P: Underground Chambers - Chamber Wizard Field B**

**Chamber Model = ADS N-12 36" (ADS N-12® Pipe)**

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long = 40.00' Row Length +18.0" End Stone x 2 = 43.00' Base Length

14 Rows x 42.0" Wide + 21.0" Spacing x 13 + 18.0" Side Stone x 2 = 74.75' Base Width

6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

28 Chambers x 142.0 cf = 3,976.0 cf Chamber Storage

28 Chambers x 177.2 cf = 4,962.2 cf Displacement

14,464.1 cf Field - 4,962.2 cf Chambers = 9,501.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,976.0 cf = 0.091 af

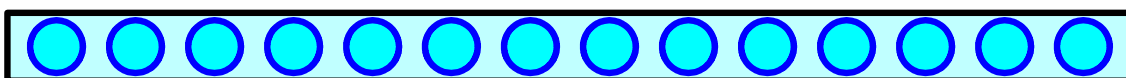
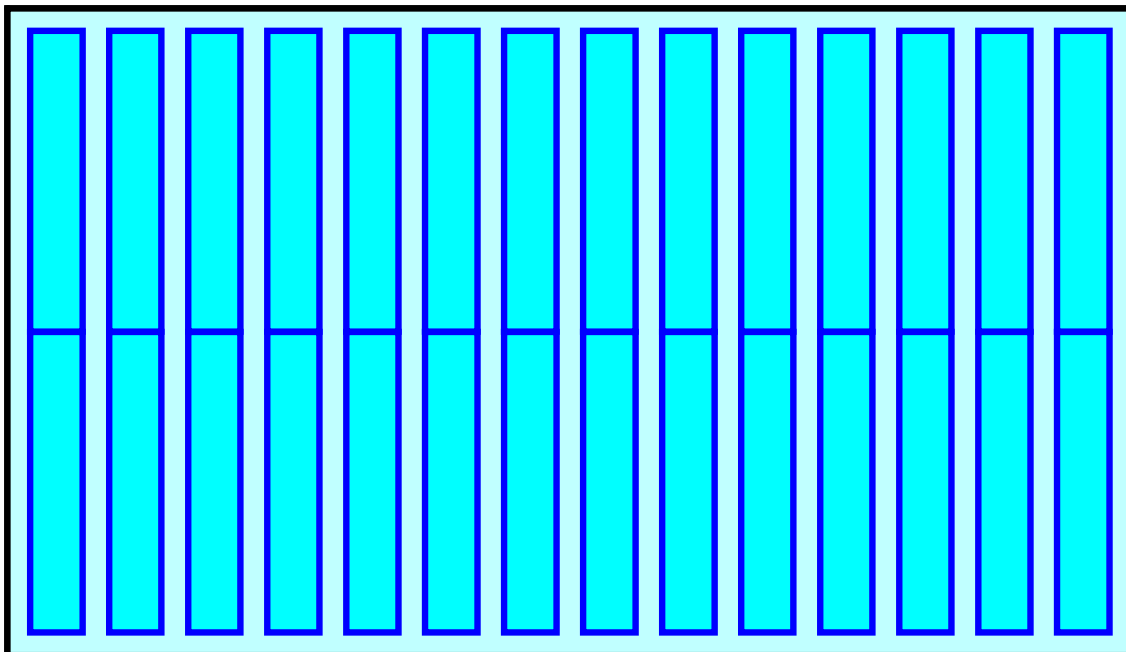
Overall Storage Efficiency = 27.5%

Overall System Size = 43.00' x 74.75' x 4.50'

28 Chambers

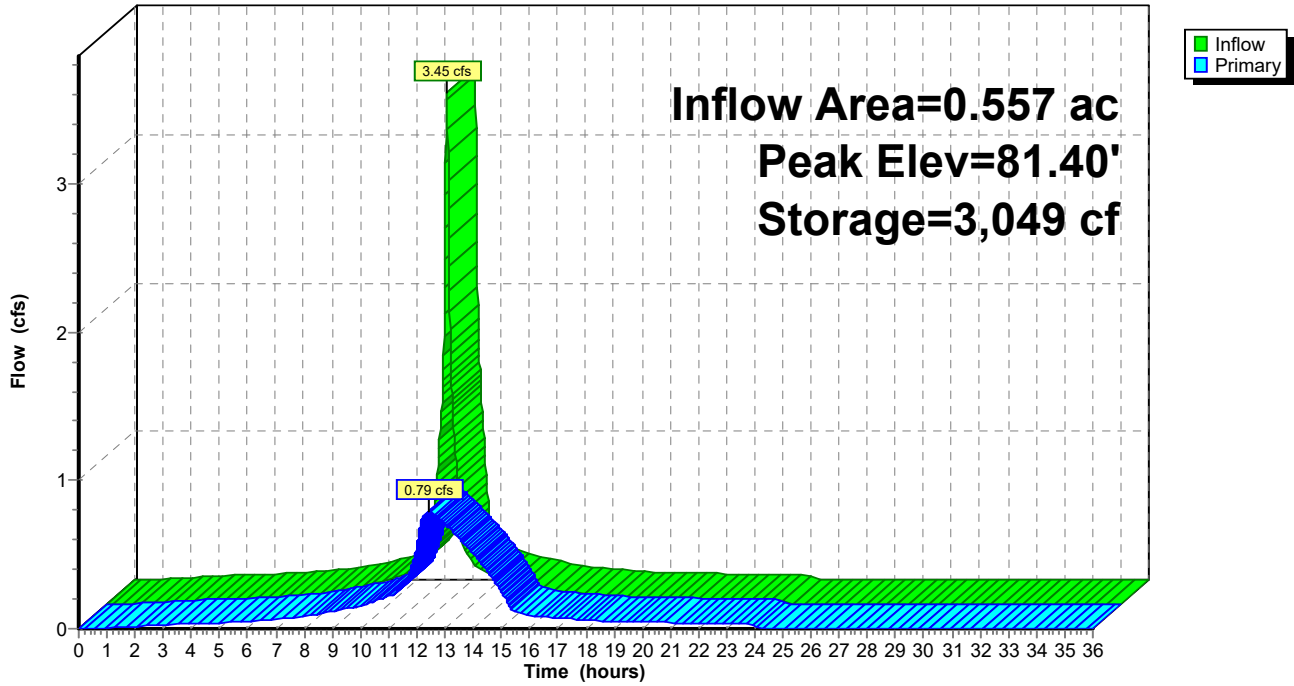
535.7 cy Field

351.9 cy Stone



### Pond 15P: Underground Chambers

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Page 94

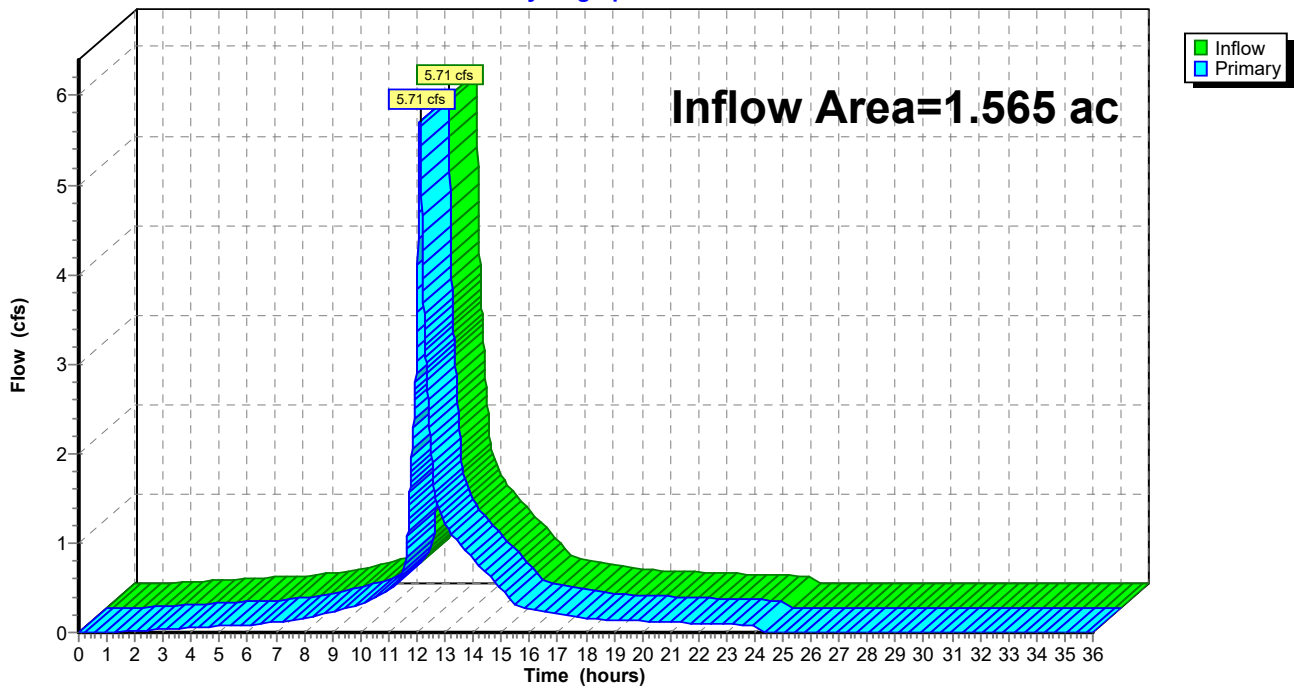
**Summary for Link 10L:**

Inflow Area = 1.565 ac, 81.08% Impervious, Inflow Depth = 5.16" for 25-Year event  
Inflow = 5.71 cfs @ 12.11 hrs, Volume= 0.672 af  
Primary = 5.71 cfs @ 12.11 hrs, Volume= 0.672 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph



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Page 95

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S:** Runoff Area=2,542 sf 48.39% Impervious Runoff Depth=7.79"  
 Tc=5.0 min CN=93 Runoff=0.50 cfs 0.038 af

**Subcatchment 11S:** Runoff Area=4,053 sf 82.33% Impervious Runoff Depth=8.15"  
 Tc=5.0 min CN=96 Runoff=0.81 cfs 0.063 af

**Subcatchment 12S:** Runoff Area=7,755 sf 86.25% Impervious Runoff Depth=8.27"  
 Tc=5.0 min CN=97 Runoff=1.56 cfs 0.123 af

**Subcatchment 13S:** Runoff Area=2,785 sf 23.30% Impervious Runoff Depth=7.43"  
 Tc=5.0 min UI Adjusted CN=90 Runoff=0.54 cfs 0.040 af

**Subcatchment 14S:** Runoff Area=19,778 sf 72.49% Impervious Runoff Depth=8.03"  
 Flow Length=820' Tc=8.9 min CN=95 Runoff=3.46 cfs 0.304 af

**Subcatchment 15S:** Runoff Area=24,255 sf 100.00% Impervious Runoff Depth=8.39"  
 Tc=5.0 min CN=98 Runoff=4.89 cfs 0.389 af

**Subcatchment 16S:** Runoff Area=6,983 sf 68.18% Impervious Runoff Depth=8.03"  
 Flow Length=938' Tc=7.4 min CN=95 Runoff=1.28 cfs 0.107 af

**Pond 10P:** Peak Elev=93.88' Storage=282 cf Inflow=0.50 cfs 0.038 af  
 Primary=0.50 cfs 0.032 af Secondary=0.00 cfs 0.000 af Outflow=0.50 cfs 0.032 af

**Pond 11P:** Peak Elev=93.90' Storage=1,356 cf Inflow=0.81 cfs 0.063 af  
 Primary=0.65 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.65 cfs 0.033 af

**Pond 12P:** Peak Elev=87.98' Storage=550 cf Inflow=1.56 cfs 0.123 af  
 Primary=1.55 cfs 0.111 af Secondary=0.00 cfs 0.000 af Outflow=1.55 cfs 0.111 af

**Pond 13P:** Peak Elev=83.97' Storage=986 cf Inflow=2.98 cfs 0.216 af  
 Primary=2.87 cfs 0.199 af Secondary=0.00 cfs 0.000 af Outflow=2.87 cfs 0.199 af

**Pond 15P: Underground Chambers** Peak Elev=82.26' Storage=3,976 cf Inflow=4.89 cfs 0.389 af  
 Outflow=2.59 cfs 0.389 af

**Link 10L:** Inflow=8.46 cfs 1.000 af  
 Primary=8.46 cfs 1.000 af

**Total Runoff Area = 1.565 ac Runoff Volume = 1.064 af Average Runoff Depth = 8.16"**  
**18.92% Pervious = 0.296 ac 81.08% Impervious = 1.269 ac**

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Page 96

**Summary for Subcatchment 10S:**

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.038 af, Depth= 7.79"  
Routed to Pond 10P :

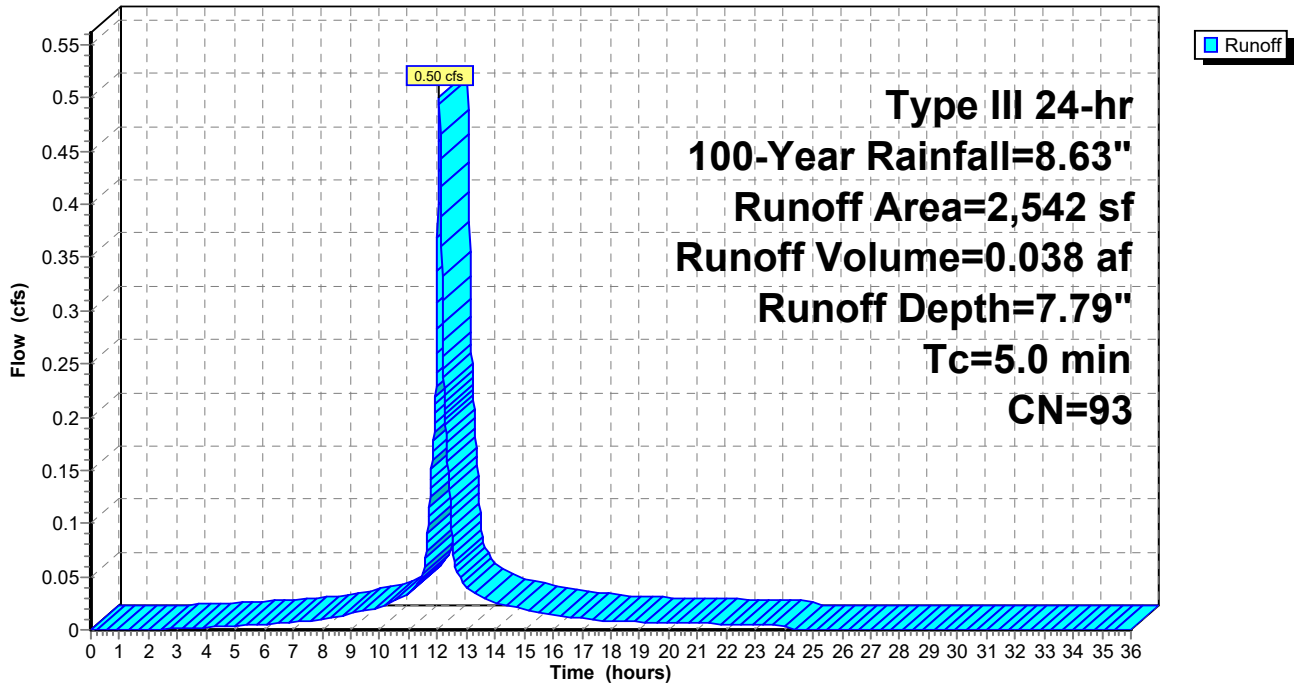
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
1,312	89	<50% Grass cover, Poor, HSG D
1,230	98	Unconnected pavement, HSG D
2,542	93	Weighted Average
1,312		51.61% Pervious Area
1,230		48.39% Impervious Area
1,230		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 10S:**

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.63"

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Page 97

**Summary for Subcatchment 11S:**

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.063 af, Depth= 8.15"  
Routed to Pond 11P :

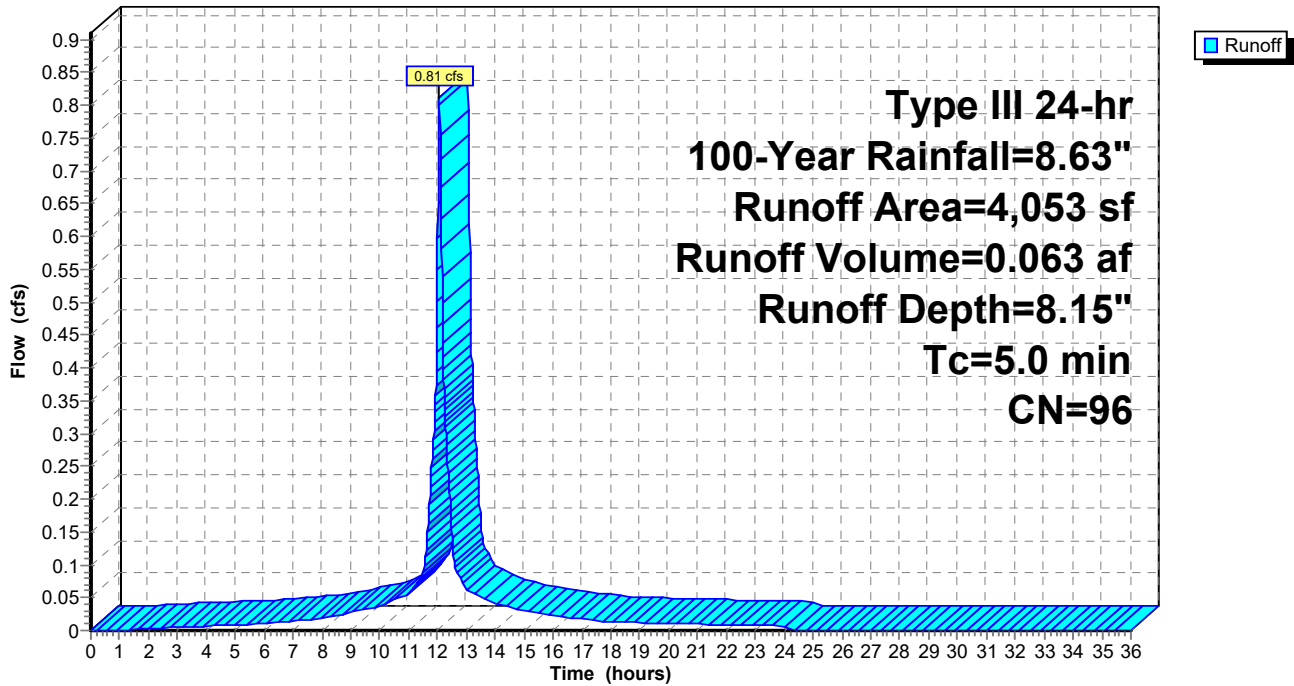
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
716	89	<50% Grass cover, Poor, HSG D
882	98	Unconnected pavement, HSG D
2,455	98	Roofs, HSG D
4,053	96	Weighted Average
716		17.67% Pervious Area
3,337		82.33% Impervious Area
882		26.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 11S:**

Hydrograph





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Type III 24-hr 100-Year Rainfall=8.63"

Printed 4/12/2023

Page 98

**Summary for Subcatchment 12S:**

Runoff = 1.56 cfs @ 12.07 hrs, Volume= 0.123 af, Depth= 8.27"  
 Routed to Pond 12P :

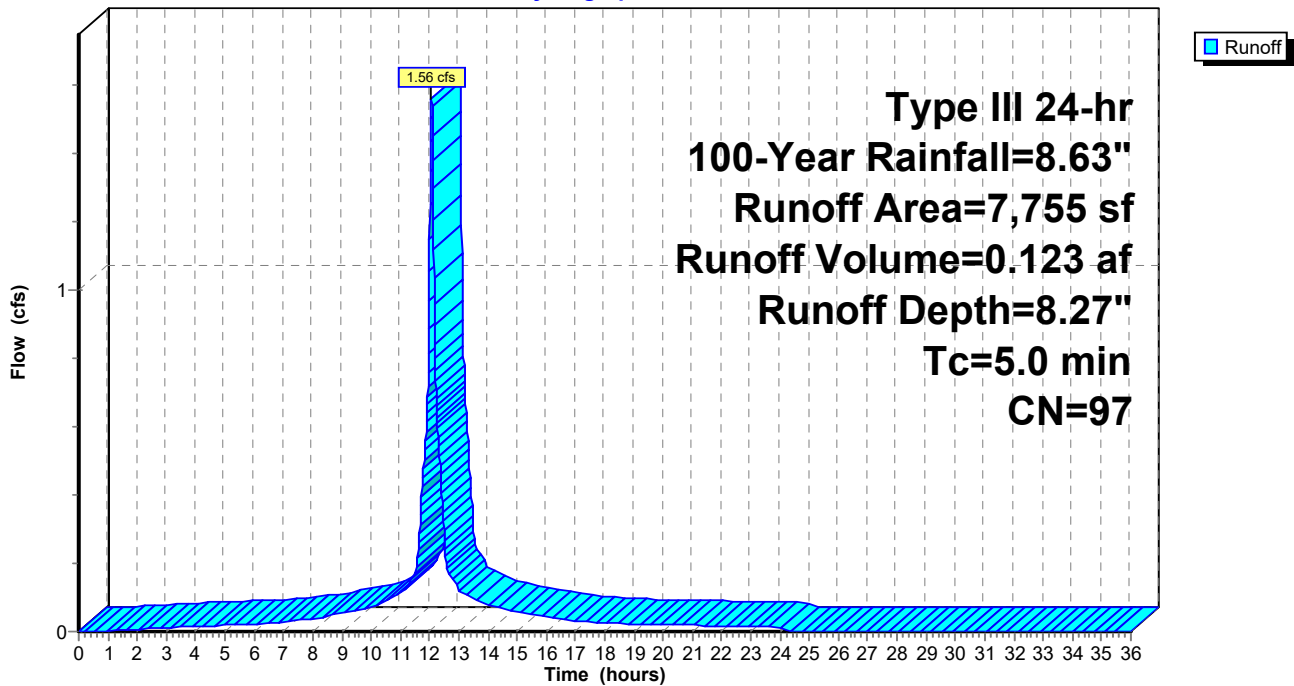
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
1,066	89	<50% Grass cover, Poor, HSG D
6,689	98	Roofs, HSG D
7,755	97	Weighted Average
1,066		13.75% Pervious Area
6,689		86.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 12S:**

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Page 99

**Summary for Subcatchment 13S:**

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 7.43"  
 Routed to Pond 13P :

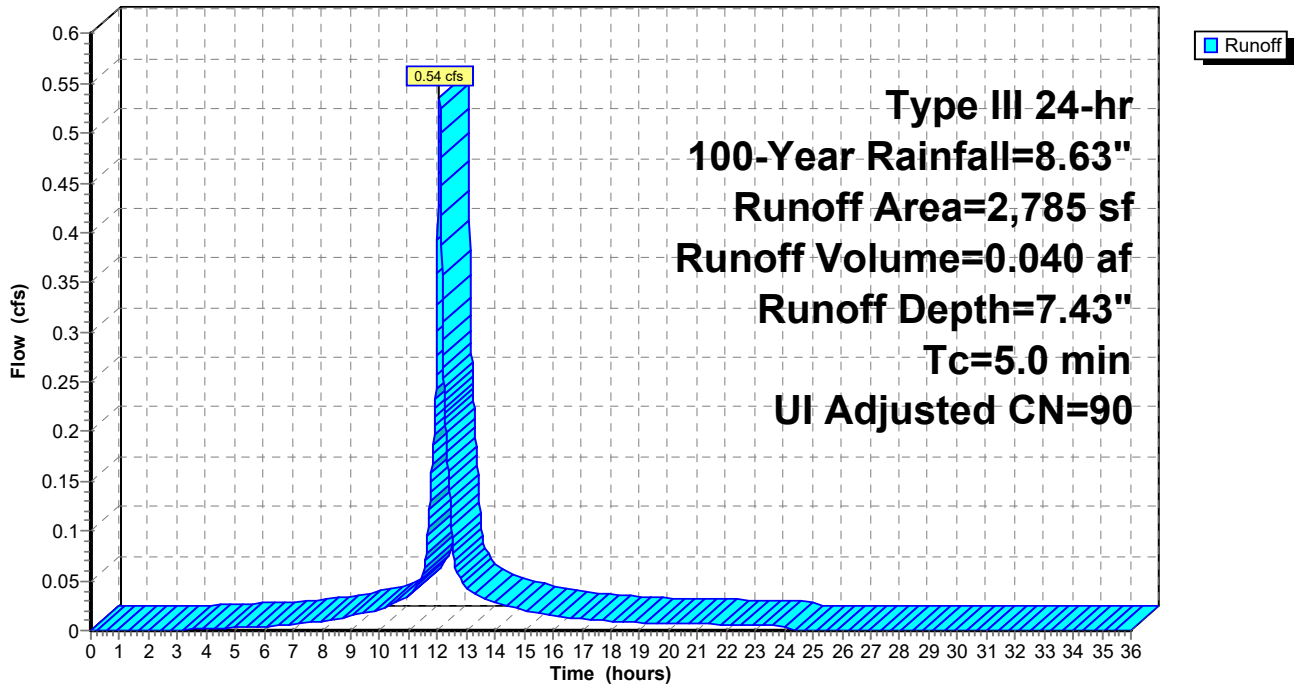
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Adj	Description
1,785	89		<50% Grass cover, Poor, HSG D
649	98		Unconnected pavement, HSG D
351	86		<50% Grass cover, Poor, HSG C
2,785	91	90	Weighted Average, UI Adjusted
2,136			76.70% Pervious Area
649			23.30% Impervious Area
649			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 13S:**

Hydrograph



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Page 100

**Summary for Subcatchment 14S:**

Runoff = 3.46 cfs @ 12.12 hrs, Volume= 0.304 af, Depth= 8.03"  
 Routed to Link 10L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Rainfall=8.63"

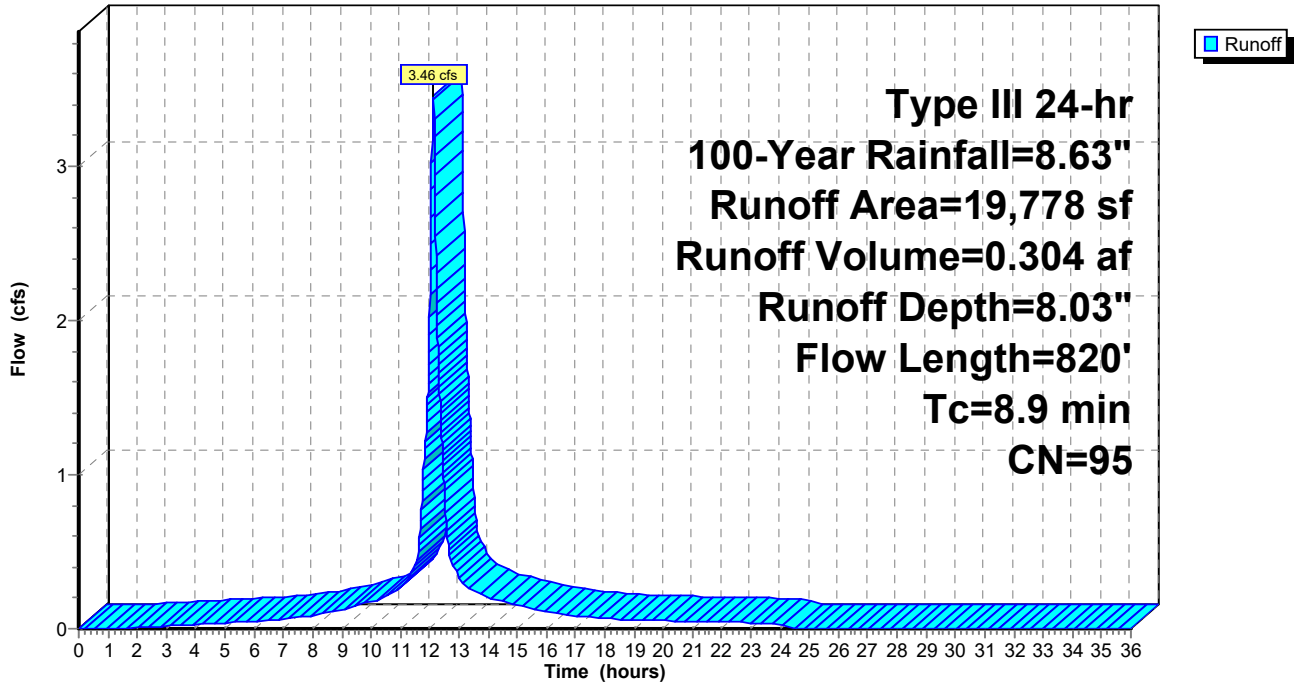
Area (sf)	CN	Description
5,172	89	<50% Grass cover, Poor, HSG D
1,767	98	Unconnected pavement, HSG D
269	86	<50% Grass cover, Poor, HSG C
87	98	Unconnected pavement, HSG C
11,870	98	Unconnected roofs, HSG D
613	98	Unconnected roofs, HSG C
19,778	95	Weighted Average
5,441		27.51% Pervious Area
14,337		72.49% Impervious Area
14,337		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	100	0.0510	0.25		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
0.1	21	0.0669	3.88		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.9	399	0.0251	7.19	5.64	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
1.2	300	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	820	Total			

Subcatchment 14S:

Hydrograph



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Page 102

**Summary for Subcatchment 15S:**

Runoff = 4.89 cfs @ 12.07 hrs, Volume= 0.389 af, Depth= 8.39"  
Routed to Pond 15P : Underground Chambers

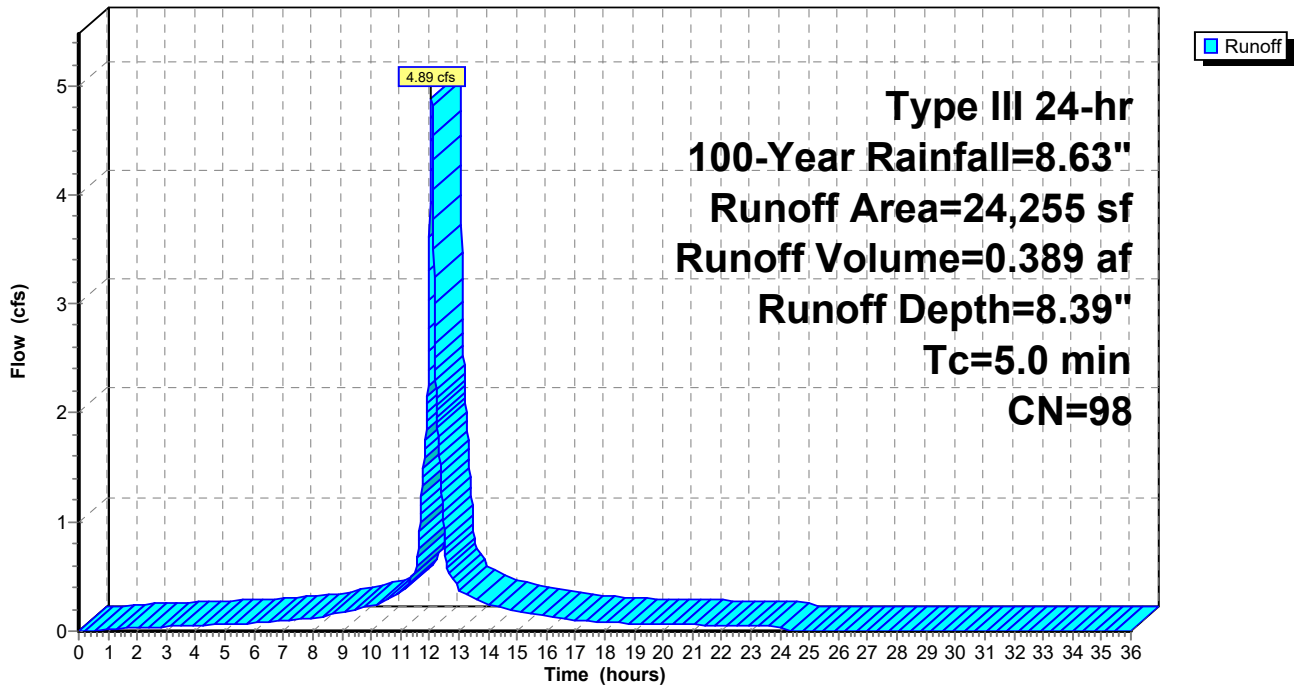
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
24,255	98	Roofs, HSG D
24,255		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

**Subcatchment 15S:**

Hydrograph



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Page 103

**Summary for Subcatchment 16S:**

Runoff = 1.28 cfs @ 12.10 hrs, Volume= 0.107 af, Depth= 8.03"  
 Routed to Link 10L :

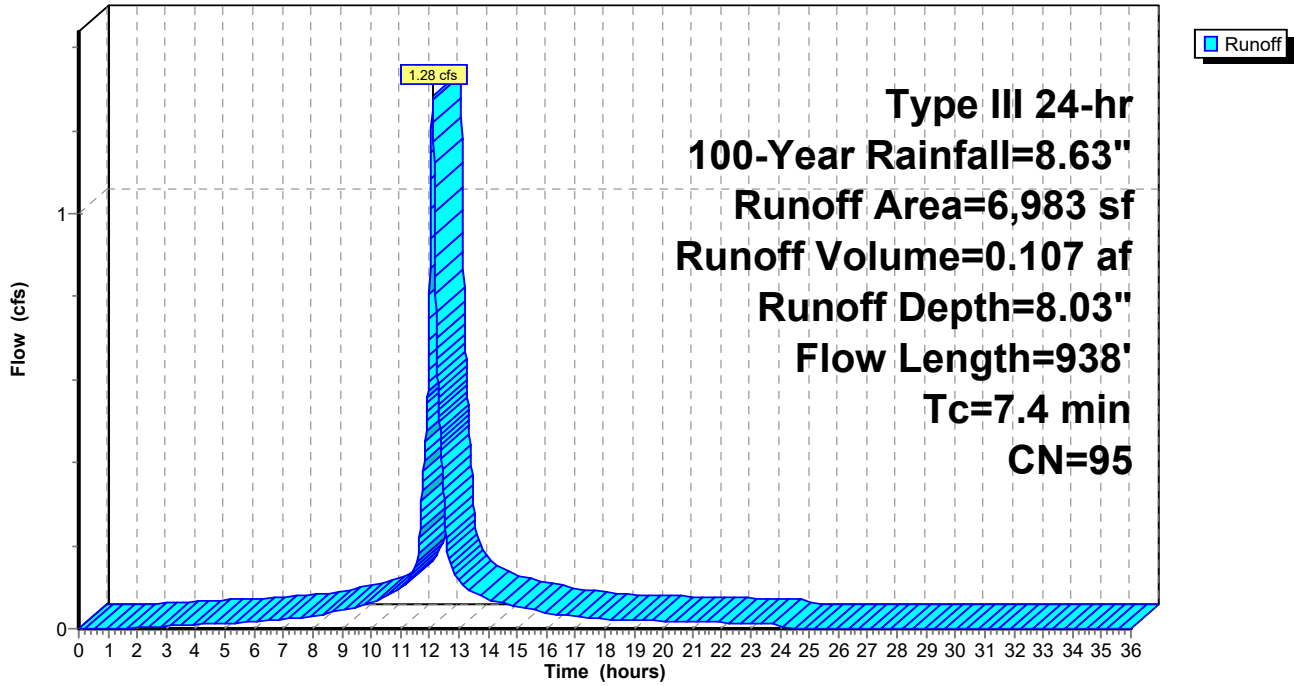
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Rainfall=8.63"

Area (sf)	CN	Description
1,854	89	<50% Grass cover, Poor, HSG D
3,603	98	Unconnected pavement, HSG D
368	86	<50% Grass cover, Poor, HSG C
1,158	98	Unconnected pavement, HSG C
6,983	95	Weighted Average
2,222		31.82% Pervious Area
4,761		68.18% Impervious Area
4,761		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	13	0.0115	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
1.2	87	0.0161	1.24		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.26"
1.9	393	0.0294	3.48		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.1	15	0.0100	4.50	1.57	<b>Pipe Channel,</b> 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.010 PVC, smooth interior
1.8	430	0.0080	4.06	3.19	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
7.4	938	Total			

Subcatchment 16S:

Hydrograph



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Page 105

**Summary for Pond 10P:**

Inflow Area = 0.058 ac, 48.39% Impervious, Inflow Depth = 7.79" for 100-Year event  
 Inflow = 0.50 cfs @ 12.07 hrs, Volume= 0.038 af  
 Outflow = 0.50 cfs @ 12.08 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.3 min  
 Primary = 0.50 cfs @ 12.08 hrs, Volume= 0.032 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.88' @ 12.08 hrs Surf.Area= 167 sf Storage= 282 cf

Plug-Flow detention time= 118.2 min calculated for 0.032 af (84% of inflow)  
 Center-of-Mass det. time= 50.9 min ( 813.5 - 762.6 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	457 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	180	53.0	0.0	0	0	180
90.00	180	53.0	20.0	4	4	185
91.00	180	53.0	20.0	36	40	238
92.00	19	24.8	100.0	86	125	417
93.00	84	38.6	100.0	48	173	494
94.00	180	53.0	100.0	129	302	608
94.80	207	56.1	100.0	155	457	659

Device	Routing	Invert	Outlet Devices
#1	Primary	89.60'	<b>12.0" Round Culvert</b> L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 89.60' / 88.90' S= 0.0095 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.70'	<b>66.2' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.50 cfs @ 12.08 hrs HW=93.88' TW=83.94' (Dynamic Tailwater)

- ↑1=Culvert (Passes 0.50 cfs of 6.43 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 0.50 cfs @ 0.95 fps)

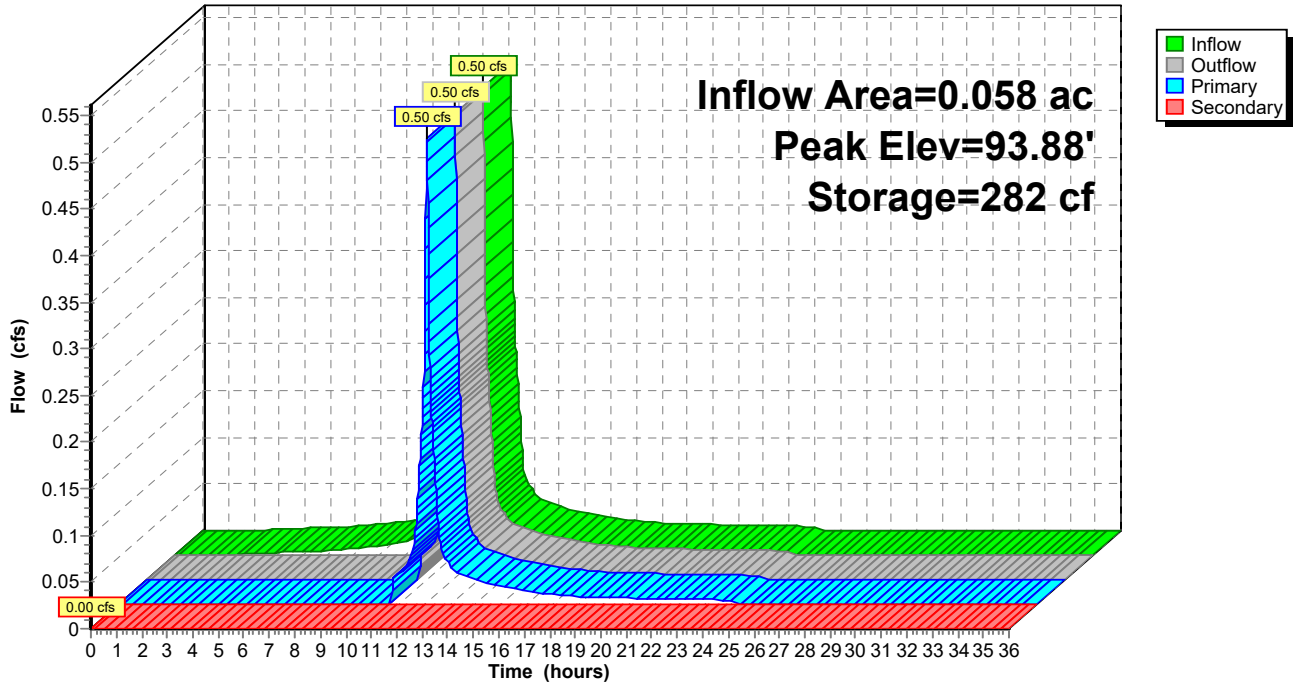
**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)



**Pond 10P:**

Hydrograph



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Page 107

**Summary for Pond 11P:**

Inflow Area = 0.093 ac, 82.33% Impervious, Inflow Depth = 8.15" for 100-Year event  
 Inflow = 0.81 cfs @ 12.07 hrs, Volume= 0.063 af  
 Outflow = 0.65 cfs @ 12.13 hrs, Volume= 0.033 af, Atten= 20%, Lag= 3.4 min  
 Primary = 0.65 cfs @ 12.13 hrs, Volume= 0.033 af  
   Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
   Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 93.90' @ 12.13 hrs Surf.Area= 587 sf Storage= 1,356 cf

Plug-Flow detention time= 245.1 min calculated for 0.033 af (53% of inflow)  
 Center-of-Mass det. time= 123.0 min ( 873.1 - 750.0 )

Volume	Invert	Avail.Storage	Storage Description			
#1	89.90'	1,731 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
89.90	607	97.0	0.0	0	0	607
90.00	607	97.0	20.0	12	12	617
91.00	607	97.0	20.0	121	134	714
92.00	270	67.0	100.0	427	561	1,114
93.00	422	82.0	100.0	343	904	1,307
94.00	607	97.0	100.0	512	1,416	1,538
94.50	656	100.0	100.0	316	1,731	1,606

Device	Routing	Invert	Outlet Devices
#1	Primary	88.90'	<b>12.0" Round Culvert</b> L= 136.3' Ke= 0.500 Inlet / Outlet Invert= 88.90' / 84.50' S= 0.0323 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	93.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	94.40'	<b>86.0' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=0.65 cfs @ 12.13 hrs HW=93.90' TW=83.97' (Dynamic Tailwater)

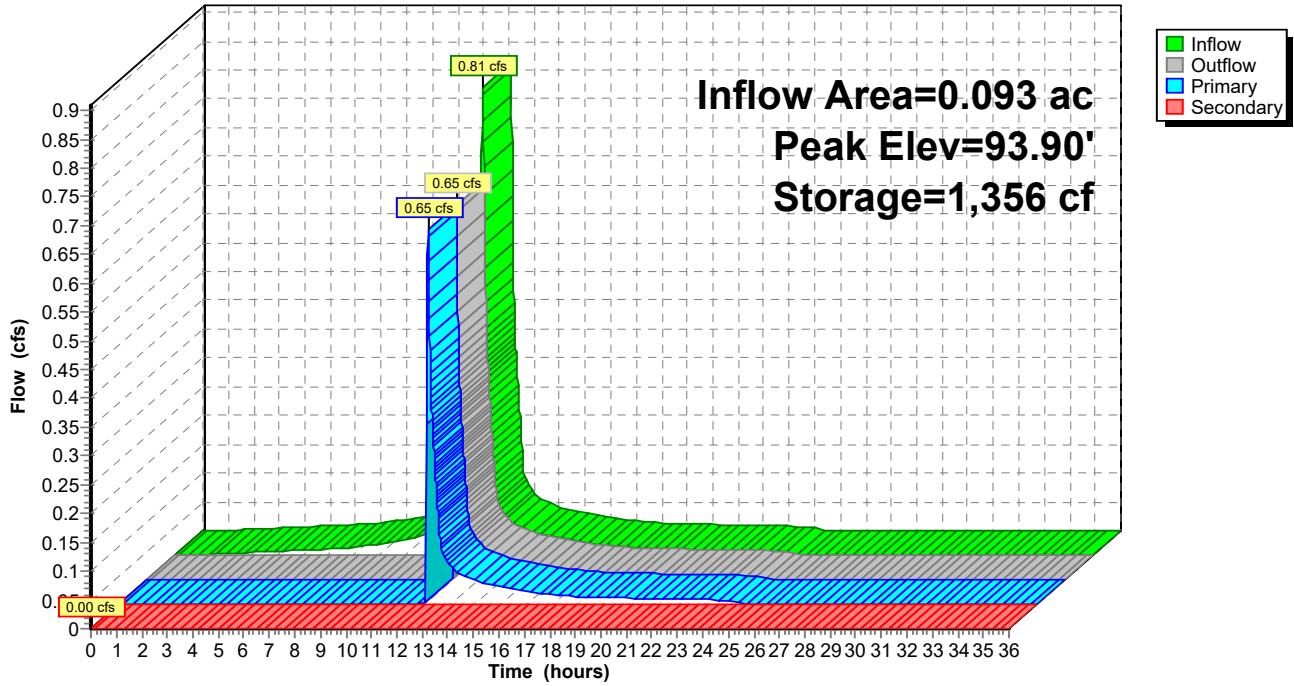
↑ **1=Culvert** (Passes 0.65 cfs of 7.60 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Weir Controls 0.65 cfs @ 1.03 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=89.90' TW=0.00' (Dynamic Tailwater)

↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Pond 11P:**

Hydrograph



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Page 109

**Summary for Pond 12P:**

Inflow Area = 0.178 ac, 86.25% Impervious, Inflow Depth = 8.27" for 100-Year event  
 Inflow = 1.56 cfs @ 12.07 hrs, Volume= 0.123 af  
 Outflow = 1.55 cfs @ 12.08 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.4 min  
 Primary = 1.55 cfs @ 12.08 hrs, Volume= 0.111 af  
 Routed to Pond 13P :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 87.98' @ 12.08 hrs Surf.Area= 338 sf Storage= 550 cf

Plug-Flow detention time= 88.5 min calculated for 0.111 af (91% of inflow)  
 Center-of-Mass det. time= 41.3 min ( 786.3 - 745.0 )

Volume	Invert	Avail.Storage	Storage Description			
#1	84.40'	668 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
84.40	343	102.0	0.0	0	0	343
84.50	343	102.0	20.0	7	7	353
85.50	343	102.0	20.0	69	75	455
86.50	68	59.0	100.0	188	263	1,012
87.00	151	84.0	100.0	53	317	1,299
88.00	343	102.0	100.0	241	557	1,581
88.30	394	104.0	100.0	110	668	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	84.50'	<b>12.0" Round Culvert</b> L= 92.5' Ke= 0.500 Inlet / Outlet Invert= 84.50' / 84.00' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	87.80'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	88.20'	<b>114.5' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=1.55 cfs @ 12.08 hrs HW=87.98' TW=83.94' (Dynamic Tailwater)

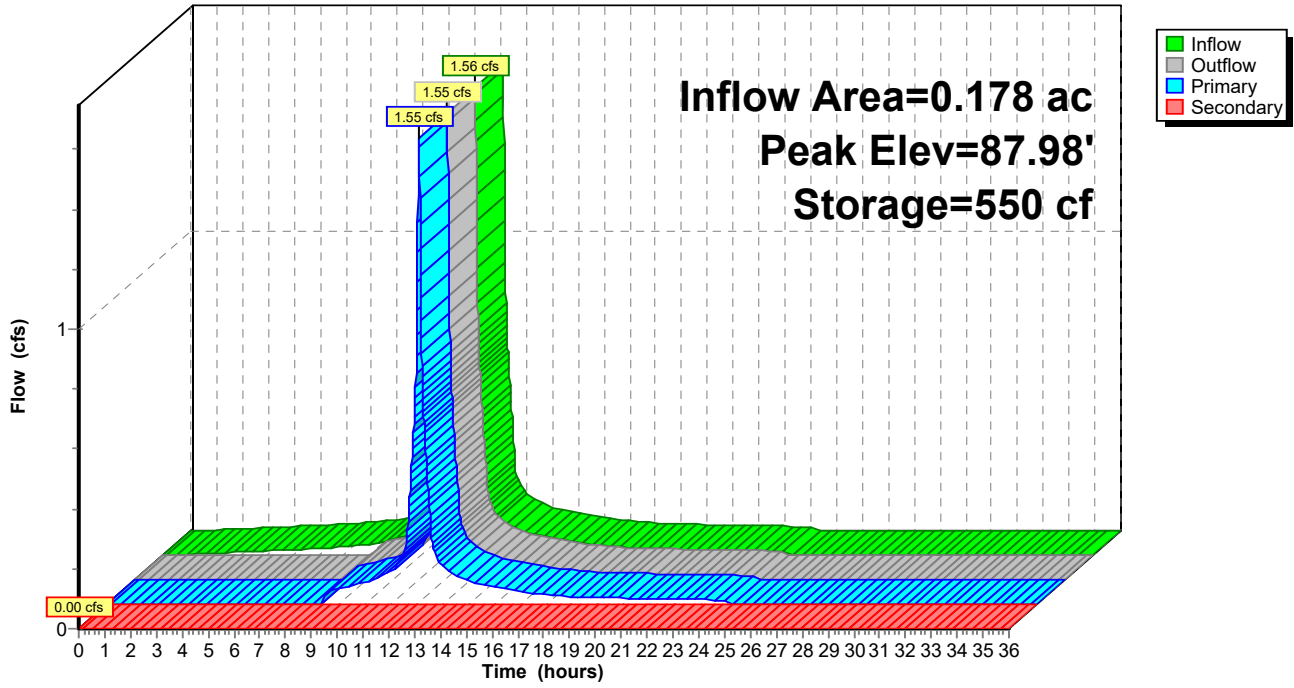
- ↑1=Culvert (Passes 1.55 cfs of 5.18 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 1.55 cfs @ 1.38 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.40' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

Pond 12P:

Hydrograph



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Page 111

**Summary for Pond 13P:**

Inflow Area = 0.393 ac, 69.48% Impervious, Inflow Depth = 6.59" for 100-Year event  
 Inflow = 2.98 cfs @ 12.10 hrs, Volume= 0.216 af  
 Outflow = 2.87 cfs @ 12.12 hrs, Volume= 0.199 af, Atten= 3%, Lag= 0.9 min  
 Primary = 2.87 cfs @ 12.12 hrs, Volume= 0.199 af  
 Routed to Link 10L :  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 83.97' @ 12.12 hrs Surf.Area= 1,018 sf Storage= 986 cf

Plug-Flow detention time= 63.6 min calculated for 0.199 af (92% of inflow)  
 Center-of-Mass det. time= 23.4 min ( 824.7 - 801.2 )

Volume	Invert	Avail.Storage	Storage Description			
#1	82.50'	1,345 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
82.50	336	217.5	0	0	336	
83.00	574	230.8	225	225	824	
84.00	1,034	240.8	793	1,018	1,267	
84.30	1,152	243.1	328	1,345	1,381	

Device	Routing	Invert	Outlet Devices
#1	Primary	77.75'	<b>8.0" Round Culvert</b> L= 28.6' Ke= 0.500 Inlet / Outlet Invert= 77.75' / 76.50' S= 0.0437 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf
#2	Device 1	83.70'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Secondary	84.20'	<b>243.1' long (Profile 5) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 2.79 2.93 3.06

**Primary OutFlow** Max=2.87 cfs @ 12.12 hrs HW=83.97' TW=0.00' (Dynamic Tailwater)

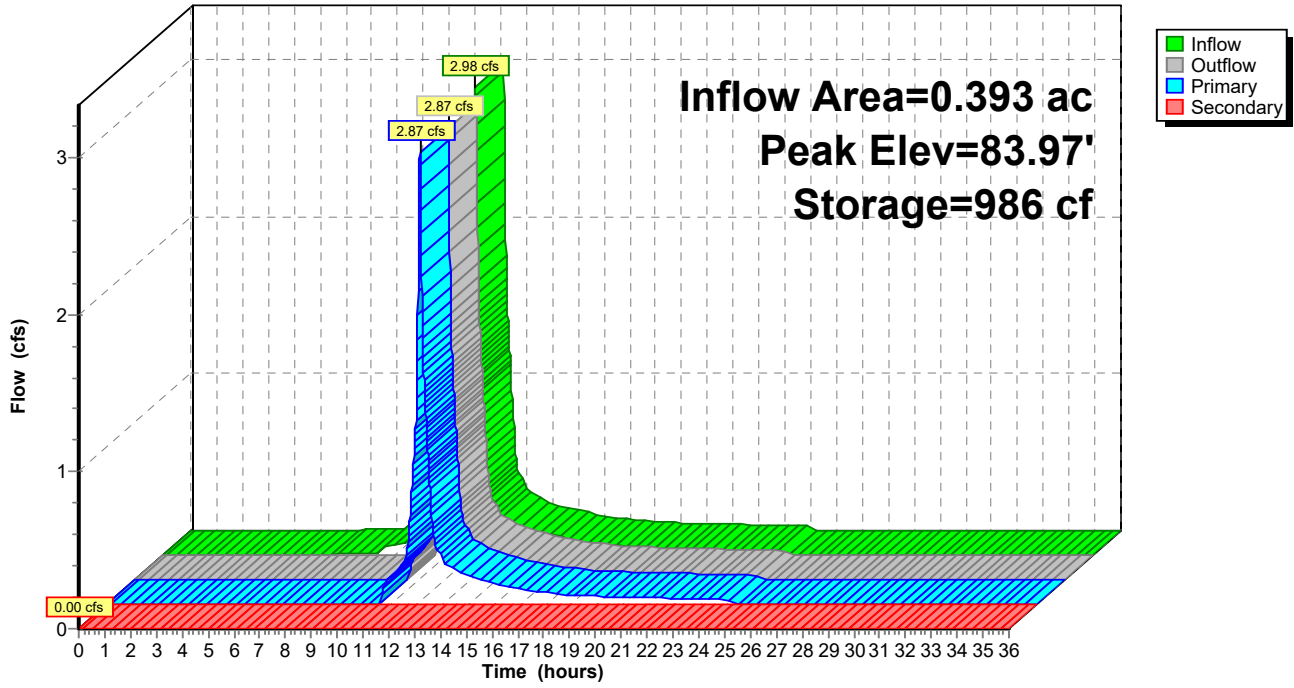
- ↑1=Culvert (Passes 2.87 cfs of 4.08 cfs potential flow)
- ↑2=Orifice/Grate (Weir Controls 2.87 cfs @ 1.70 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=82.50' TW=0.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

Pond 13P:

Hydrograph



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Page 113

## Summary for Pond 15P: Underground Chambers

Inflow Area = 0.557 ac, 100.00% Impervious, Inflow Depth = 8.39" for 100-Year event  
 Inflow = 4.89 cfs @ 12.07 hrs, Volume= 0.389 af  
 Outflow = 2.59 cfs @ 12.19 hrs, Volume= 0.389 af, Atten= 47%, Lag= 7.2 min  
 Primary = 2.59 cfs @ 12.19 hrs, Volume= 0.389 af  
 Routed to Link 10L :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Peak Elev= 82.26' @ 12.19 hrs Surf.Area= 3,214 sf Storage= 3,976 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= 28.7 min ( 768.1 - 739.4 )

Volume	Invert	Avail.Storage	Storage Description
#1B	78.50'	0 cf	<b>74.75'W x 43.00'L x 4.50'H Field B</b> 14,464 cf Overall - 4,962 cf Embedded = 9,502 cf x 0.0% Voids
#2B	79.00'	3,976 cf	<b>ADS N-12 36" x 28 Inside #1</b> Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf 28 Chambers in 14 Rows
		3,976 cf	Total Available Storage

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	<b>12.0" Round Culvert</b> L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 79.00' / 78.00' S= 0.0313 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	79.00'	<b>4.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	82.00'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=2.58 cfs @ 12.19 hrs HW=82.25' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 2.58 cfs of 6.28 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.93 cfs @ 8.43 fps)
- ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 1.65 cfs @ 1.65 fps)



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Page 114

**Pond 15P: Underground Chambers - Chamber Wizard Field B**

**Chamber Model = ADS N-12 36" (ADS N-12® Pipe)**

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long = 40.00' Row Length +18.0" End Stone x 2 = 43.00' Base Length

14 Rows x 42.0" Wide + 21.0" Spacing x 13 + 18.0" Side Stone x 2 = 74.75' Base Width

6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

28 Chambers x 142.0 cf = 3,976.0 cf Chamber Storage

28 Chambers x 177.2 cf = 4,962.2 cf Displacement

14,464.1 cf Field - 4,962.2 cf Chambers = 9,501.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,976.0 cf = 0.091 af

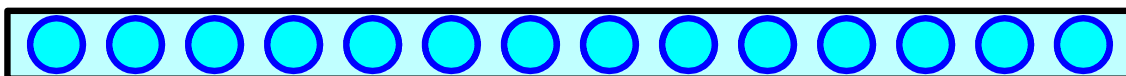
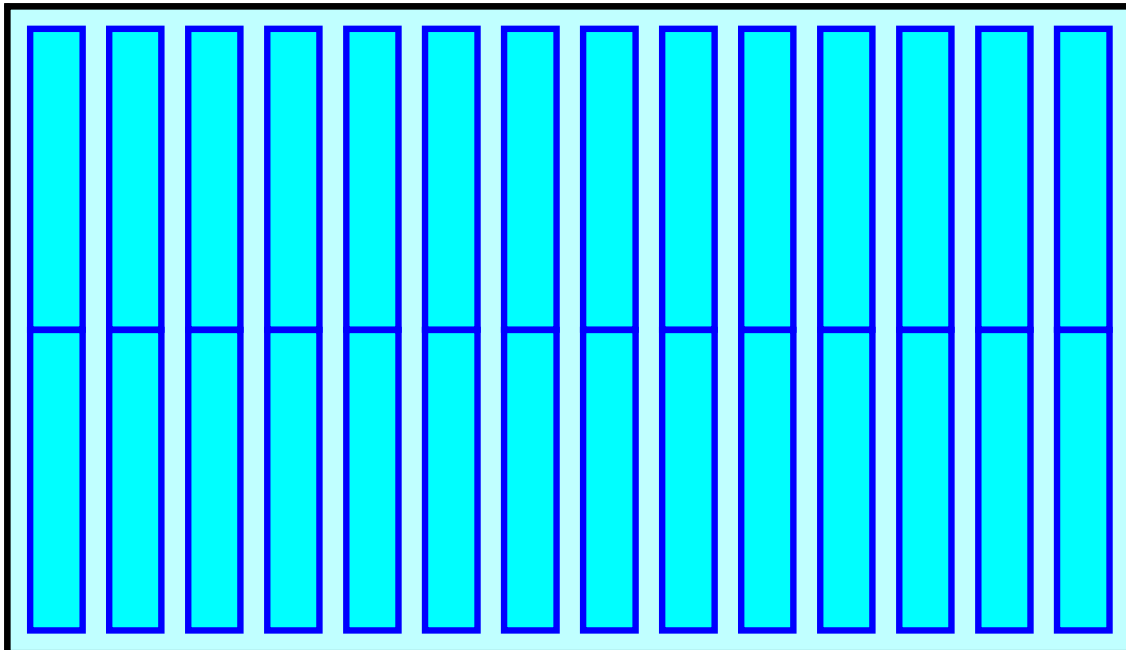
Overall Storage Efficiency = 27.5%

Overall System Size = 43.00' x 74.75' x 4.50'

28 Chambers

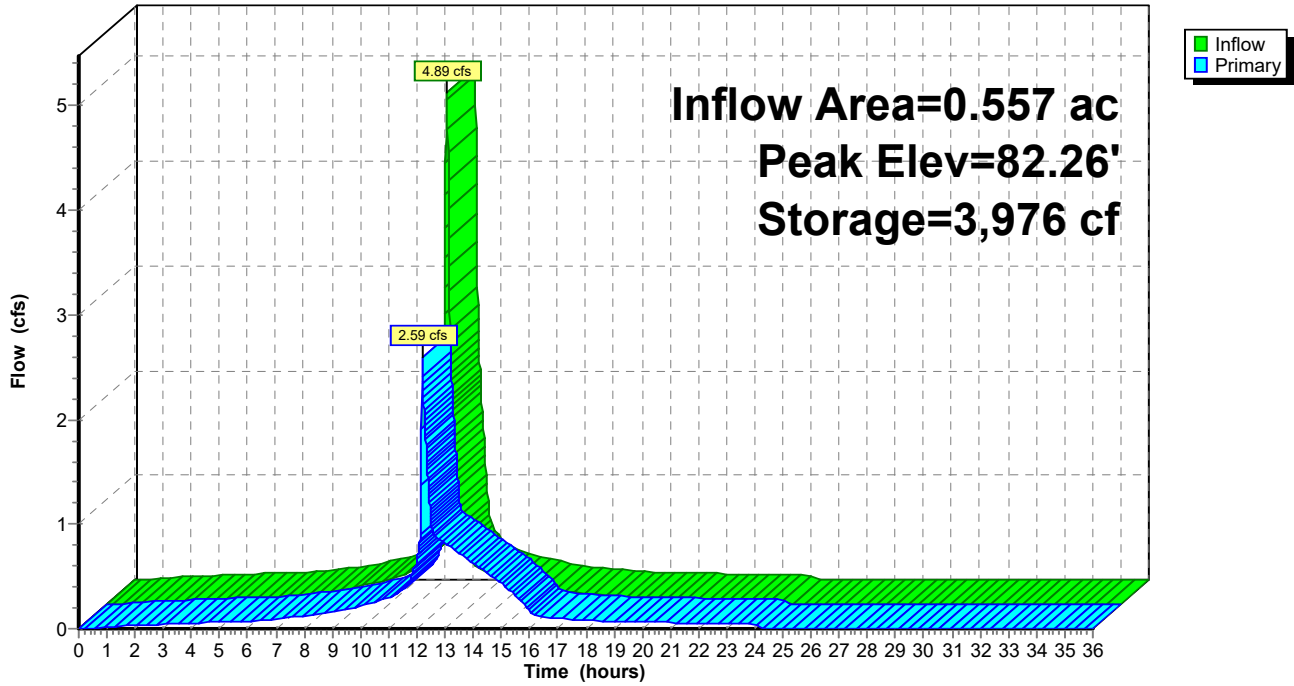
535.7 cy Field

351.9 cy Stone



### Pond 15P: Underground Chambers

Hydrograph



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Page 116

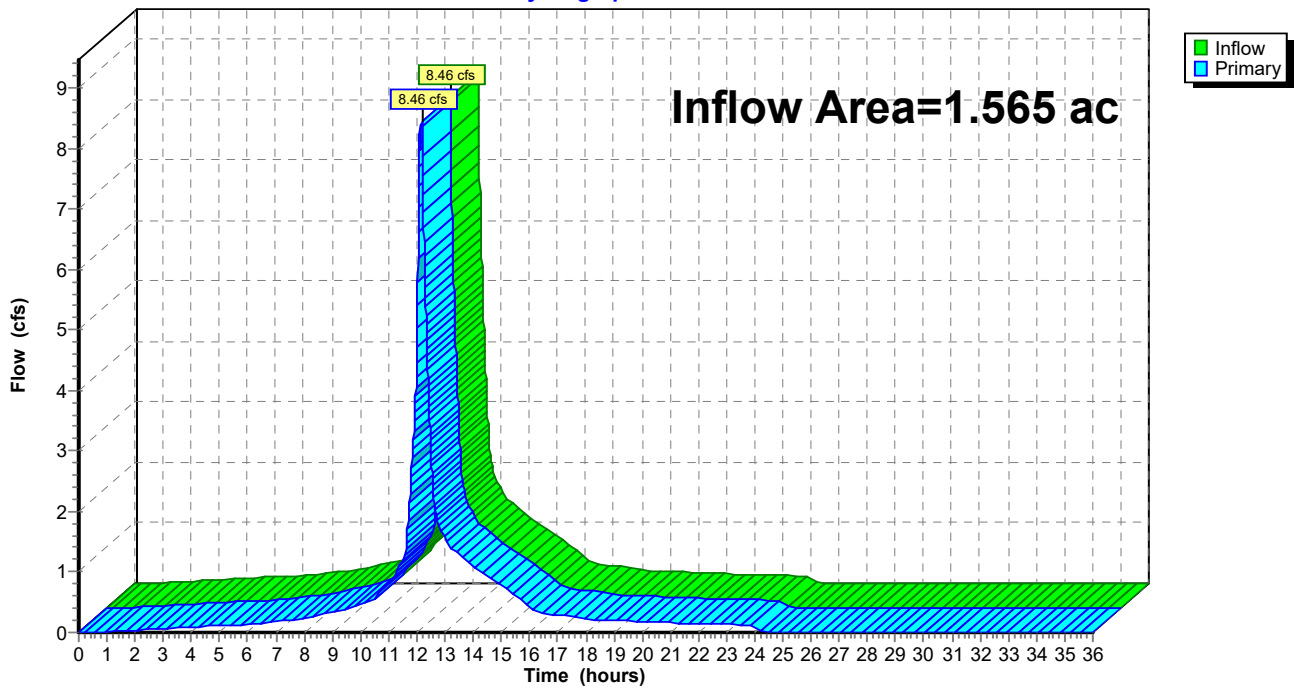
**Summary for Link 10L:**

Inflow Area = 1.565 ac, 81.08% Impervious, Inflow Depth = 7.67" for 100-Year event  
Inflow = 8.46 cfs @ 12.18 hrs, Volume= 1.000 af  
Primary = 8.46 cfs @ 12.18 hrs, Volume= 1.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Link 10L:**

Hydrograph



## **Appendix C**

---

### Proposed Stormwater System Analysis





**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](#)

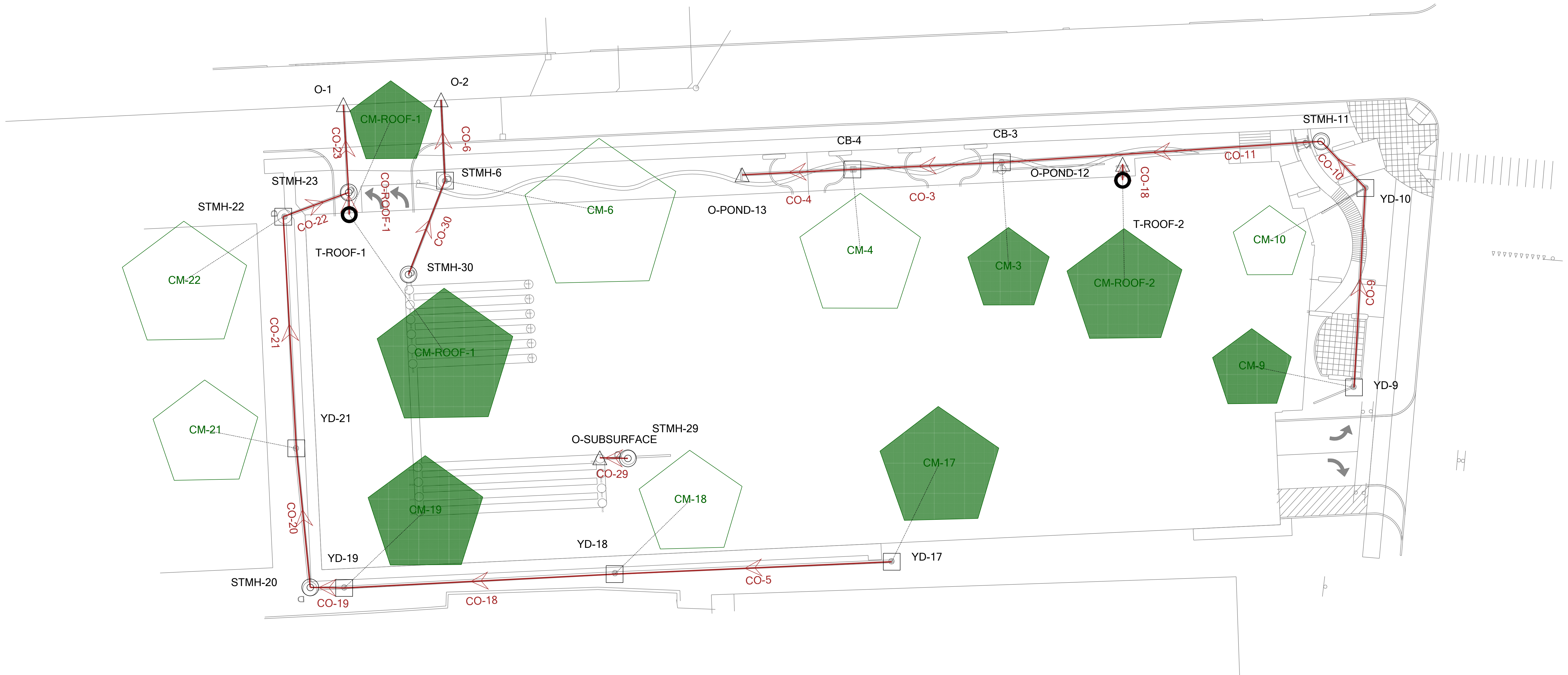
**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.00 (3.16-5.04)	4.86 (3.84-6.13)	6.26 (4.93-7.94)	7.43 (5.81-9.49)	9.04 (6.82-12.1)	10.2 (7.57-14.0)	11.5 (8.23-16.4)	12.9 (8.74-18.9)	15.0 (9.71-22.7)	16.6 (10.5-25.8)
10-min	2.83 (2.24-3.57)	3.44 (2.72-4.34)	4.43 (3.49-5.62)	5.26 (4.12-6.71)	6.40 (4.83-8.57)	7.25 (5.36-9.94)	8.15 (5.83-11.6)	9.16 (6.19-13.4)	10.6 (6.88-16.1)	11.8 (7.45-18.3)
15-min	2.22 (1.76-2.80)	2.70 (2.13-3.41)	3.48 (2.74-4.41)	4.13 (3.23-5.27)	5.02 (3.79-6.72)	5.69 (4.20-7.80)	6.39 (4.58-9.12)	7.18 (4.86-10.5)	8.31 (5.39-12.6)	9.23 (5.84-14.3)
30-min	1.49 (1.18-1.88)	1.81 (1.43-2.29)	2.34 (1.84-2.97)	2.78 (2.17-3.55)	3.38 (2.56-4.53)	3.84 (2.84-5.26)	4.31 (3.09-6.15)	4.85 (3.28-7.09)	5.61 (3.64-8.53)	6.24 (3.95-9.69)
60-min	0.937 (0.741-1.18)	1.14 (0.901-1.44)	1.47 (1.16-1.87)	1.75 (1.37-2.23)	2.13 (1.61-2.85)	2.42 (1.79-3.31)	2.72 (1.95-3.88)	3.05 (2.07-4.47)	3.54 (2.30-5.37)	3.93 (2.49-6.10)
2-hr	0.610 (0.485-0.764)	0.738 (0.587-0.926)	0.950 (0.752-1.20)	1.12 (0.885-1.43)	1.37 (1.04-1.82)	1.54 (1.15-2.11)	1.74 (1.26-2.48)	1.96 (1.33-2.86)	2.30 (1.50-3.47)	2.58 (1.64-3.98)
3-hr	0.468 (0.374-0.585)	0.567 (0.452-0.709)	0.728 (0.579-0.914)	0.862 (0.681-1.09)	1.05 (0.800-1.39)	1.18 (0.886-1.62)	1.33 (0.968-1.90)	1.51 (1.02-2.19)	1.78 (1.16-2.68)	2.00 (1.27-3.09)
6-hr	0.293 (0.236-0.364)	0.356 (0.286-0.443)	0.459 (0.367-0.573)	0.545 (0.433-0.684)	0.663 (0.510-0.878)	0.750 (0.565-1.02)	0.844 (0.619-1.20)	0.960 (0.655-1.39)	1.14 (0.745-1.71)	1.29 (0.824-1.98)
12-hr	0.177 (0.143-0.218)	0.217 (0.175-0.267)	0.282 (0.227-0.349)	0.336 (0.269-0.419)	0.411 (0.318-0.542)	0.466 (0.354-0.631)	0.527 (0.388-0.747)	0.601 (0.412-0.862)	0.716 (0.470-1.07)	0.816 (0.522-1.24)
24-hr	0.103 (0.084-0.127)	0.129 (0.105-0.158)	0.171 (0.138-0.210)	0.205 (0.165-0.254)	0.253 (0.197-0.332)	0.288 (0.220-0.388)	0.326 (0.243-0.463)	0.375 (0.258-0.536)	0.454 (0.299-0.673)	0.523 (0.336-0.791)
2-day	0.058 (0.048-0.071)	0.074 (0.061-0.090)	0.100 (0.082-0.122)	0.121 (0.098-0.149)	0.151 (0.119-0.198)	0.172 (0.133-0.233)	0.196 (0.148-0.280)	0.229 (0.157-0.325)	0.282 (0.186-0.416)	0.330 (0.213-0.497)
3-day	0.042 (0.035-0.051)	0.054 (0.044-0.065)	0.073 (0.060-0.089)	0.089 (0.072-0.109)	0.110 (0.087-0.144)	0.126 (0.098-0.170)	0.144 (0.109-0.205)	0.168 (0.116-0.237)	0.208 (0.138-0.306)	0.245 (0.158-0.367)
4-day	0.034 (0.028-0.041)	0.043 (0.036-0.052)	0.058 (0.048-0.071)	0.071 (0.058-0.087)	0.088 (0.070-0.115)	0.101 (0.078-0.135)	0.115 (0.087-0.163)	0.134 (0.093-0.189)	0.166 (0.110-0.244)	0.195 (0.126-0.292)
7-day	0.023 (0.019-0.027)	0.029 (0.024-0.035)	0.038 (0.032-0.046)	0.046 (0.038-0.056)	0.057 (0.045-0.074)	0.065 (0.051-0.087)	0.074 (0.056-0.104)	0.086 (0.060-0.121)	0.106 (0.070-0.154)	0.124 (0.080-0.184)
10-day	0.019 (0.015-0.022)	0.023 (0.019-0.027)	0.030 (0.025-0.036)	0.036 (0.029-0.043)	0.044 (0.035-0.056)	0.050 (0.039-0.066)	0.056 (0.043-0.078)	0.065 (0.045-0.091)	0.079 (0.052-0.114)	0.091 (0.059-0.135)
20-day	0.013 (0.011-0.016)	0.016 (0.013-0.019)	0.019 (0.016-0.023)	0.022 (0.019-0.027)	0.027 (0.021-0.034)	0.030 (0.023-0.039)	0.033 (0.025-0.045)	0.037 (0.026-0.052)	0.044 (0.029-0.063)	0.049 (0.032-0.073)
30-day	0.011 (0.009-0.013)	0.013 (0.011-0.015)	0.015 (0.013-0.018)	0.017 (0.014-0.021)	0.020 (0.016-0.025)	0.022 (0.018-0.029)	0.025 (0.019-0.033)	0.027 (0.019-0.038)	0.031 (0.021-0.045)	0.034 (0.022-0.051)
45-day	0.009 (0.008-0.011)	0.011 (0.009-0.012)	0.012 (0.010-0.015)	0.014 (0.011-0.016)	0.016 (0.013-0.020)	0.017 (0.013-0.022)	0.019 (0.014-0.025)	0.020 (0.014-0.028)	0.023 (0.015-0.032)	0.024 (0.016-0.036)
60-day	0.008 (0.007-0.010)	0.009 (0.008-0.011)	0.011 (0.009-0.012)	0.012 (0.010-0.014)	0.013 (0.011-0.016)	0.014 (0.011-0.018)	0.016 (0.012-0.020)	0.017 (0.012-0.023)	0.018 (0.012-0.026)	0.019 (0.013-0.028)

<sup>1</sup> 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**



**Washington & Lincoln Garage  
Catch Basin Table  
10-Year Storm**

Label	Elevation (Ground) (ft)	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Downstream Conduit	Local Rational Flow (cfs)	Capture Efficiency (Calculated) (%)	Carryover Rational Flow (cfs)	Flow (Captured) (cfs)	Bypassed Rational Flow (cfs)	Hydraulic Grade Line (In) (ft)	Flow (Total Out) (cfs)	Depth (Gutter) (in)	Spread / Top Width (ft)
YD-9	93.80	93.80	89.60	CO-9	0.26	100.0	0.00	0.26	0.00	89.81	0.26	1.3	5.3
YD-10	93.80	93.80	88.90	CO-10	0.55	100.0	0.00	0.55	0.00	89.27	0.79	2.0	8.5
CB-3	87.80	87.80	84.50	CO-3	0.05	100.0	0.00	0.05	0.00	85.08	1.85	0.5	2.3
CB-4	85.60	85.60	83.50	CO-4	0.07	100.0	0.00	0.07	0.00	84.60	1.91	0.6	2.6
STMH-22	84.10	84.10	78.00	CO-22	0.07	100.0	0.00	0.07	0.00	78.45	0.46	0.6	2.6
YD-21	84.50	84.50	80.30	CO-21	0.11	100.0	0.00	0.11	0.00	80.57	0.41	0.8	3.2
YD-19	84.50	84.50	81.50	CO-19	0.13	100.0	0.00	0.13	0.00	81.74	0.33	0.9	3.6
YD-18	87.05	87.05	84.00	CO-18	0.13	100.0	0.00	0.13	0.00	84.19	0.22	0.9	3.6
YD-17	89.50	89.50	86.50	CO-5	0.11	100.0	0.00	0.11	0.00	86.63	0.11	0.8	3.3
STMH-6	83.70	83.70	77.75	CO-6	0.14	100.0	0.00	0.14	0.00	78.14	0.69	0.9	3.8



**Washington & Lincoln Garage  
Manhole Table  
10-Year Storm**

Label	Elevation (Ground) (ft)	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Local Known Flow (cfs)	Flow (Total Out) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
STMH-30	83.90	83.90	79.00	0.86	0.86	79.39	79.39
STMH-23	83.90	83.90	77.20	0.00	2.63	78.46	78.46
STMH-11	94.00	94.00	88.60	0.00	0.79	88.97	88.97
STMH-20	85.10	85.10	81.30	0.00	0.32	81.54	81.54
STMH-29	87.20	87.20	82.00	2.74	2.74	82.65	82.65

## Washington & Lincoln Garage Conduit Table 10-Year Storm

Label	Start Node	Stop Node	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (%)	System Intensity (in/h)	System CA (ft <sup>2</sup> )	System Rational Flow (cfs)	Capacity (Full Flow) (cfs)	Velocity (ft/s)	Hydraulic Grade Line (In) (ft)	Elevation Ground (Start) (ft)	Invert (Start) (ft)	Hydraulic Grade Line (Out) (ft)	Elevation Ground (Stop) (ft)	Invert (Stop) (ft)	Flow / Capacity (Design) (%)
CO-9	YD-9	YD-10	12.0	70.8	0.99	7.43	1,490	0.26	3.84	2.77	89.81	93.80	89.60	89.27	93.80	88.90	6.7
CO-10	YD-10	STMH-11	12.0	22.8	1.31	7.25	4,707	0.79	4.43	4.26	89.27	93.80	88.90	88.89	94.00	88.60	17.8
CO-11	STMH-11	CB-3	12.0	113.5	3.61	7.21	4,707	0.79	7.33	6.09	88.97	94.00	88.60	85.08	87.80	84.50	10.7
CO-3	CB-3	CB-4	12.0	53.1	1.88	7.07	5,011	0.82	5.30	6.14	85.08	87.80	84.50	84.60	85.60	83.50	34.9
CO-5	YD-17	YD-18	12.0	98.4	2.54	7.00	661	0.11	6.15	2.97	86.63	89.50	86.50	84.19	87.05	84.00	1.7
CO-18	YD-18	YD-19	12.0	96.1	2.60	6.76	1,416	0.22	6.23	3.74	84.19	87.05	84.00	81.74	84.50	81.50	3.6
CO-19	YD-19	STMH-20	12.0	12.0	1.66	6.57	2,143	0.33	4.98	3.58	81.74	84.50	81.50	81.48	85.10	81.30	6.5
CO-20	STMH-20	YD-21	12.0	49.6	2.02	6.55	2,143	0.32	5.48	3.82	81.54	85.10	81.30	80.57	84.50	80.30	5.9
CO-4	CB-4	O-POND-13	12.0	39.2	0.64	7.01	5,413	0.88	3.08	2.43	84.60	85.60	83.50	84.50	86.00	83.25	61.9
CO-21	YD-21	STMH-22	12.0	82.3	2.07	6.45	2,760	0.41	5.55	4.14	80.57	84.50	80.30	78.78	84.10	78.60	7.4
CO-22	STMH-22	STMH-23	12.0	24.8	3.23	6.31	3,173	0.46	6.94	5.02	78.45	84.10	78.00	78.46	83.90	77.20	6.7
CO-ROOF-1	T-ROOF-1	STMH-23	8.0	7.9	6.35	7.43	14,980	2.58	3.30	7.38	78.77	84.30	77.70	78.46	83.90	77.20	78.1
CO-23	STMH-23	O-1	8.0	31.2	3.20	6.27	18,152	2.63	2.34	7.55	78.46	83.90	77.20	77.20	82.80	76.20	112.5
CO-29	STMH-29	O-SUBSURFACE	8.0	10.0	12.54	7.43	0	0.00	4.63	13.83	82.65	87.20	82.00	81.20	87.00	80.75	59.1
CO-30	STMH-30	STMH-6	12.0	35.7	2.80	7.43	0	0.00	6.46	5.71	79.39	83.90	79.00	78.25	83.70	78.00	13.3
CO-6	STMH-6	O-2	8.0	28.7	4.35	7.43	828	0.14	2.73	6.52	78.14	83.70	77.75	77.50	83.20	76.50	25.4
CO-18	T-ROOF-2	O-POND-12	12.0	5.7	1.76	7.43	6,020	1.04	5.12	5.10	88.53	88.10	88.10	88.34	90.00	88.00	20.2

**Washington & Lincoln Garage  
Catchment Table  
10-Year Storm**

Label	Outflow Element	Area (User Defined) (ft <sup>2</sup> )	Runoff Coefficient (Rational)	Catchment CA (ft <sup>2</sup> )	Time of Concentration (min)	Catchment Intensity (in/h)	Catchment Rational Flow (cfs)
CM-9	YD-9	2,524	0.590	1,490	5.000	7.430	0.26
CM-10	YD-10	4,053	0.794	3,217	5.000	7.430	0.55
CM-3	CB-3	1,012	0.300	304	5.000	7.430	0.05
CM-4	CB-4	708	0.567	402	5.000	7.430	0.07
CM-17	YD-17	2,056	0.322	661	6.000	6.996	0.11
CM-18	YD-18	1,523	0.496	755	5.000	7.430	0.13
CM-19	YD-19	1,471	0.494	727	5.000	7.430	0.13
CM-21	YD-21	1,437	0.429	616	5.000	7.430	0.11
CM-ROOF-1	T-ROOF-1	12,483	0.300	3,745	5.000	7.430	0.64
CM-22	STMH-22	963	0.429	413	5.000	7.430	0.07
CM-ROOF-2	T-ROOF-2	6,689	0.900	6,020	5.000	7.430	1.04
CM-6	STMH-6	2,153	0.385	828	5.000	7.430	0.14
CM-ROOF-1	T-ROOF-1	12,483	0.900	11,235	5.000	7.430	1.93

### Washington & Lincoln Garage Outfall Table 10-Year Storm

Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Invert) (ft)	Boundary Condition Type	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (cfs)
O-1	82.80	True	76.20	User Defined Tailwater	77.20	77.20	2.62
O-2	83.20	True	76.50	User Defined Tailwater	77.50	77.50	0.69
O-SUBSURFACE	87.00	True	80.75	User Defined Tailwater	80.81	81.20	2.74
O-POND-12	90.00	True	88.00	User Defined Tailwater	87.80	88.34	1.03
O-POND-13	86.00	True	83.25	User Defined Tailwater	84.50	84.50	1.89

## **Appendix D**

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### Water Quality Calculations

File: J:\DWG\2022\0997\A10\Civil\Plan\20220997\_A10\_DRA04.dwg Layout: DR-401 Plotted: 2023-04-12 1:12 PM Saved: 2023-04-12 1:10 PM User: NROY  
PC3: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 STB/C/TB: FO STB  
LAYER STATE:

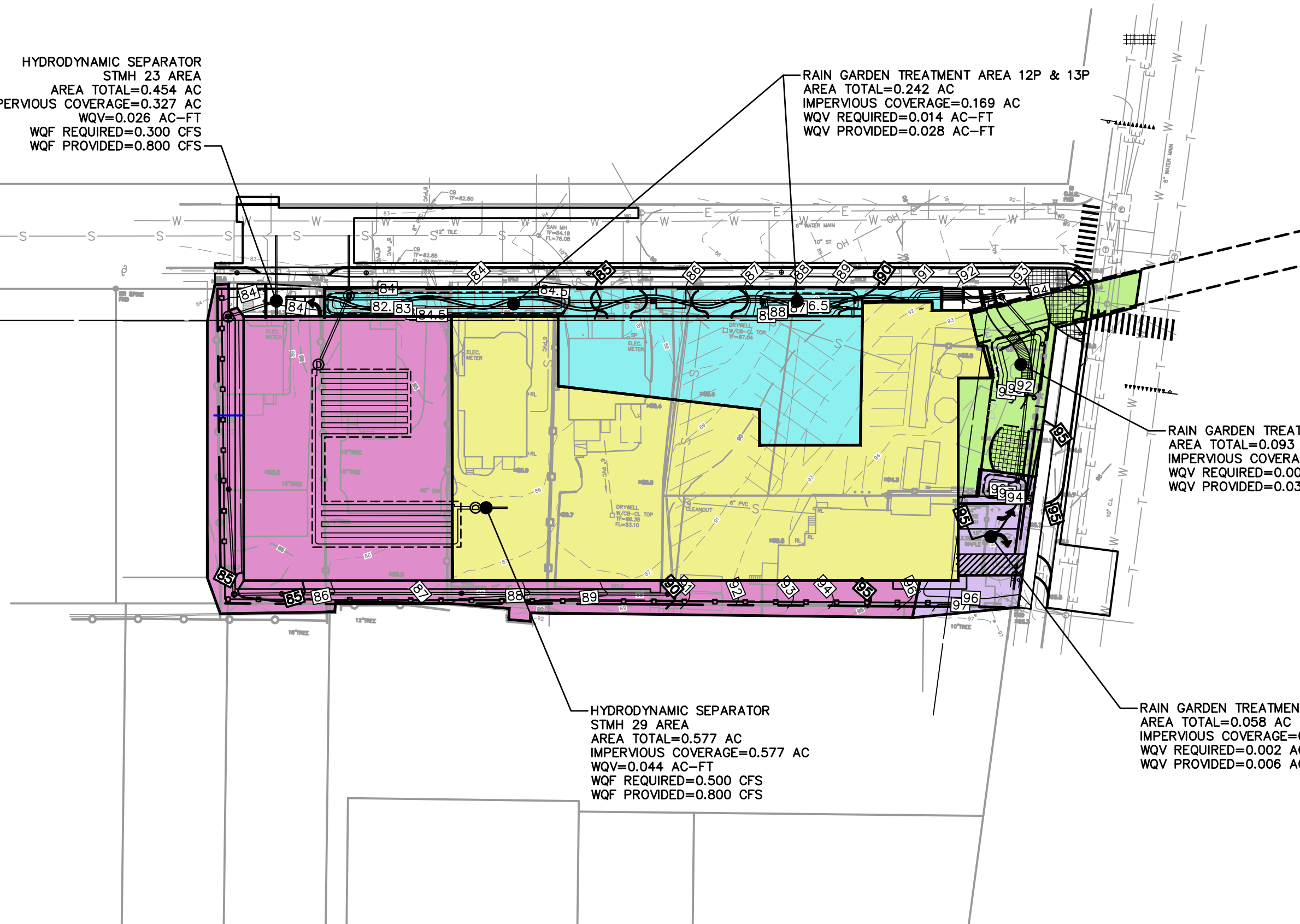
HYDRODYNAMIC SEPARATOR  
STMH 23 AREA  
AREA TOTAL=0.454 AC  
IMPERVIOUS COVERAGE=0.327 AC  
WQV=0.026 AC-FT  
WQF REQUIRED=0.300 CFS  
WQF PROVIDED=0.800 CFS

RAIN GARDEN TREATMENT AREA 12P & 13P  
AREA TOTAL=0.242 AC  
IMPERVIOUS COVERAGE=0.169 AC  
WQV REQUIRED=0.014 AC-FT  
WQV PROVIDED=0.028 AC-FT

RAIN GARDEN TREATMENT AREA 11P  
AREA TOTAL=0.093 AC  
IMPERVIOUS COVERAGE=0.076 AC  
WQV REQUIRED=0.006 AC-FT  
WQV PROVIDED=0.030 AC-FT

HYDRODYNAMIC SEPARATOR  
STMH 29 AREA  
AREA TOTAL=0.577 AC  
IMPERVIOUS COVERAGE=0.577 AC  
WQV=0.044 AC-FT  
WQF REQUIRED=0.500 CFS  
WQF PROVIDED=0.800 CFS

RAIN GARDEN TREATMENT AREA 10P  
AREA TOTAL=0.058 AC  
IMPERVIOUS COVERAGE=0.027 AC  
WQV REQUIRED=0.002 AC-FT  
WQV PROVIDED=0.006 AC-FT



LAZ PARKING REALITY INVESTORS

PROPOSED WATER QUALITY VOLUME AREAS

WASHINGTON & LINCOLN GARAGE

HARTFORD

CONNECTICUT



SCALE: HORIZ.: 1" = 50'  
VERT.:  
DATUM:  
HORIZ.:  
VERT.:  
GRAPHIC SCALE

PROJ. No.: 20220997.A10  
DATE: APRIL 2023

DR-401



Water Quality Volume Calculations  
Washington & Lincoln Garage - LRPI  
Hartford, Connecticut

Rain Garden 10P

	Description	Symbol	Unit of Measure	Quantity
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Water Quality Volume (WQV)	Input			
	Upstream Drainage Area	A	AC	0.058
	Percent Impervious Cover	I	%	48%
	Volumetric Runoff Coefficient	R		0.482
	Water Quality Volume	WQV	ac-ft	<b>0.002</b>

Date: April 6, 2023	Prepared By: NR
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Notes:

1. All water quality calculations based on 2004 Connecticut Stormwater Quality Manual.
2. Shaded cells indicate numbers inputted from other sources.



**Water Quality Volume Calculations  
Washington & Lincoln Garage - LRPI  
Hartford, Connecticut**

**Rain Garden 11P**

	Description	Symbol	Unit of Measure	Quantity
--	-------------	--------	-----------------	----------

Water Quality Volume (WQV)	Input			
	Upstream Drainage Area	A	AC	0.093
	Percent Impervious Cover	I	%	82%
	Volumetric Runoff Coefficient	R		0.788
	Water Quality Volume	WQV	ac-ft	<b>0.006</b>

Date: April 6, 2023	Prepared By: NR
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**Notes:**

1. All water quality calculations based on 2004 Connecticut Stormwater Quality Manual.
2. Shaded cells indicate numbers inputted from other sources.





Water Quality Volume Calculations  
Washington & Lincoln Garage - LRPI  
Hartford, Connecticut

Rain Garden 12P & 13P

	Description	Symbol	Unit of Measure	Quantity
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Water Quality Volume (WQV)	Input			
	Upstream Drainage Area	A	AC	0.242
	Percent Impervious Cover	I	%	70%
	Volumetric Runoff Coefficient	R		0.680
	Water Quality Volume	WQV	ac-ft	<b>0.014</b>

Date: April 6, 2023	Prepared By: NR
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Notes:

1. All water quality calculations based on 2004 Connecticut Stormwater Quality Manual.
2. Shaded cells indicate numbers inputted from other sources.



**Water Quality Volume Calculations  
Washington & Lincoln Garage - LRPI  
Hartford, Connecticut**

**WQ Structure STMH 23**

	Description	Symbol	Unit of Measure	Quantity
<b>Water Quality Volume (WQV)</b>	<b>Input</b>			
	Upstream Drainage Area	A	AC	0.454
	Percent Impervious Cover	I	%	72%
	Volumetric Runoff Coefficient	R		0.698
	Water Quality Volume	WQV	ac-ft	<b>0.026</b>
<b>Water Quality Flow (WQF)</b>	<b>Input</b>			
	Design Precipitation	P	IN	1
	<b>Calculations</b>			
	Runoff Depth	Q	IN	0.698
	Runoff Curve Number	CN		97
	Initial Abstraction (From Table 4-1, Ch 4, TR-55 Manual)	$I_A$		0.062
	$I_A/P$ (Rounded)			0.05
	Time of Concentration (Min .167 Hours)	$T_C$	Hr	0.167
	Unit Peak Discharge (from Exhibit 4-III, Ch 4, TR-55 Manual)	$q_u$	csm/ (mi <sup>2</sup> *in)	600
	Drainage Area	A	mi <sup>2</sup>	0.001
Water Quality Flow	WQF	cfs	<b>0.30</b>	
Date: April 6, 2023		Prepared By: NR		

**Notes:**

1. All water quality calculations based on 2004 Connecticut Stormwater Quality Manual.
2. Shaded cells indicate numbers inputted from other sources.



**Water Quality Volume Calculations  
Washington & Lincoln Garage - LRPI  
Hartford, Connecticut**

**WQ Structure STMH 29**

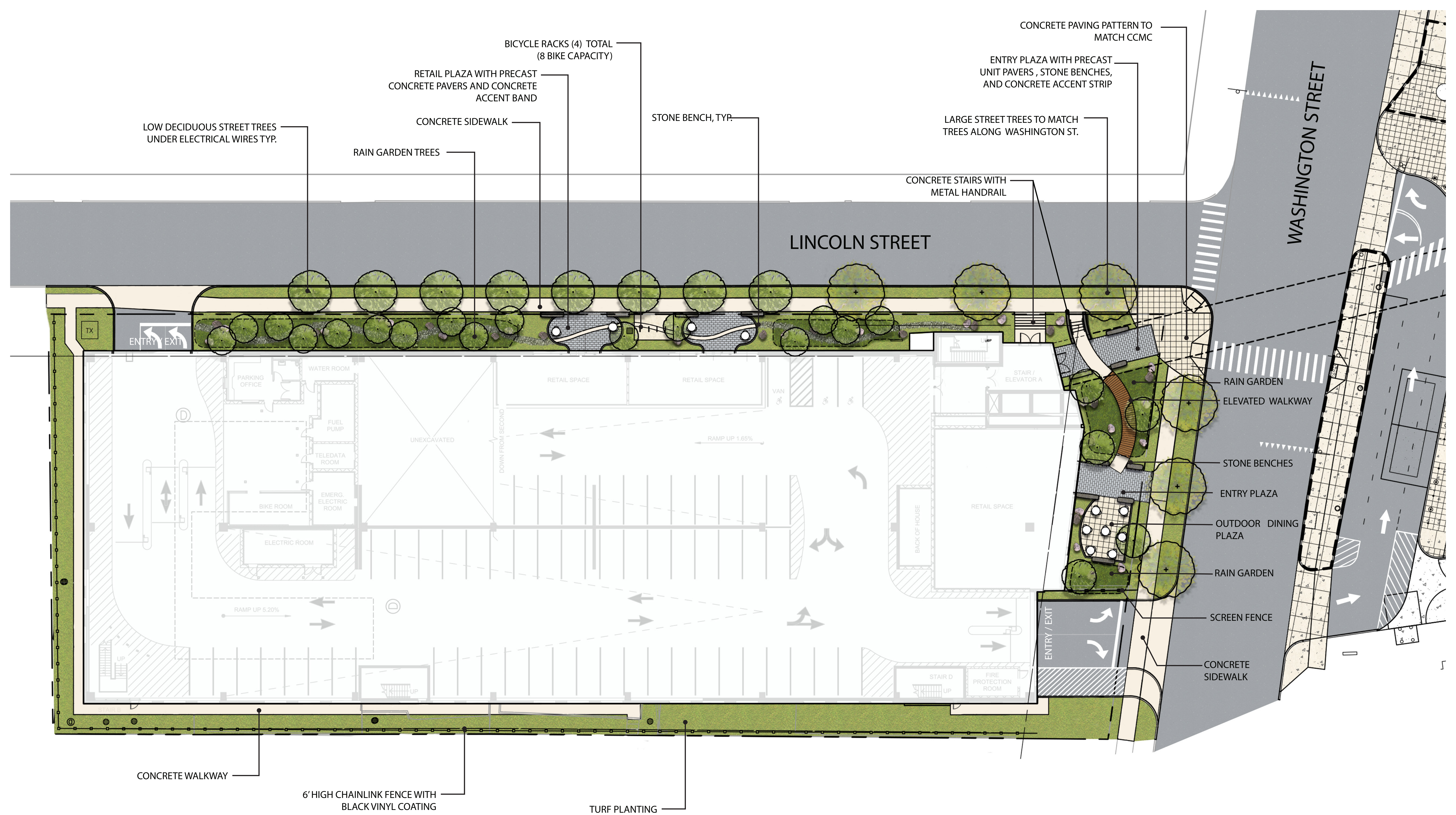
	Description	Symbol	Unit of Measure	Quantity
<b>Water Quality Volume (WQV)</b>	<b>Input</b>			
	Upstream Drainage Area	A	AC	0.557
	Percent Impervious Cover	I	%	100%
	Volumetric Runoff Coefficient	R		0.950
	Water Quality Volume	WQV	ac-ft	<b>0.044</b>
<b>Water Quality Flow (WQF)</b>	<b>Input</b>			
	Design Precipitation	P	IN	1
	<b>Calculations</b>			
	Runoff Depth	Q	IN	0.950
	Runoff Curve Number	CN		100
	Initial Abstraction (From Table 4-1, Ch 4, TR-55 Manual)	$I_A$		0.041
	$I_A/P$ (Rounded)			0.05
	Time of Concentration (Min .167 Hours)	$T_C$	Hr	0.167
	Unit Peak Discharge (from Exhibit 4-III, Ch 4, TR-55 Manual)	$q_u$	csm/ (mi <sup>2</sup> *in)	600
	Drainage Area	A	mi <sup>2</sup>	0.001
Water Quality Flow	WQF	cfs	<b>0.50</b>	
Date: April 6, 2023		Prepared By: NR		

**Notes:**

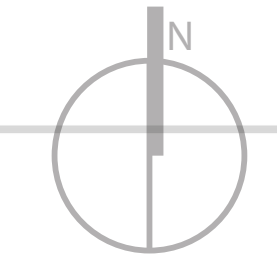
1. All water quality calculations based on 2004 Connecticut Stormwater Quality Manual.
2. Shaded cells indicate numbers inputted from other sources.

Parcel#	Address	Owner	Parcel SF	Zoning	Status
227543043	295 Washington Street	JND BUILDING & REALTY CO. LLC	8,518	MX1	Existing Bldg
227543044	289 WASHINGTON STREET	LINCOLN REALTY LLC	12,120	MX1	Empty Lot
227543049	17 Lincoln Street	MANUELA REYES	7,500	NX2	Existing Bldg
227543048	15 Lincoln Street	LLOYD A. MCKAIN	9,004	NX2	Existing Bldg
227543047	11 Lincoln Street	INDIRA T. GOOGE TRUSTEE	7,210	NX2	Existing Bldg
227543046	7 Lincoln Street	SEVEN LINCOLN LLC	9,074	NX2	Existing Bldg
227534045	5 Lincoln Street	LINCOLN REALTY LLC	4,927	NX2	Empty Lot
227543043	295 Washington Street	JND BUILDING & REALTY CO LLC	8,480	MX-1	Existing Building
227543044	289 Washington Street	LINCOLN REALTY LLC	12,300	MX-1	Empty Lot

Built In	Existing Use	Historic District	Historic Designation Building
		no	No
n/a		no	no
1890	Residential	yes	no
2004	Residential	yes	no
1890	Business	yes	no
1890	Storage	yes	no
n/a	Parking	yes	no
1900	Retail Restaurant	no	no
n/a	Parking	no	no



# SITE PLAN





WASHINGTON STREET LOOKING SOUTH



LINCOLN STREET LOOKING EAST





# WASHINGTON & LINCOLN GARAGE

HARTFORD · CONNECTICUT  
SITE PLAN SUBMISSION

APRIL 6, 2023

PREPARED FOR  
**LAZ PARKING REALTY INVESTORS**  
FOUR COPLEY PLACE, SUITE 4105  
BOSTON, MA 02116



PREPARED BY  
**FUSS & O'NEILL**  
146 HARTFORD ROAD  
MANCHESTER, CONNECTICUT 06040  
860.646.2469  
www.fando.com

## SHEET INDEX

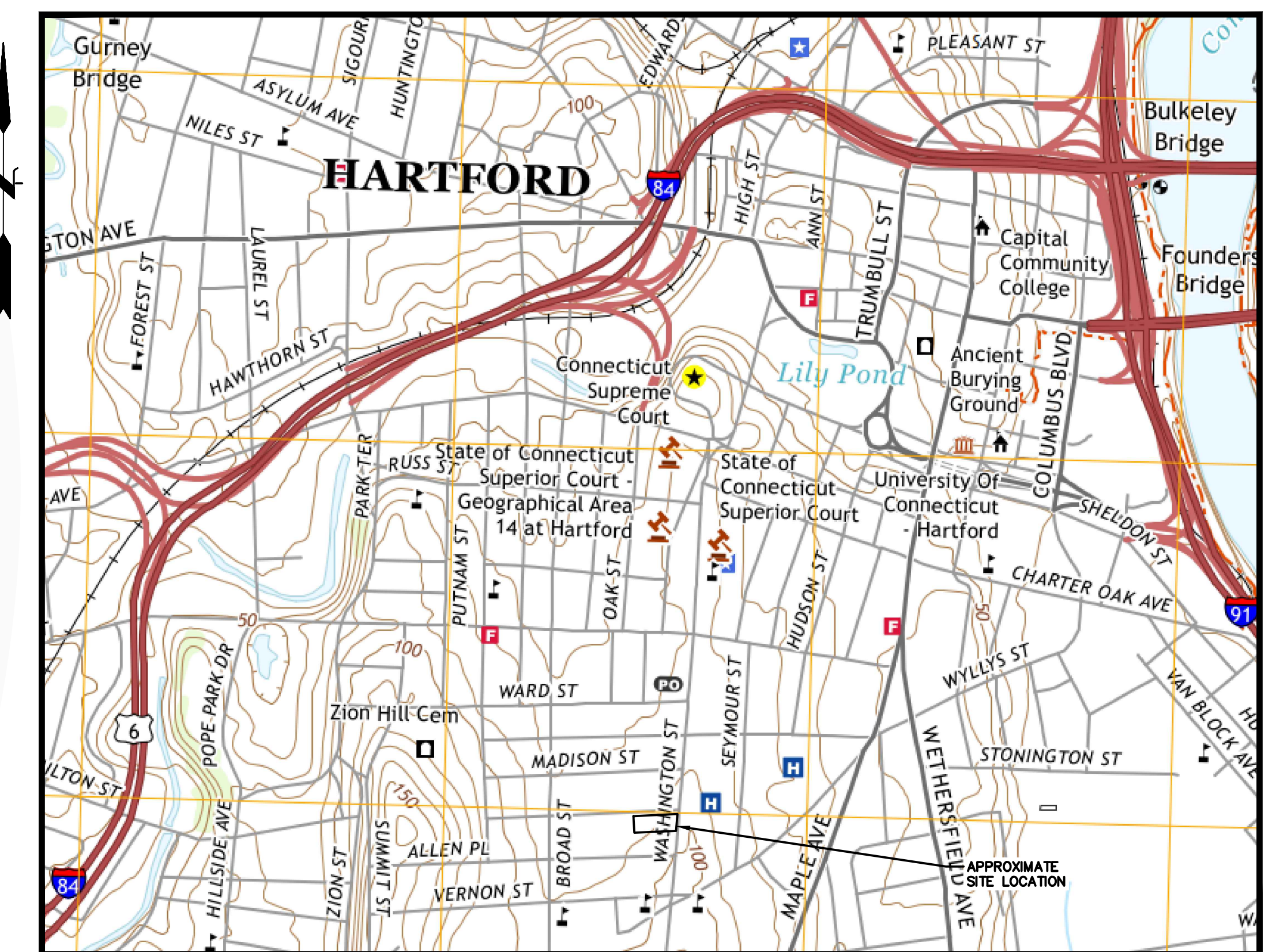
SHEET No.	SHEET TITLE
G-001	COVER SHEET
G-101	TREE MATRIX
1 OF 1	PROPERTY SURVEY
C-001	CIVIL GENERAL NOTES
CP-101	SITE PREPARATION PLAN
CE-101	SITE SEDIMENT & EROSION CONTROL PLAN
CS-101	SITE LAYOUT PLAN
CG-101	SITE GRADING & DRAINAGE PLAN
CU-101	SITE UTILITY PLAN
LP-101	PLANTING PLAN
CD-501-CD-509	SITE DETAILS
A-101	GROUND TIER PLAN
A-101.5	INTERMEDIATE TIER PLAN
A-102	SECOND TIER PLAN
A-103	THIRD TIER PLAN
A-104	FOURTH TIER PLAN
A0104.1-B1	LEVEL 04 - BRIDGE CORE AND SHELL PLAN
A-105	FIFTH TIER PLAN
A-106	SIXTH, SEVENTH & EIGHTH TIER PLAN
A-109	TOP TIER PLAN
A0301	EXTERIOR ELEVATIONS - NORTH - PART A
A0302	EXTERIOR ELEVATIONS - NORTH - PART B
A0303	EXTERIOR ELEVATIONS - SOUTH - PART A
A0304	EXTERIOR ELEVATIONS - SOUTH - PART B
A0305	EXTERIOR ELEVATIONS - EAST
A0306	EXTERIOR ELEVATIONS - WEST
A0316-B1	BRIDGE EXTERIOR ELEVATIONS
A-901	SITE LIGHTING PHOTOMETRIC PLAN
A-902	SITE LIGHTING PHOTOMETRIC PLAN

## PROJECT TEAM

CLOSE, JENSEN & MILLER  
1137 SILAS DEANE HIGHWAY  
WETHERSFIELD, CT 06109

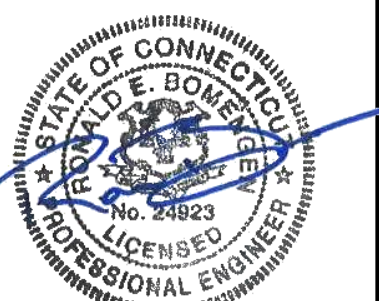
WALKER CONSULTANTS  
1075 MAIN STREET, SUITE 410  
WALTHAM, MA 02451

CANNONDESIGN  
99 SUMMER STREET, SUITE 600  
BOSTON, MA 02110



LOCATION MAP

SCALE: 1" = 1000'



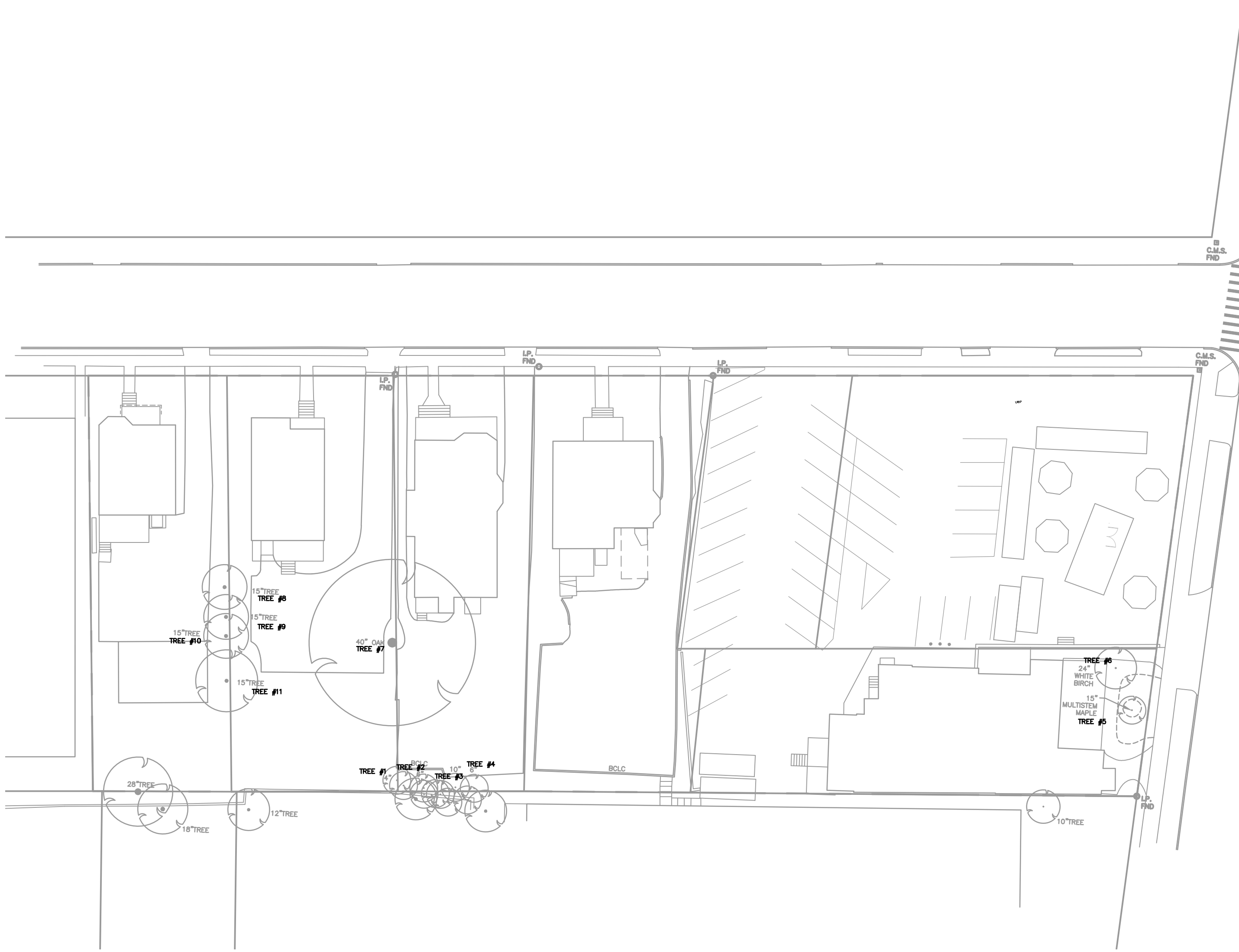
**NOT FOR  
CONSTRUCTION**

PROJ. No.: 20220997.A10  
DATE: 4/6/2023

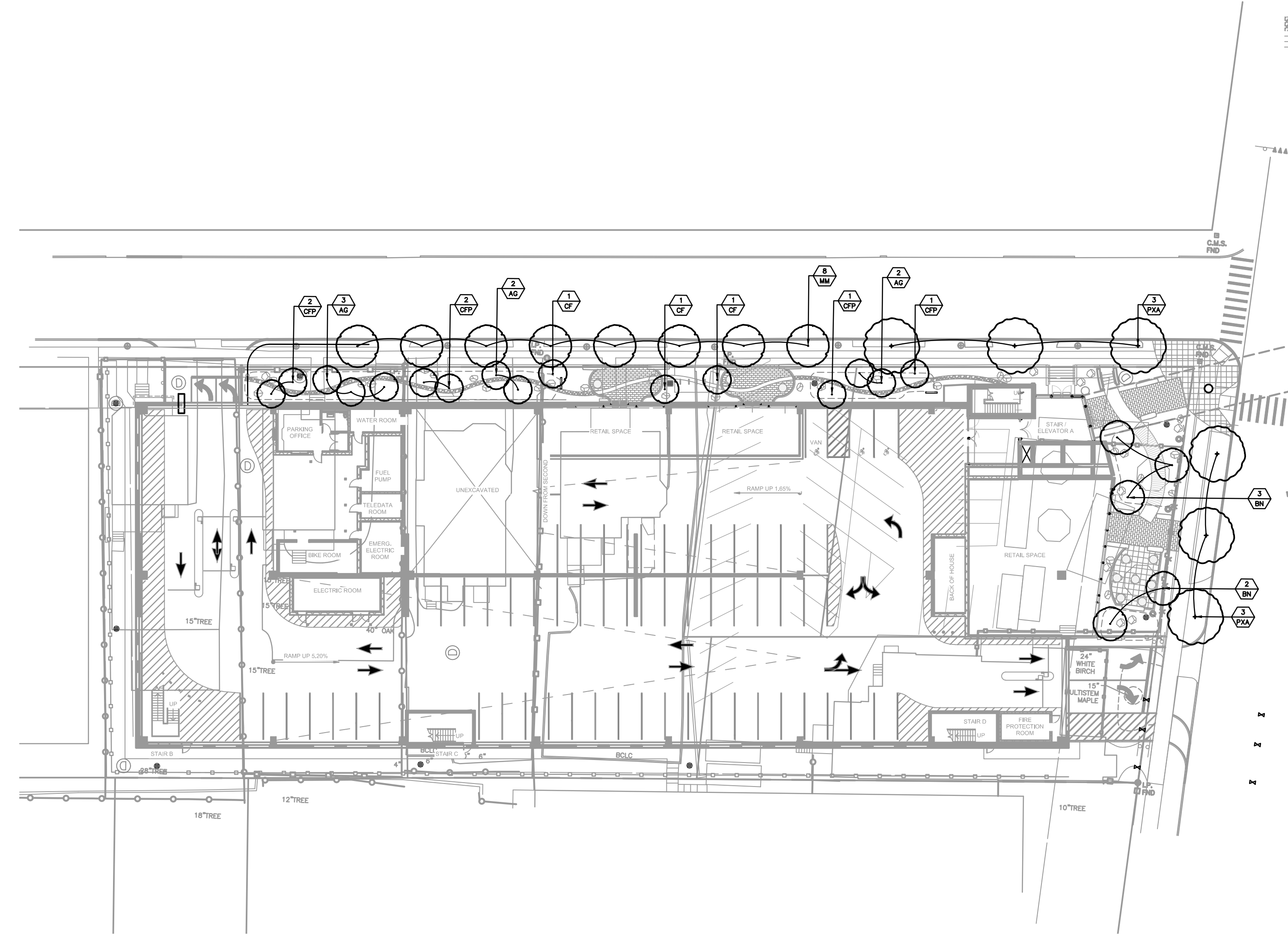
G-001

TREE MATRIX

TREES REMOVED	AMOUNT REMOVED	CAL. REMOVED	TREES ADDED	AMOUNT ADDED	CAL. ADDED
TREE #1	1	4"	Amelanchier x grandiflora Autumn Brilliance®	7	2"
TREE #2	1	6"	Betula nigra Dura Heat®	5	3"
TREE #3	1	10"	Cercis canadensis Forest Pansy®	6	2"
TREE #4	1	6"	Cornus florida Cherokee Chief®	3	2"
TREE #5	1	15"	Malus Mariee®	8	2"
TREE #6	1	24"	Platanus x acerifolia	6	3"
TREE #7	1	40"			
TREE #8	1	15"			
TREE #9	1	15"			
TREE #10	1	15"			
TREE #11	1	15"			
TOTAL	11	165 IN.	TOTAL	35	81 IN.



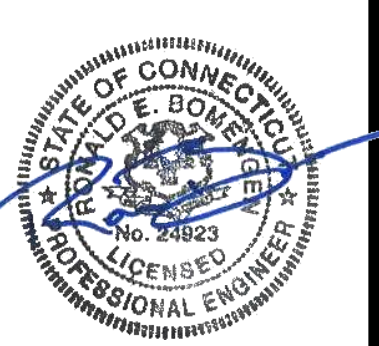
TREES TO BE REMOVED  
SCALE: 1" = 30'



PROPOSED TREES  
SCALE: 1" = 30'

File Path: J:\DWG\2022\097A10\Civil\Plan\2022097A10\_Tree Matrix.dwg Layout: G-101 Plotted: Wed, April 12, 2023 - 12:53 PM User: mcy  
MS VIEW: LAYER STATE: Plotter: DWG TO PDF.PC3 CTB File: FOSTB

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
0	4/6/2023	SITE PLAN APPLICATION	NR	RB



SCALE: HORZ.: 1" = 30'  
VERT.: 1" = 15'  
DATUM: 30

HORZ.: 1" = 30'  
VERT.: 1" = 15'  
GRAPHIC SCALE: 0 15 30

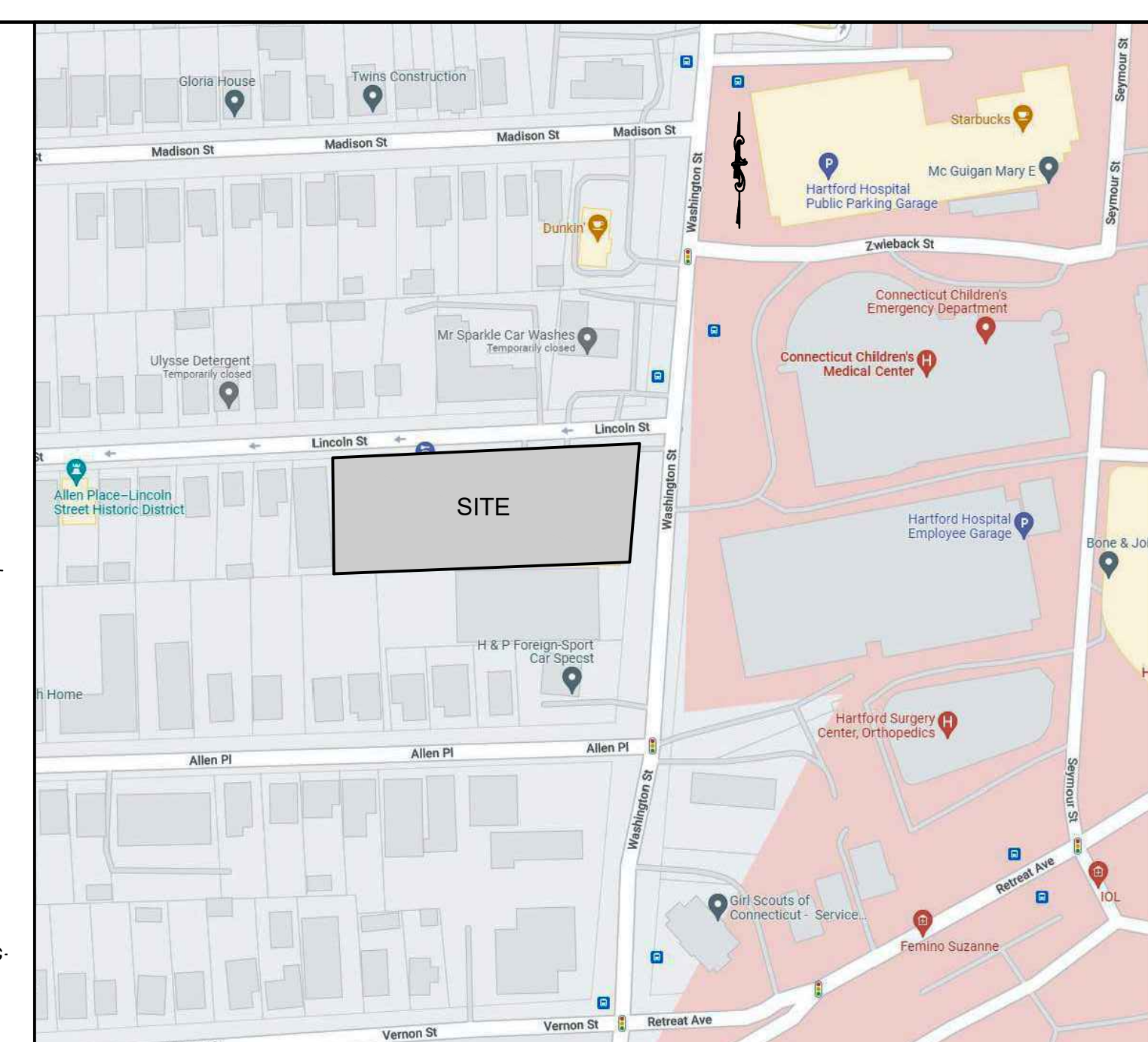
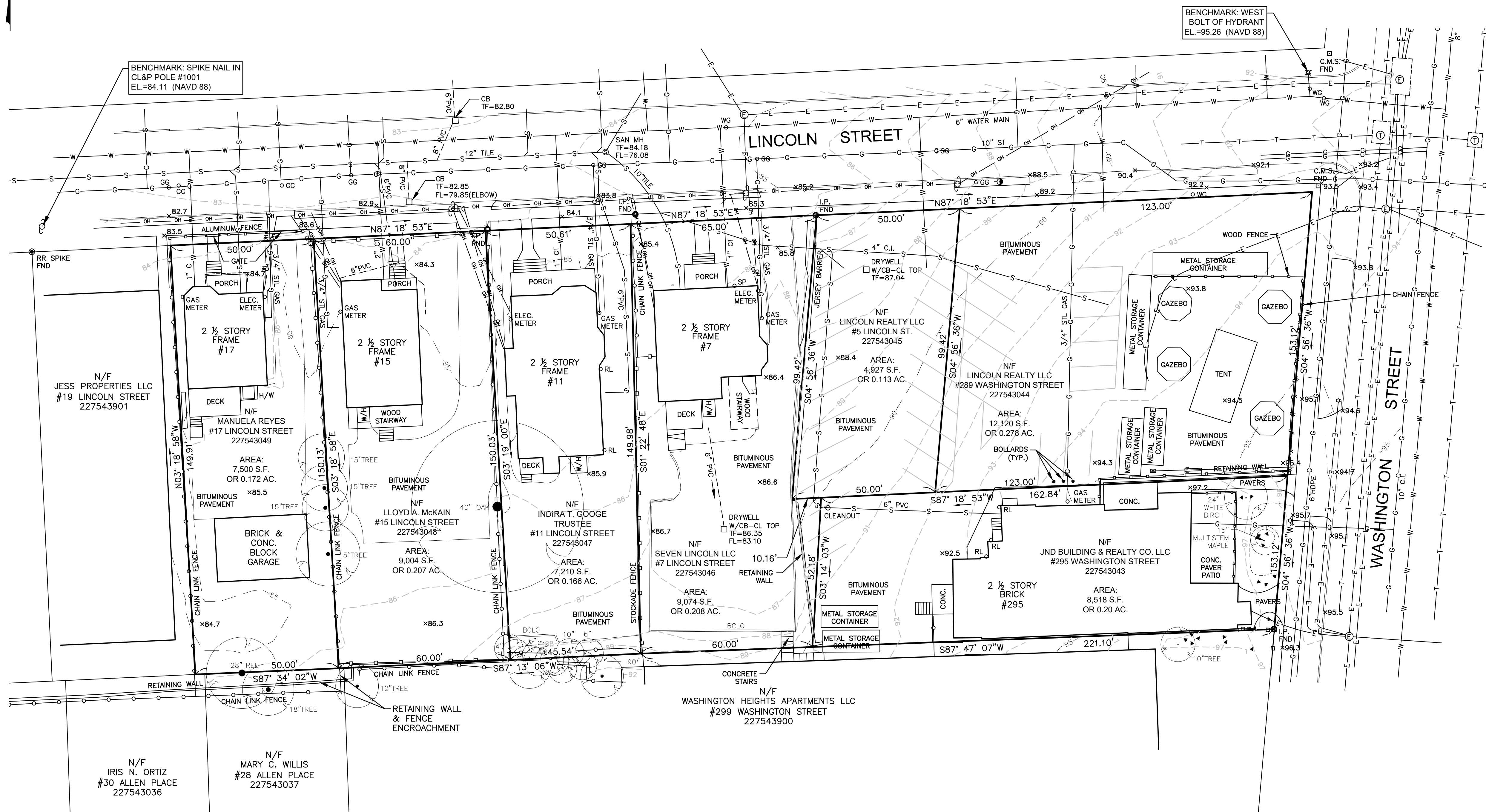
**FUSS & O'NEILL**  
146 HARTFORD ROAD  
HARTFORD, CONNECTICUT 06100  
860.646.2460  
www.fussandoneill.com

LAZ PARKING REALTY INVESTORS  
TREE MATRIX  
WASHINGTON & LINCOLN GARAGE  
HARTFORD CONNECTICUT

PROJ. No.: 2022097A10  
DATE: 4/6/2023

G-101

NOT FOR CONSTRUCTION



VICINITY MAP  
N.T.S.

BENCHMARK: SPIKE NAIL IN  
CL&P POLE #1001  
EL.=84.11 (NAVD 88)

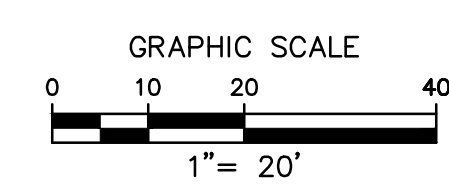
BENCHMARK: WEST  
BOLT OF HYDRANT  
EL.=95.26 (NAVD 88)

LEGEND:

GUY WIRE	—
ROOF LEADER	—
ELECTRIC CONDUIT	—
UTILITY POLE	—
LIGHT POLE	—
WATER GATE	—
HYDRANT	—
WATER MANHOLE	—
GAS GATE	—
HANDHOLE	—
ELECTRIC MANHOLE	—
YARD DRAIN	—
CATCH BASIN	—
DRAINAGE MANHOLE	—
SEWER MANHOLE	—
TELECOM MANHOLE	—
SIGN	—
GROUND LIGHT	—
ELECTRIC LINE	—
GAS LINE	—
TELECOM LINE	—
STORM PIPE	—
SANITARY SEWER PIPE	—
WATER LINE	—
CHAIN LINK FENCE	—
METAL FENCE	—

**SURVEY NOTES:**

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON OCT. 26, 2018. THIS IS A PROPERTY SURVEY BASED ON A RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND VERTICAL ACCURACY T-2 AND IS INTENDED TO DEPICT THE POSITION OF BOUNDARIES WITH RESPECT TO LOCATIONS OF ALL BOUNDARY MONUMENTATION; APPARENT IMPROVEMENTS AND FEATURES; RECORD EASEMENTS AND VISIBLE EVIDENCE OF THE USE THEREOF; RECORD AND APPARENT MEANS OF INGRESS AND EGRESS; LINES OF OCCUPATION AND DEED RESTRICTIONS PERTAINING TO THE LOCATION OF BUILDINGS OR OTHER IMPROVEMENTS.
2. NO LOCATION FOR WATER HOUSE CONNECTION FOR #295 WASHINGTON STREET WAS AVAILABLE FROM MDC.
3. NO RECORDED EASEMENT ACROSS #7 LINCOLN STREET FOR THE SANITARY LATERAL CONNECTION FOR #295 WASHINGTON STREET WAS FOUND.
4. BEARINGS ARE BASED ON NAD 1983, ELEVATIONS ARE BASED ON NAVD 1988.
5. THIS SURVEY IS NOT VALID WITHOUT A LIVE SIGNATURE AND EMBOSSED SEAL.



TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

By *Paul W. Humphreys*  
PAUL W. HUMPHREYS, L.S.  
LIC. NO. 12322

**MAP REFERENCES:**

1. "ALTA SURVEY PREPARED FOR JESS PROPERTIES LLC, STEPHANIE PROPERTIES LLS, MORGAN STANLEY BANK, N.A., HARVEY & LATER PC AND FIRST AMERICAN TITLE INSURANCE COMPANY, 19-21 LINCOLN STREET, HARTFORD, CONNECTICUT, SCALE 1"= 20', FEB. 7, 2022, REV. 2-08-22" BY FLYNN & CYR LAND SURVEYING LLC
2. "PROPERTY OF SHELL OIL CO. INC., HARTFORD, CONN, SCALE: 1"= 8', NOV. 1944, REVISED JAN. 1949" BY F. PERRY CLOSE.

No.	Date	Description	Revisions

<i>B. J. M.</i> Close, Jensen & Miller, P.C. Consulting Engineers, Land Planners & Surveyors 1137 Silas Deane Highway, Wethersfield, Conn. 06109, Tel. (860)563-9375	Compiled E.T.J. P.C. Check J.T. Designed Drawn E.T.J. Checked P.W.H. Scale 1"= 20' Date 1/23/23
	Sheet 1 of 1 Job No. File No.
<b>PROPERTY SURVEY</b> PROPERTIES LOCATED AT <b>289 &amp; 295 WASHINGTON STREET          &amp; 5, 7, 11, 15 &amp; 17 LINCOLN STREET</b> HARTFORD, CONNECTICUT	

CIVIL GENERAL NOTES

GENERAL

1. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SHOWN ON THE DRAWINGS TO SCALE OR TO THEIR ACTUAL DIMENSION OR LOCATION. COORDINATE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
2. DO NOT RELY SOLELY ON ELECTRONIC VERSIONS OF DRAWINGS, SPECIFICATIONS, AND DATA FILES THAT ARE PROVIDED BY THE ENGINEER. FIELD VERIFY LOCATION OF PROJECT FEATURES.
3. PERFORM NECESSARY CONSTRUCTION NOTIFICATIONS, APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK AS REQUIRED BY THE CONTRACT DOCUMENTS.
4. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDINGS AND ADJACENT SITE ELEMENTS INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
5. BASE PLAN: THE PROPERTY LINES SHOWN WERE DETERMINED BY AN ACTUAL FIELD SURVEY ENTITLED "SHEET 1 OF 1, PROPERTY SURVEY, PROPERTIES LOCATED AT 289 & 295 WASHINGTON STREET & 5, 7, 11, 15 & 17 LINCOLN STREET, HARTFORD, CT" DATED JANUARY 23, 2023, SCALE 1"=20' PREPARED BY CLOSE, JENSEN & MILLER, P.C., 1137 SILAS DEANE HIGHWAY, WETHERSFIELD, CT 06109.
6. TOPOGRAPHIC ELEVATIONS ARE BASED ON NAVD 1988 DATUM.

WORK RESTRICTIONS

1. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, FIRE HYDRANTS, AND UTILITIES WITHOUT APPROPRIATE PERMITS.
2. WORK IS RESTRICTED TO THE HOURS OF 7 AM TO 6 PM ON MONDAY THROUGH FRIDAY.

REGULATORY REQUIREMENTS

1. WITHIN LOCAL RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS.
2. WITHIN STATE RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS AND ISSUED REVISIONS/SUPPLEMENTS.
3. PROVIDE TRAFFIC SIGNAGE AND PAVEMENT MARKINGS IN CONFORMANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. PERFORM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
5. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.

EROSION AND SEDIMENT CONTROL

1. INSTALL EROSION CONTROL MEASURES PRIOR TO STARTING ANY WORK ON THE SITE. REFER TO THE EROSION AND SEDIMENT CONTROL DRAWINGS.
2. IMPLEMENT ALL NECESSARY MEASURES REQUIRED TO CONTROL STORMWATER RUNOFF, DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE. PERFORM CORRECTIVE ACTION AS NEEDED FOR EROSION CLEANUP AND REPAIRS TO OFF SITE AREAS, IF ANY, AT NO COST TO OWNER.
3. INSPECT AND MAINTAIN EROSION CONTROL MEASURES PER THE SCHEDULE IN THE EROSION AND SEDIMENT CONTROL DRAWINGS. DISPOSE OF SEDIMENT IN AN UPLAND AREA. DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
4. PERFORM CONSTRUCTION SEQUENCING IN SUCH A MANNER TO CONTROL EROSION AND TO MINIMIZE THE TIME THAT EARTH MATERIALS ARE EXPOSED BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL MEASURES. CLEAN SEDIMENT AND DEBRIS FROM TEMPORARY MEASURES AND FROM PERMANENT STORM DRAIN AND SANITARY SEWER SYSTEMS.

DEMOLITION

1. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS, UNLESS OTHERWISE NOTED.
2. SITE PREPARATION PLANS ARE PROVIDED FOR INFORMATION ONLY AND MAY NOT INDICATE ALL ITEMS REQUIRED TO BE DEMOLISHED. PERFORM A PRE-BID SITE INSPECTION. COORDINATE DEMOLITION OF UNIDENTIFIED UTILITIES OR STRUCTURES WITH OWNER. DEMOLISH STRUCTURES, SITE IMPROVEMENTS, UTILITIES, ETC. AS REQUIRED TO CONSTRUCT PROPOSED TO CONSTRUCT PROPOSED FACILITY AND UTILITY SERVICES.

CONSTRUCTION LAYOUT

1. PROVIDE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED SITE IMPROVEMENTS. FIELD VERIFY EXISTING PAVEMENT AND GROUND ELEVATIONS AT THE INTERFACE WITH PROPOSED PAVEMENTS AND DRAINAGE STRUCTURES BEFORE START OF CONSTRUCTION.
2. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, FIELD VERIFY PROPOSED UTILITY ROUTES AND IDENTIFY ANY INTERFERENCES OR OBSTRUCTIONS WITH EXISTING UTILITIES OR PUBLIC RIGHTS-OF-WAY.
3. IMMEDIATELY INFORM THE ENGINEER IN WRITING IF EXISTING UTILITY CONDITIONS CONFLICT OR DIFFER FROM THAT INDICATED AND IF THE WORK CANNOT BE COMPLETED AS INDICATED.
4. DIMENSIONS ARE FROM FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS NOTED OTHERWISE.
5. BOUNDS OR MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.

EARTHWORK

1. NOTIFY UTILITY LOCATOR SERVICE AT LEAST 72 HOURS BEFORE STARTING EXCAVATION. "CALL BEFORE YOU DIG" AT 1-800-922-4455.
2. STOP WORK IN THE VICINITY OF SUSPECTED CONTAMINATED SOIL, GROUNDWATER OR OTHER MEDIA. IMMEDIATELY NOTIFY THE OWNER SO THAT APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN. RESUME WORK IN THE IMMEDIATE VICINITY ONLY UPON DIRECTION BY THE OWNER.
3. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, PERFORM EARTHWORK OPERATIONS TO SUBGRADE ELEVATIONS. SEE DRAWINGS BY OTHERS FOR WORK ABOVE SUBGRADE.

UTILITIES

1. TERMINATE EXISTING UTILITIES IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. COORDINATE UTILITY SERVICE DISCONNECTS WITH UTILITY REPRESENTATIVES.
2. THE TYPE, SIZE AND LOCATION OF DEPICTED UNDERGROUND UTILITIES ARE APPROXIMATE REPRESENTATIONS OF INFORMATION OBTAINED FROM FIELD LOCATIONS OF VISIBLE FEATURES, EXISTING MAPS AND PLANS OF RECORD, UTILITY MAPPING, AND OTHER SOURCES OF INFORMATION OBTAINED BY THE ENGINEER. ASSUME NO GUARANTEE AS TO THE COMPLETENESS, SERVICEABILITY, EXISTENCE, OR ACCURACY OF UNDERGROUND FACILITIES. FIELD VERIFY THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES.
3. PAY ALL FEES AND COSTS ASSOCIATED WITH UTILITY MODIFICATIONS AND CONNECTIONS, REGARDLESS OF THE ENTITY THAT PERFORMS THE WORK.
4. COORDINATE THE WORK AND WORK SCHEDULE WITH UTILITY COMPANIES. PROVIDE ADEQUATE NOTICE TO UTILITIES TO PREVENT DELAYS IN CONSTRUCTION.
5. INTERIOR DIAMETERS OF STORM DRAIN AND SANITARY SEWER STRUCTURES SHALL BE DETERMINED BY THE PRECAST MANUFACTURER, BASED ON THE INDICATED PIPE SYSTEM LAYOUT AND LOCAL MUNICIPAL STANDARDS.  
  
MINIMUM INTERIOR DIAMETERS:  
0 TO 20 FEET DEEP; 4 FEET.  
20 FEET OR GREATER; 5 FEET.
6. RIM ELEVATIONS FOR MANHOLES, VALVE COVERS, GATE AND PULL BOXES, AND OTHER STRUCTURES ARE APPROXIMATE. SET OR RESET RIM ELEVATIONS AS FOLLOWS:  
  
IN PAVEMENTS AND CONCRETE SURFACES: FLUSH  
IN SURFACES ALONG ACCESSIBLE ROUTES: FLUSH  
IN LANDSCAPE, SEEDED, AND OTHER EARTH SURFACE AREAS:  
1 INCH ABOVE SURROUNDING AREA; TAPER EARTH TO RIM ELEVATION.
7. INSTALL PROPOSED PRIVATE UTILITY SERVICES ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY THE AUTHORITY HAVING JURISDICTION (WATER, SEWER, GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). COORDINATE FINAL DESIGN LOADS AND LOCATIONS WITH OWNER AND ARCHITECT.

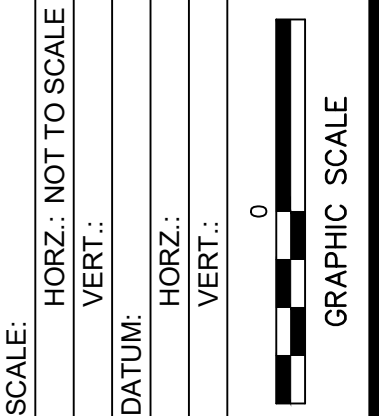
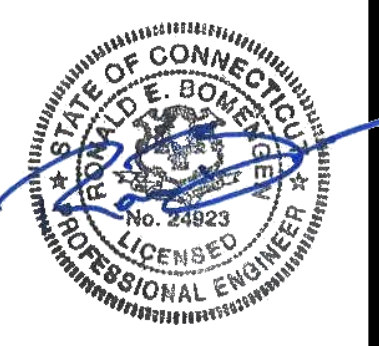
PAVEMENT

1. AT A MINIMUM, CONSTRUCT ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).

SITE RESTORATION

1. PROVIDE 6 INCHES OF TOPSOIL AND SEED TO AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED TO BE RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) UNLESS OTHERWISE NOTED.
2. REPAIR DAMAGES RESULTING FROM CONSTRUCTION LOADS, AT NO ADDITIONAL COST TO OWNER.
3. RESTORE AREAS DISTURBED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION OR BETTER, AT NO ADDITIONAL COST TO OWNER.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
0	4/6/2023	SITE PLAN APPLICATION		



**FUSS & O'NEILL**  
146 HARTFORD ROAD  
HARTFORD, CONNECTICUT 06140  
860.646.2460  
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LAZ PARKING REALITY INVESTORS  
CIVIL GENERAL NOTES  
WASHINGTON & LINCOLN GARAGE  
HARTFORD  
CONNECTICUT

PROJ. No.: 20220997.A10  
DATE: 4/6/2023

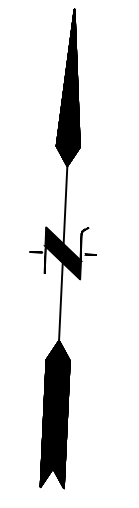
C-001

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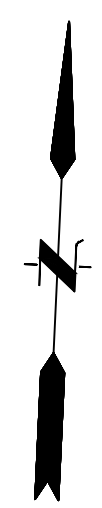
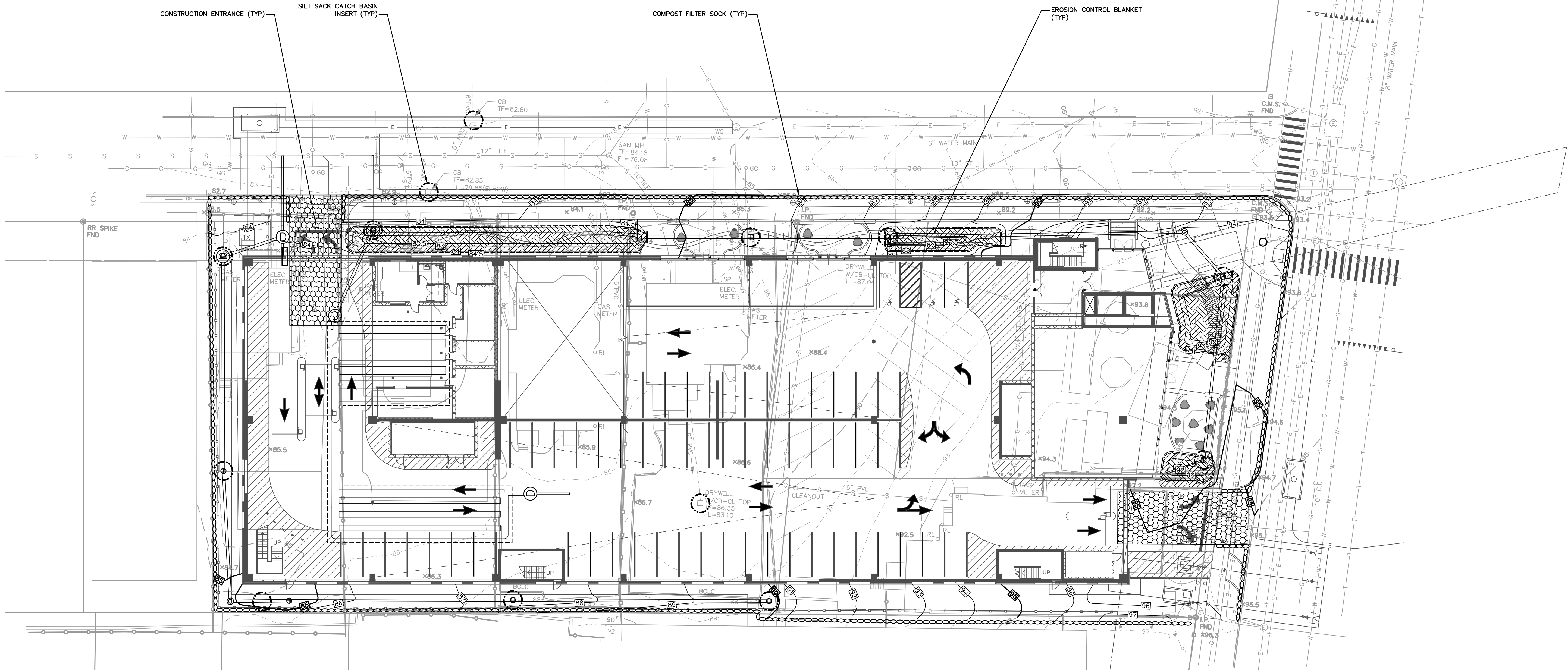


**LEGEND**

- LIMIT OF WORK
- SAWCUT PAVEMENT
- UTILITY TO BE REMOVED
- EXISTING HARDSCAPE SURFACE TO BE DEMOLISHED. REMOVE ALL IMPROVEMENTS TO PERFORM NEW WORK UNLESS NOTED OTHERWISE.
- EXISTING VEGETATED AREA TO BE CLEARED AND GRUBBED. REMOVE ALL IMPROVEMENTS TO PERFORM NEW WORK UNLESS NOTED OTHERWISE.
- EXISTING BUILDING TO BE DEMOLISHED.



<p><b>FUSS &amp; O'NEILL</b>          146 HARTFORD ROAD          HARTFORD, CONNECTICUT 06180          www.fussandoneill.com</p>	<p>PROJ. No.: 2022097A10          DATE: 4/6/2023</p>
<p><b>LAZ PARKING REALTY INVESTORS</b>          SITE PREPARATION PLAN          WASHINGTON &amp; LINCOLN GARAGE          HARTFORD CONNECTICUT</p>	<p>SCALE: HORIZ.: 1" = 20'          VERT.: 1" = 20'          DATUM: NAD 83          HORIZ.: 1" = 20'          VERT.: 1" = 20'          GRAPHIC SCALE</p>
<p><b>NOT FOR CONSTRUCTION</b></p>	<p><b>CP-101</b></p>



**NOT FOR  
CONSTRUCTION**

PROJ. No.: 20220997.A10  
 DATE: 4/8/2023

**CE-101**

LAZ PARKING REALITY INVESTORS  
 SITE EROSION & SEDIMENT CONTROL  
 PLAN  
 WASHINGTON & LINCOLN GARAGE  
 HARTFORD  
 CONNECTICUT



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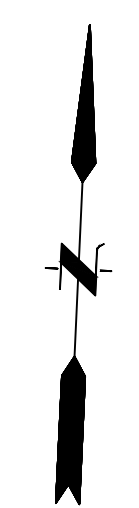
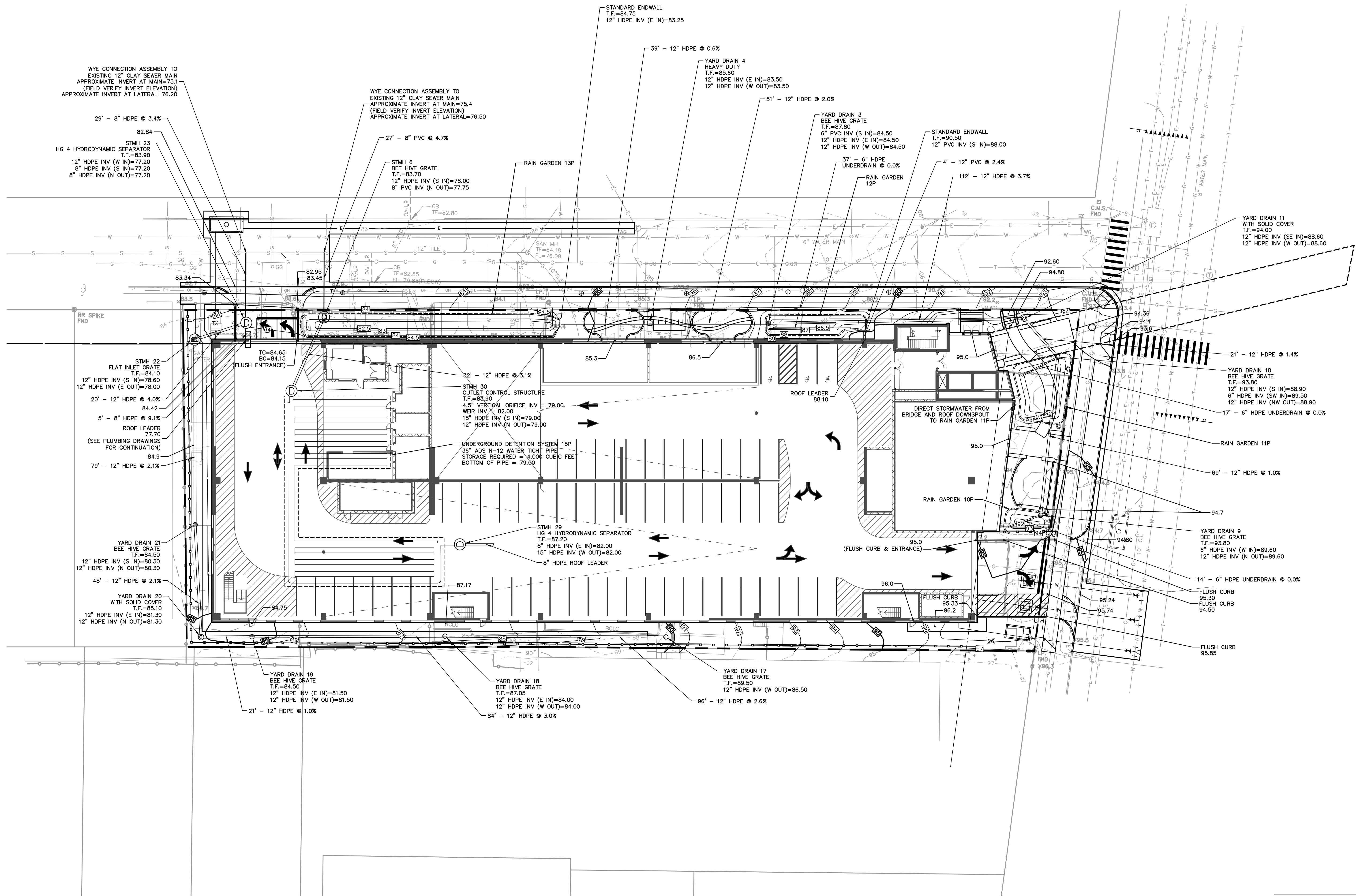
SCALE: HORZ.: 1" = 20'  
 VERT.: 1" = 10'  
 DATUM:  
 HORZ.:  
 VERT.:  
 GRAPHIC SCALE



No.	DATE	SITE PLAN APPLICATION DESCRIPTION	DESIGNER	REVIEWER
0	4/8/2023		NR	RB







No.	DATE	SITE PLAN APPLICATION	DESCRIPTION	DESIGNER	REVIEWER
0	4/6/2023				



SCALE: HORIZ: 1" = 20'  
 VERT: 1" = 4'  
 DATUM: 1985  
 HORIZ: 1" = 20'  
 VERT: 1" = 4'

GRAPHIC SCALE

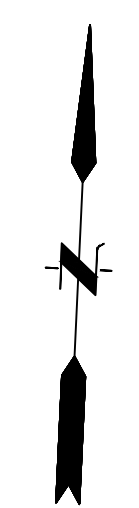
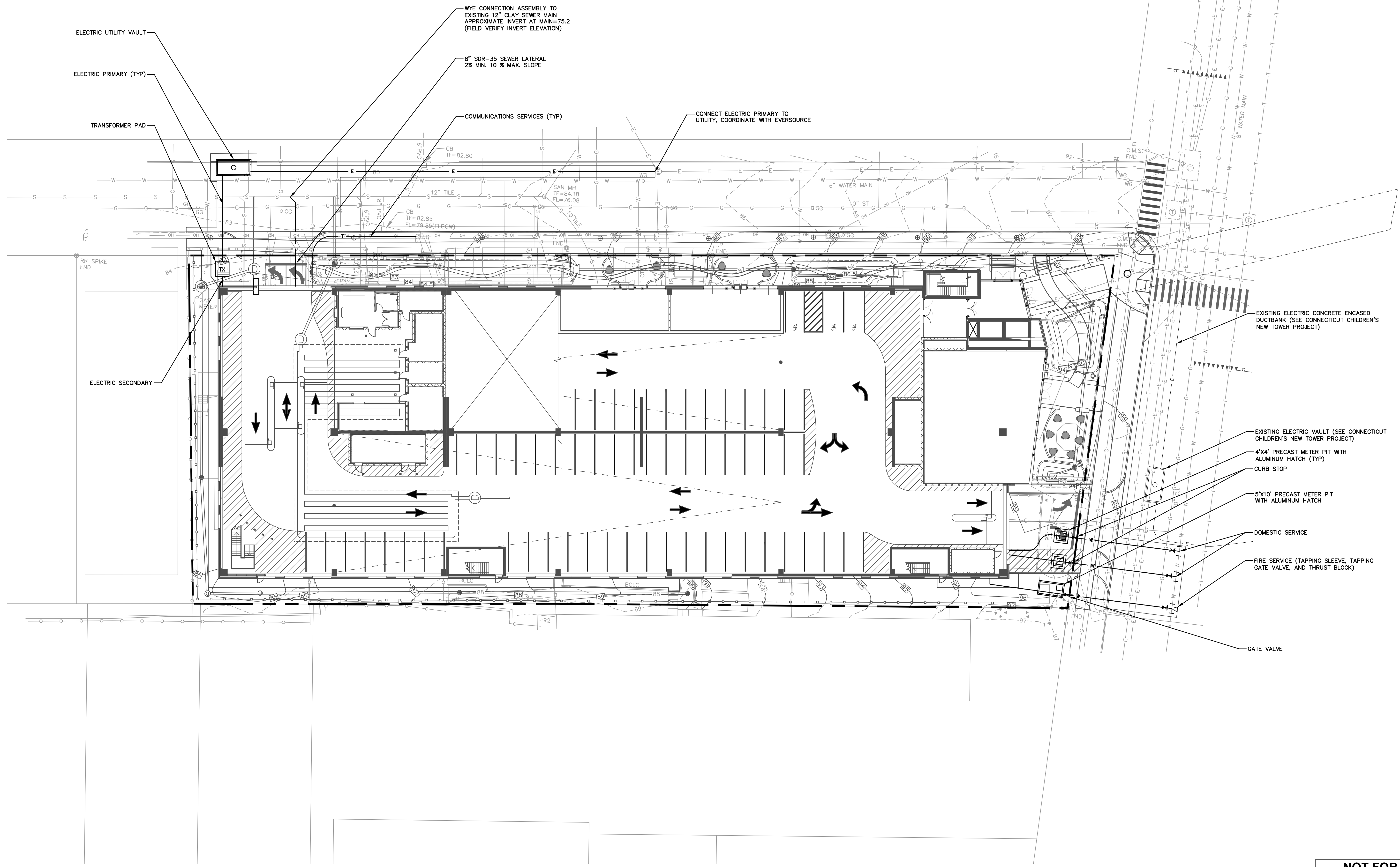
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 146 HARTFORD ROAD  
 HARTFORD, CONNECTICUT 06180  
 860.646.2460  
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LAZ PARKING REALTY INVESTORS  
 SITE GRADING & DRAINAGE PLAN  
 WASHINGTON & LINCOLN GARAGE  
 HARTFORD CONNECTICUT

PROJ. No.: 2022097A10  
 DATE: 4/6/2023

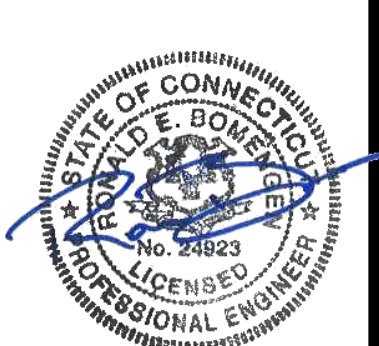
**CG-101**

**NOT FOR CONSTRUCTION**



**NOT FOR CONSTRUCTION**

No.	DATE	SITE PLAN APPLICATION	DESCRIPTION	DESIGNER	REVIEWER
0	4/6/2023				



SCALE: HORIZ.: 1" = 20'  
 VERT.: 1" = 10'  
 DATUM: 1985  
 HORIZ.: 1" = 20'  
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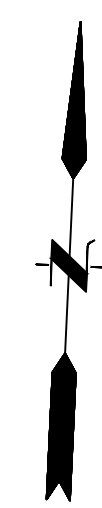
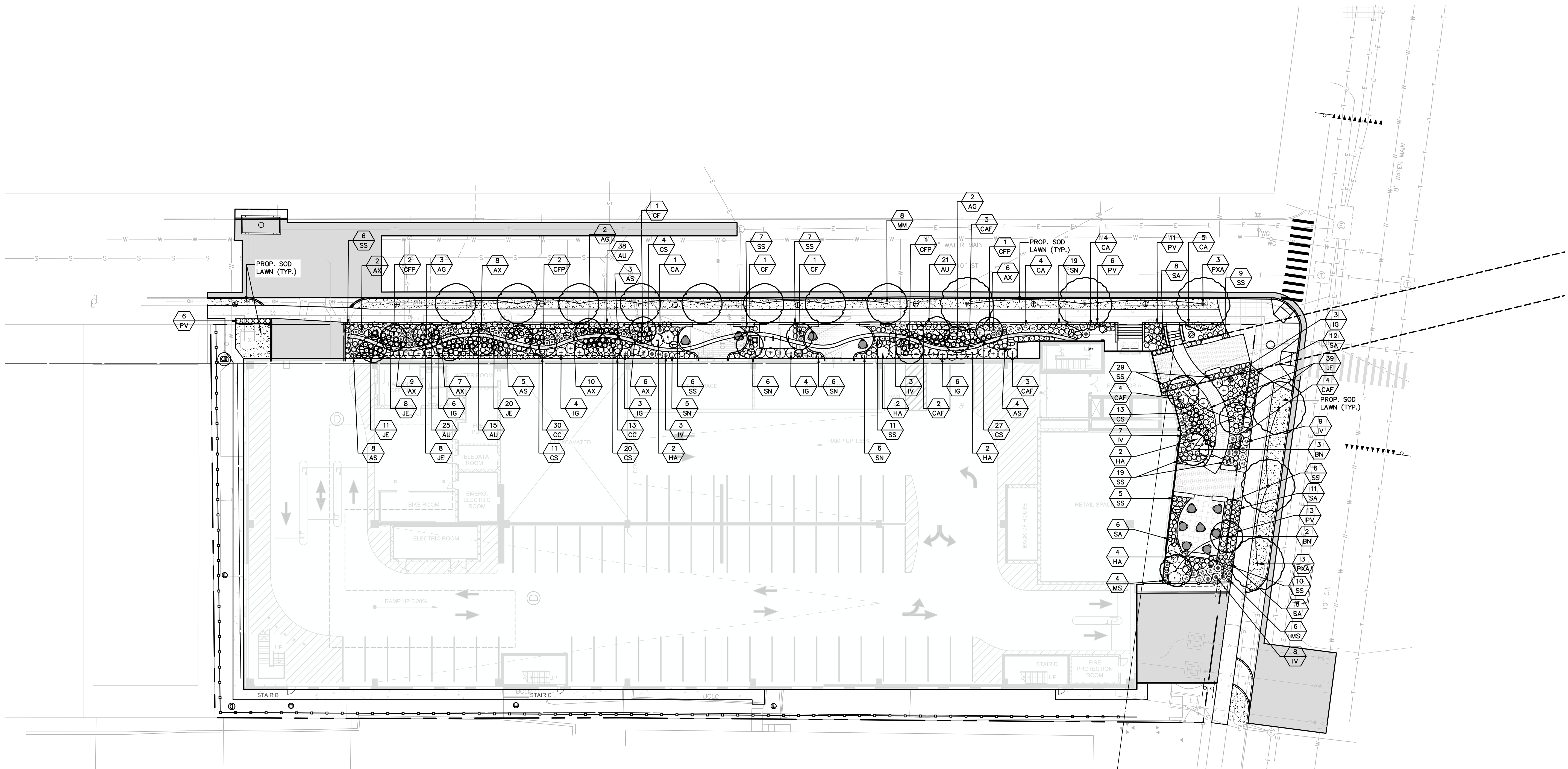
GRAPHIC SCALE

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LAZ PARKING REALTY INVESTORS  
 SITE UTILITY PLAN  
 WASHINGTON & LINCOLN GARAGE  
 HARTFORD CONNECTICUT

PROJ. No.: 20220997.A10  
 DATE: 4/6/2023

**CU-101**



**PLANT LIST**

KEY BOTANICAL NAME	COMMON NAME	QTY	SIZE
<b>TREES</b>			
AG AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	7	2.5"-3" CAL.
BN BETULA NIGRA 'DURA HEAT'	DURA HEAT RIVER BIRCH	5	8"-10" HT.
CFP CERCIS CANADENSIS 'FOREST PANSY'	FOREST PANSY EASTERN REDBUD	6	2.5"-3" CAL.
CF CORNUS FLORIDA 'CHEROKEE CHIEF'	CHEROKEE CHIEF FLOWERING DOGWOOD	3	2.5"-3" CAL.
MM MALUS 'MARILEE'	MARILEE FLOWERING CRABAPPLE	8	3"-3.5" CAL.
PXA PLATANUS X ACERIFOLIA	LONDON PLANETREE	6	3"-3.5" CAL.
<b>SHRUBS</b>			
AU ARCTOSTAPHYLOS UVA-URSI 'MASSACHUSETTS'	MASSACHUSETTS BEARBERRY	99	12-18" SPRD.
CA CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	14	24-30"
CAF CORNUS SERICEA 'ARCTIC FIRE'	ARCTIC FIRE REDTWIG DOGWOOD	16	30-36"
IG ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	26	30-36"
IV ILEX VERTICILLATA 'RED SPRITE'	RED SPRITE WINTERBERRY	30	24-30"
HA HYDRANGEA ARBORESCENS 'INCREDIBALL'	INCREDIBALL SMOOTH HYDRANGEA	12	30-36"

**PLANT LIST**

KEY BOTANICAL NAME	COMMON NAME	QTY	SIZE
<b>PERENNIALS/GRASSES/GROUNDCOVERS</b>			
AS ACTAEA SIMPLEX MOUNTAIN WAVE'	MOUNTAIN WAVE BANEERRY	20	2 GAL.
AX ASTILBE X ARENDsii 'FANAL'	FANAL ASTILBE	48	2 GAL.
CC CALAMAGROSTIS CANADENSIS	CANADA BLUEJOINT	43	2 GAL.
CS CAREX STRICTA	TUSsock SEDGE	72	2 GAL.
JE JUNCUS EFFUSUS	SOFT RUSH	86	2 GAL.
MS MISCANTHUS SINENSIS 'LITTLE KITTEN'	LITTLE KITTEN MAIDEN GRASS	10	2 GAL.
PV PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	42	2 GAL.
SA SALVIA NEMOROSA 'WHITE PROFUSION'	WHITE PROFUSION PERENNIAL SALVIA	45	2 GAL.
SN SORGHASTRUM NUTANS 'INDIAN STEEL'	BLUE PRAIRIE GRASS	42	2 GAL.
SS SCHIZACHYRIUM SCOPARIUM 'TWILIGHT ZONE'	TWILIGHT ZONE LITTLE BLUESTEM	115	2 GAL.

**PLANTING NOTES:**

1. ALL PLANTING MATERIAL TO BE NURSERY GROWN STOCK SUBJECT TO A.A.N. STANDARDS.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT LIST. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT LIST AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER NUMBER SHALL APPLY.
3. ALL PLANTS SHALL BE APPROVED PRIOR TO INSTALLATION AND SHALL BE LOCATED ON SITE BY THE CONTRACTOR FOR THE APPROVAL OF THE LANDSCAPE ARCHITECT. ANY INSTALLATIONS WHICH WERE NOT APPROVED BY THE LANDSCAPE ARCHITECT AND WHICH ARE SUBSEQUENTLY REQUESTED TO BE MOVED WILL BE DONE AT THE CONTRACTOR'S EXPENSE.
4. PRECISE LOCATION OF ITEMS NOT DIMENSIONED ON THE PLAN ARE TO BE FIELD STAKED BY THE CONTRACTOR AND SHALL BE SUBJECT TO THE REQUIREMENTS SPECIFIED IN THE PREVIOUS NOTE.
5. ALL SHRUB MASSINGS AND TREE PITS SHALL BE MULCHED TO A DEPTH OF 3" WITH SHREDDED PINE BARK MULCH.
6. TREES SHALL NOT BE STAKED UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGED VEGETATION AND SHALL REPLACE OR REPAIR ANY DAMAGED MATERIAL, AT HIS OWN EXPENSE. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 PRIOR TO CONSTRUCTION.
8. ALL SHRUB AND GROUNDCOVER PLANTING AREAS SHALL HAVE CONTINUOUS BEDS OF TOPSOIL 12" DEEP. ALL SOD AND HYDROSEED AREAS SHALL HAVE A MINIMUM TOPSOIL BED OF 6".
9. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES IN THE FIELD, WHERE PLANT MATERIAL MAY INTERFERE WITH UTILITIES, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT TO COORDINATE THEIR INSTALLATION.
10. FOR PLANTING SOIL MIX, SEE SPECIFICATIONS OR PLANTING DETAILS.
11. ALL EXISTING RILL, GULLY OR CHANNEL EROSION SHALL BE FILLED WITH APPROPRIATE BACKFILL MATERIAL, FINE RAKED, SCARIFIED AND STABILIZED WITH APPROPRIATE VEGETATIVE MATERIAL AND / OR APPROPRIATE SEDIMENTATION AND EROSION CONTROL MEASURES.
12. ADJUSTMENTS IN THE LOCATION OF THE PROPOSED PLANT MATERIAL AS A RESULT OF EXISTING VEGETATION TO REMAIN SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
13. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE, REPAIR AND REPLACEMENT OF PLANT MATERIAL, AS REQUIRED, FOR THE DURATION OF THE PROJECT AND SUBSEQUENT WARRANTY PERIOD.
14. PLANTINGS INSTALLED IN THE DRY SUMMER MONTHS AND / OR LAWN SEEDING OUT OF SPRING OR FALL PERIODS, IF ALLOWED BY OWNER, WILL REQUIRE AGGRESSIVE IRRIGATION PROGRAMS AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE DIRECTED BY THE OWNER.
15. UPON COMPLETION OF PLANTING, REMOVE FROM SITE ALL EXCESS SOIL, MULCH, AND MATERIALS AND DEBRIS RESULTING FROM WORK OPERATIONS. CLEAN UP SHOULD BE COMPLETED AT THE END OF EACH WORKING DAY. RESTORE TO ORIGINAL CONDITIONS ALL DAMAGED PAVEMENTS, PLANTING AREAS, STRUCTURES AND LAWN AREAS RESULTING FROM LANDSCAPING OPERATIONS.
16. CONTRACTOR SHALL SURVEY, LOCATE, AND PROTECT ALL TREES WITHIN AREAS SHOWN AS "EXISTING VEGETATION TO REMAIN" WITHIN THE DEVELOPMENT ENVELOPE OR REVIEW BY L.A. PRIOR TO CLEARING OPERATIONS.
17. CONTRACTOR TO RESEED ALL DISTURBED AREAS.

**NOT FOR CONSTRUCTION**

**FUSS & O'NEILL**  
 146 HARTFORD ROAD  
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**PLANTING PLAN**  
 WASHINGTON & LINCOLN GARAGE  
 HARTFORD, CONNECTICUT

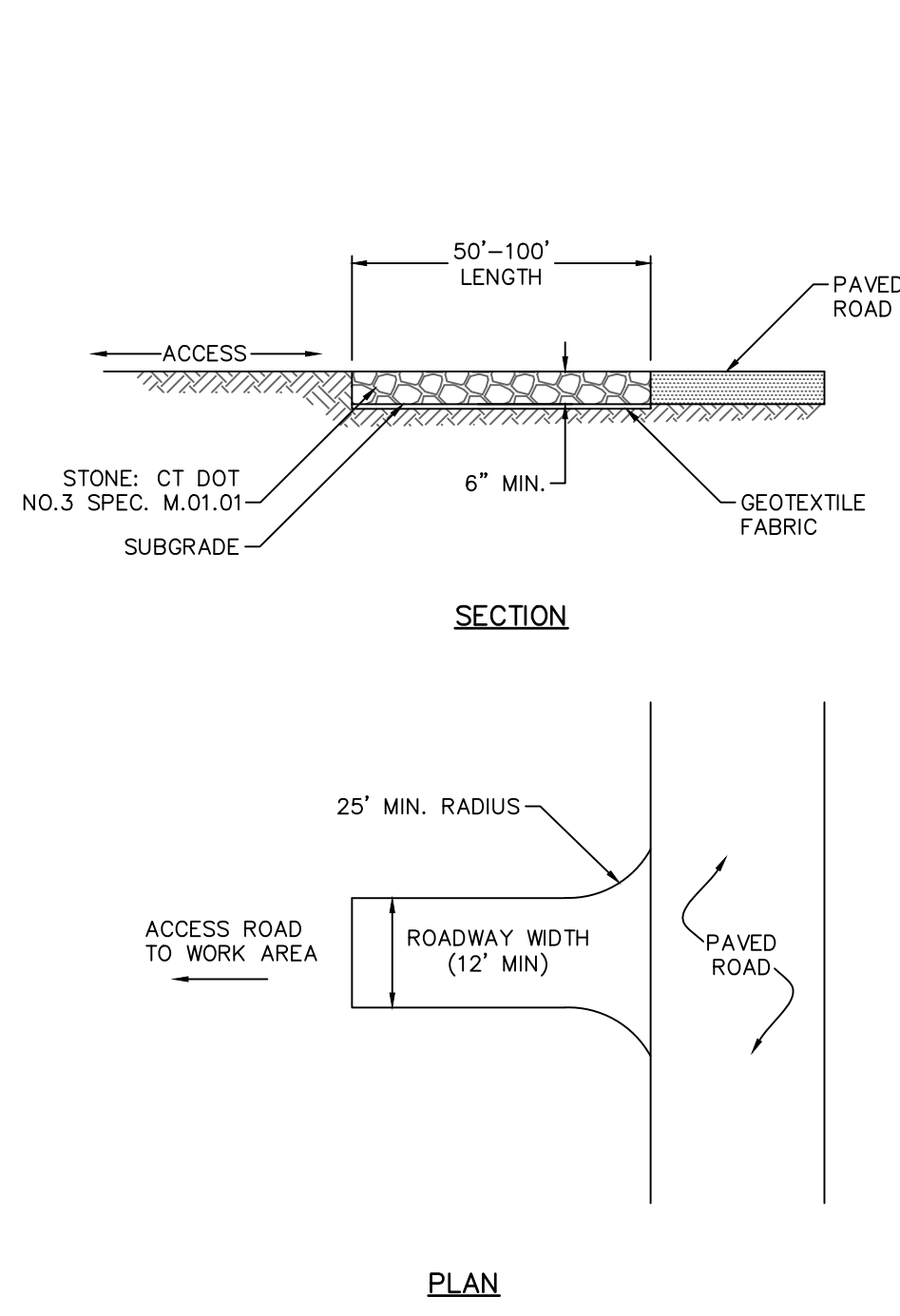
LAZ PARKING REALTY INVESTORS

PROJ. No.: 2022097A10  
 DATE: 4/6/2023

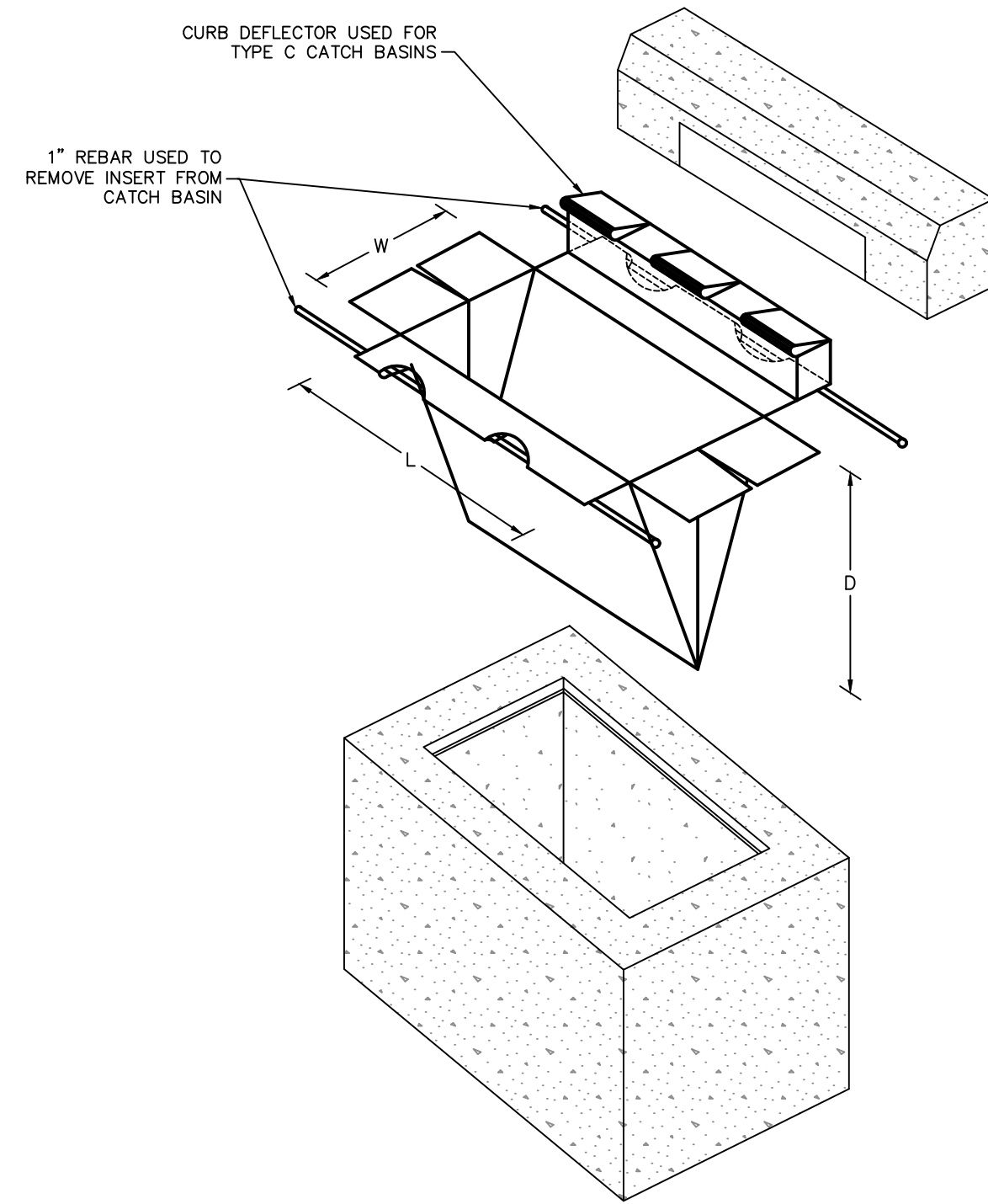
**LP-101**

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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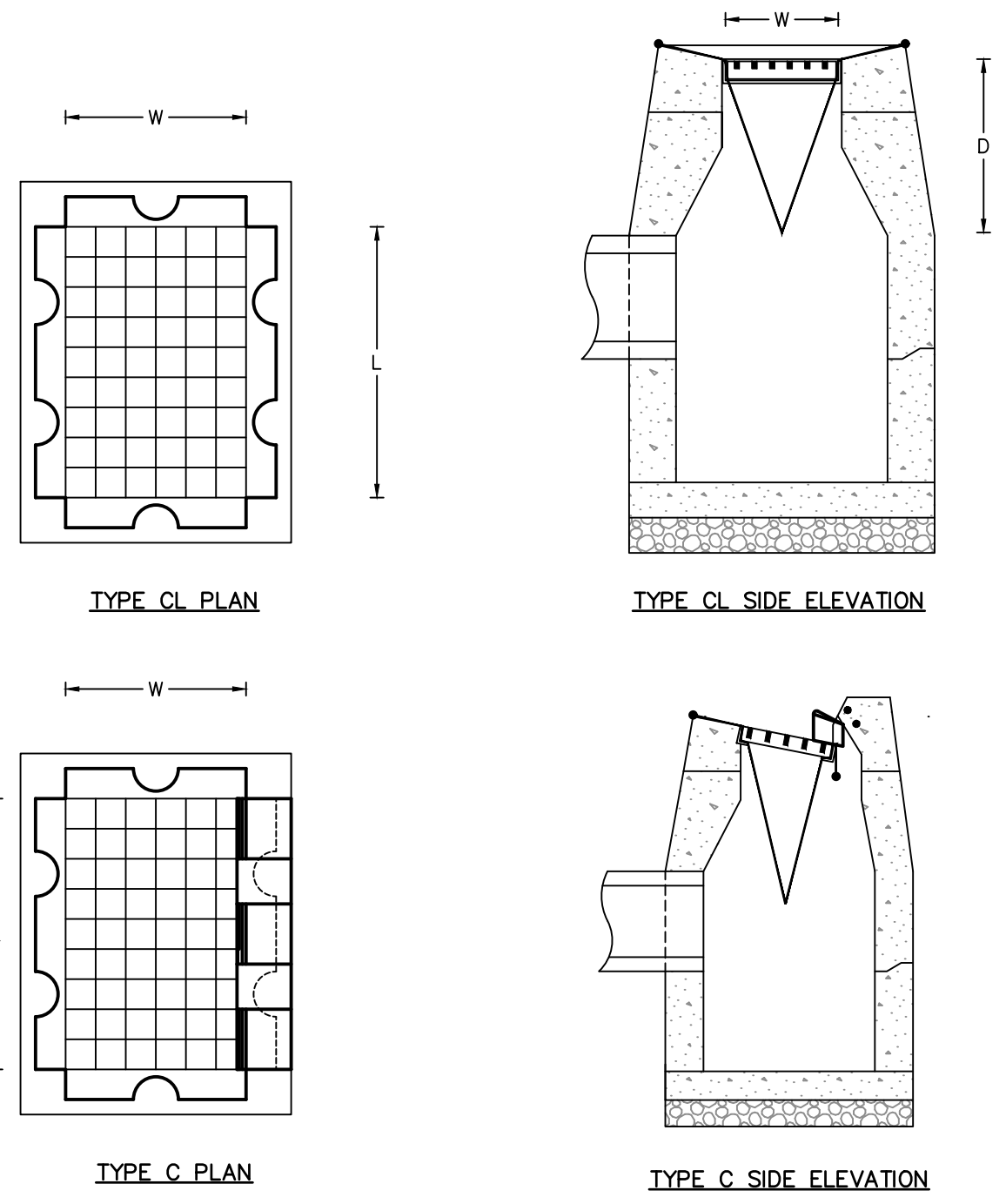
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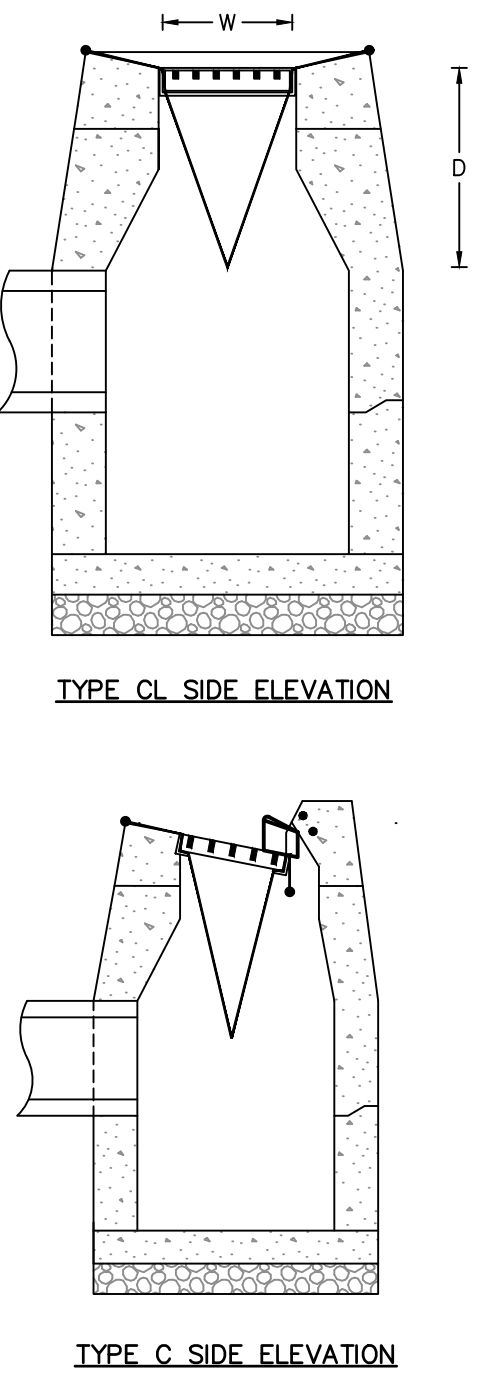
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NOT TO SCALE



**CATCH BASIN INSERT**  
NOT TO SCALE



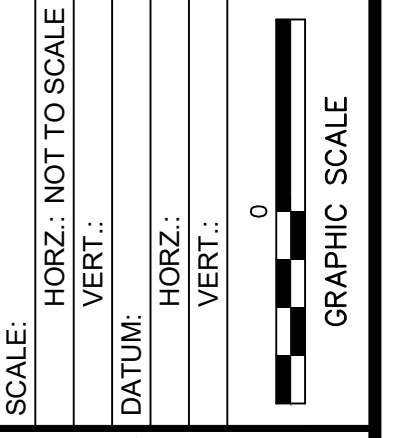
**TYPE CL PLAN**  
**TYPE C PLAN**



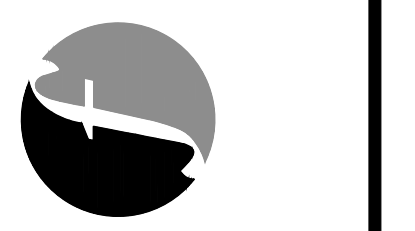
**TYPE CL SIDE ELEVATION**  
**TYPE C SIDE ELEVATION**

**EROSION & SEDIMENT CONTROL NOTES**

- 1. CONSTRUCTION STANDARDS** – CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MOST RECENT EDITION OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (CT DEP BULLETIN 34). ALL MEASURES SHALL BE MAINTAINED AND UPGRADED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION.
- 2. PLAN IMPLEMENTATION** – IMPLEMENT THIS EROSION AND SEDIMENT CONTROL PLAN. THIS IMPLEMENTATION INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES UNTIL PERMANENT STABILIZATION IS ACHIEVED, INFORMING ALL SUBCONTRACTORS OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER MUNICIPAL AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN TO THE NEW OWNER IF THE TITLE OF THE LAND IS TRANSFERRED PRIOR TO ACHIEVING PERMANENT STABILIZATION.
- 3. INSTALLATION SCHEDULE** – INSTALL THE CONSTRUCTION ENTRANCE BEFORE CONSTRUCTION TRAFFIC INTO AND OUT OF THE PROJECT AREA BEGINS. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO STUMP REMOVAL AND CONSTRUCTION. INSTALL ADDITIONAL CONTROL MEASURES DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER, HIS AGENTS OR AGENTS OF THE MUNICIPALITY.
- 4. FUGITIVE DUST** – CONTROL FUGITIVE DUST USING WATER SPRAYS OR CALCIUM CHLORIDE ON SOIL SURFACES, SWEEPING PAVED AREAS, TEMPORARY WINDBREAKS OR NON-ASPHALTIC SOIL TACKIFIERS.
- 5. STRAW BALE LIFE SPAN** – INSTALL STRAW BALES WHERE PROTECTION AND EFFECTIVENESS IS REQUIRED FOR LESS THAN 90 DAYS. OTHERWISE, INSTALL SILT FENCE.
- 6. CATCH BASINS** – PROTECT CATCH BASINS WITH PROPER CONTROLS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
- 7. STOCKPILES** – ENCIRCLE STOCKPILES OF ERODIBLE SOIL WITH A STRAW BALE OR SILT FENCE BARRIER. THE SIDE SLOPES OF ERODIBLE STOCKPILED MATERIAL SHALL BE NO STEEPER THAN 2:1. STOCKPILES THAT ARE NOT TO BE USED WITHIN 30 DAYS SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER THEY ARE FORMED.
- 8. TOE OF SLOPE** – ESTABLISH AN EROSION CONTROL BARRIER (SILT FENCE OR STRAW BALE BARRIER) APPROXIMATELY 5 TO 10 FEET FROM THE PROPOSED TOE OF THE CUT OR FILL AREA PRIOR TO BEGINNING EARTHWORK.
- 9. SEDIMENT REMOVAL** – SEDIMENT REACHING 1/2 THE HEIGHT OF THE EROSION CONTROL BARRIER SHALL BE REMOVED. REMOVE AND DISPOSE OF SEDIMENT IN A MANNER CONSISTENT WITH THE INTENT OF THE PLAN.
- 10. SOIL STABILIZATION SCHEDULE** – APPLY PERMANENT SOIL STABILIZATION MEASURES TO ALL GRADED AREAS WITHIN 7 DAYS OF ESTABLISHING FINAL GRADE. APPLY TEMPORARY SOIL STABILIZATION MEASURES IF FINAL GRADING IS TO BE DELAYED MORE THAN 30 DAYS.
- 11. TEMPORARY SEEDING** – TEMPORARILY SEED ERODIBLE SOILS THAT WILL BE EXPOSED GREATER THAN 1 BUT LESS THAN 12 MONTHS WITHIN THE FIRST 7 DAYS OF SUSPENDING GRADING OPERATIONS. APPLY LIME AT A RATE OF 90 LBS/1000 SQ. FT. APPLY 10-10-10 FERTILIZER AT A RATE OF 7 1/2 LBS/1000 SQ. FT. APPLY PERENNIAL RYE GRASS AT A RATE OF 2 LBS/1000 SQ. FT. TO A DEPTH OF 1/2 INCH. OPTIMUM SEEDING DATES ARE MARCH 15 TO JULY 1 AND AUGUST 1 TO OCTOBER 15. MULCH FOR SEED APPLIED WITHIN THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 80%-95% SOIL COVERAGE. MULCH FOR SEED APPLIED OUTSIDE OF THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 95%-100% COVERAGE.
- 12. PERMANENT SEEDING** – SEED PERMANENT LAWN AREAS IN ACCORDANCE WITH THE SPECIFICATIONS.
- 13. INSPECTION** – THE OWNER SHALL SECURE THE SERVICES OF A SOIL SCIENTIST OR PROFESSIONAL ENGINEER TO VERIFY IN THE FIELD THAT THE CONTROLS REQUIRED BY THIS PLAN ARE PROPERLY INSTALLED AND MAINTAINED. THESE INSPECTIONS SHALL BE NOT LESS FREQUENTLY THAN WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM HAVING A RAINFALL AMOUNT OF 0.1 INCH OR GREATER. FOLLOWING THESE INSPECTIONS, A WRITTEN REPORT SHALL BE PREPARED, INFORMING THE OWNER OR HIS AGENT NOT LESS FREQUENTLY THAN WEEKLY AND THE MUNICIPALITY NOT LESS FREQUENTLY THAN MONTHLY OF OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIVITIES UNDERTAKEN.



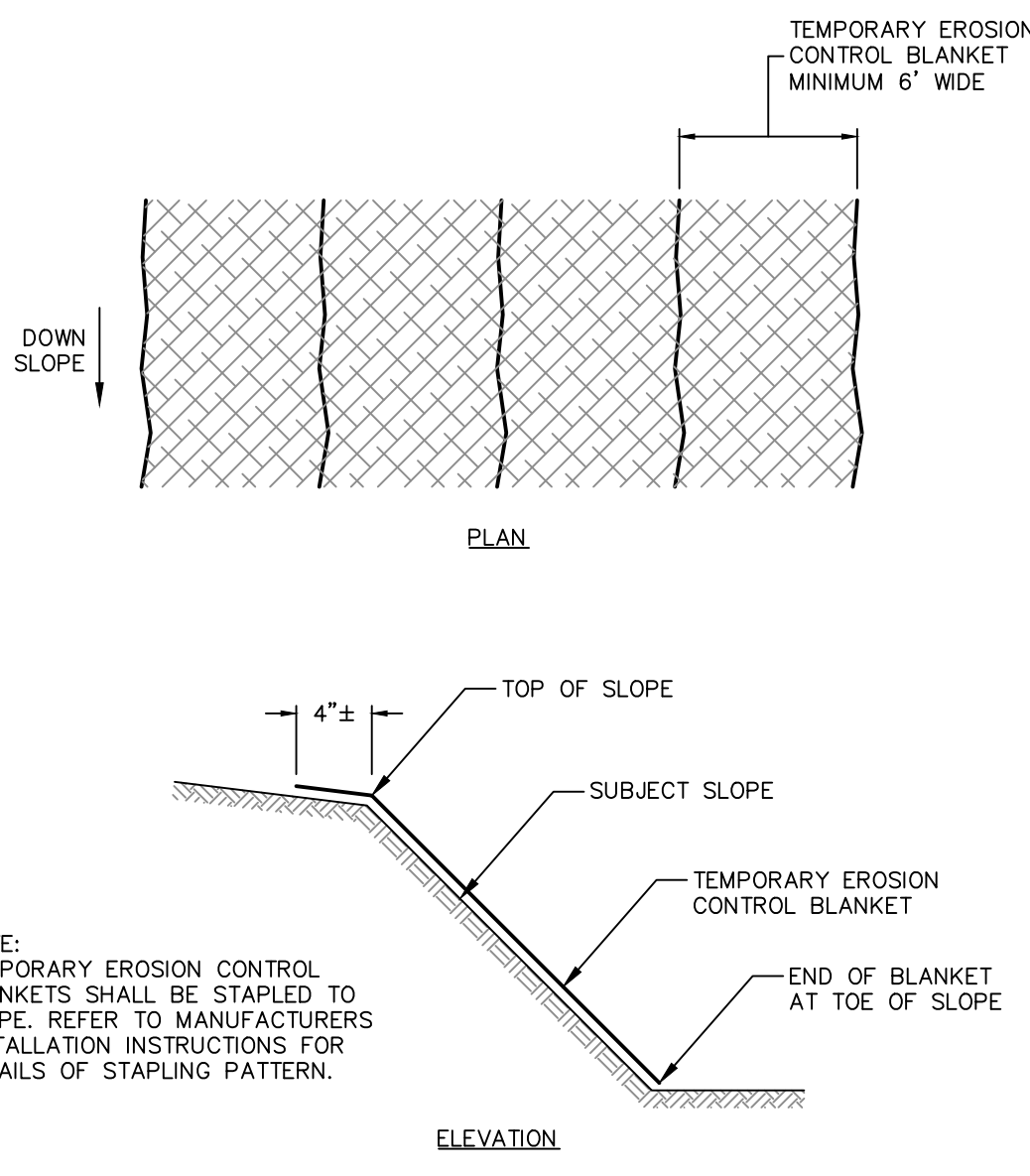
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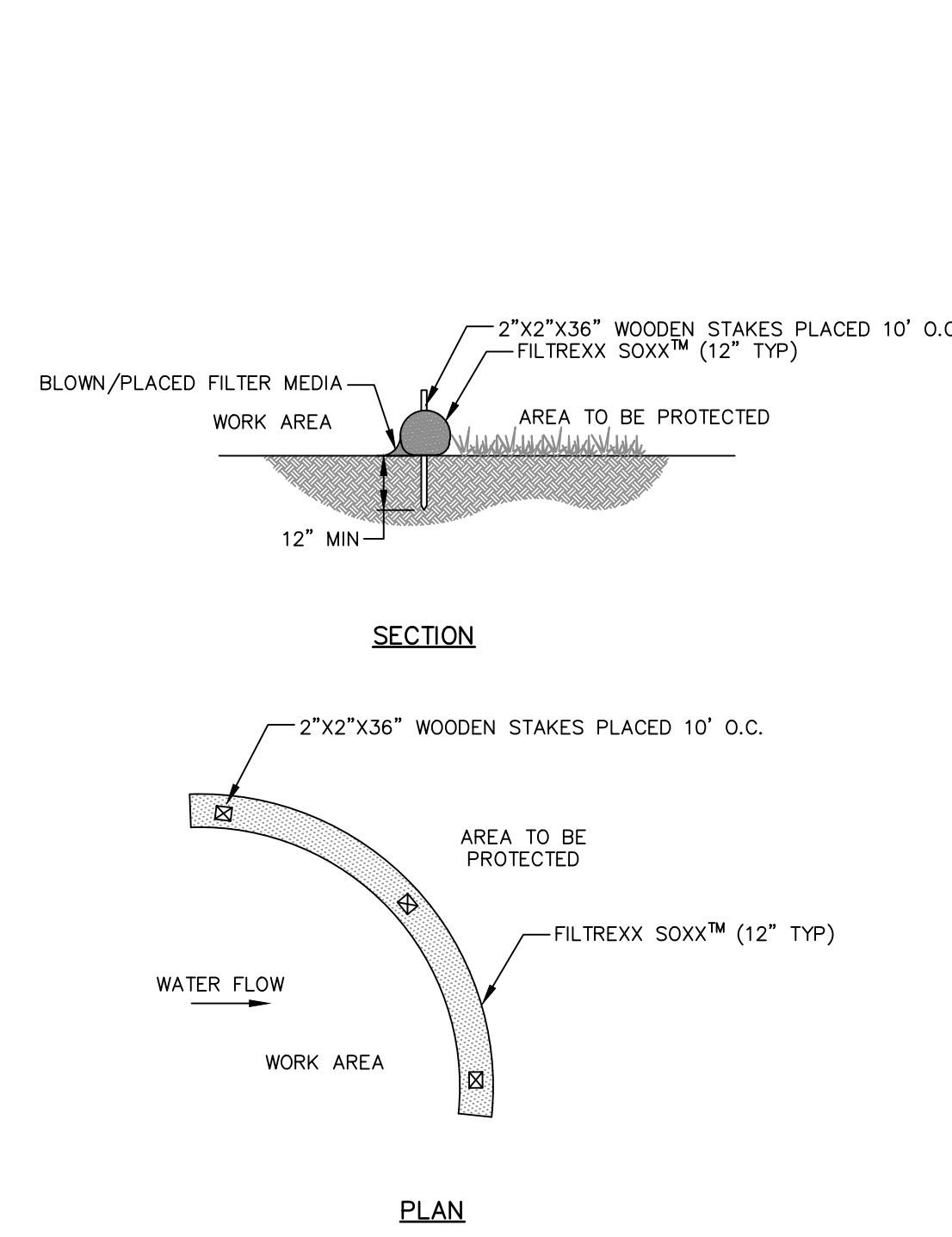
LAZ PARKING REALTY INVESTORS  
 CIVIL DETAILS  
 WASHINGTON & LINCOLN GARAGE  
 HARTFORD CONNECTICUT

PROJ. No.: 2022097A10  
 DATE: 4/6/2023

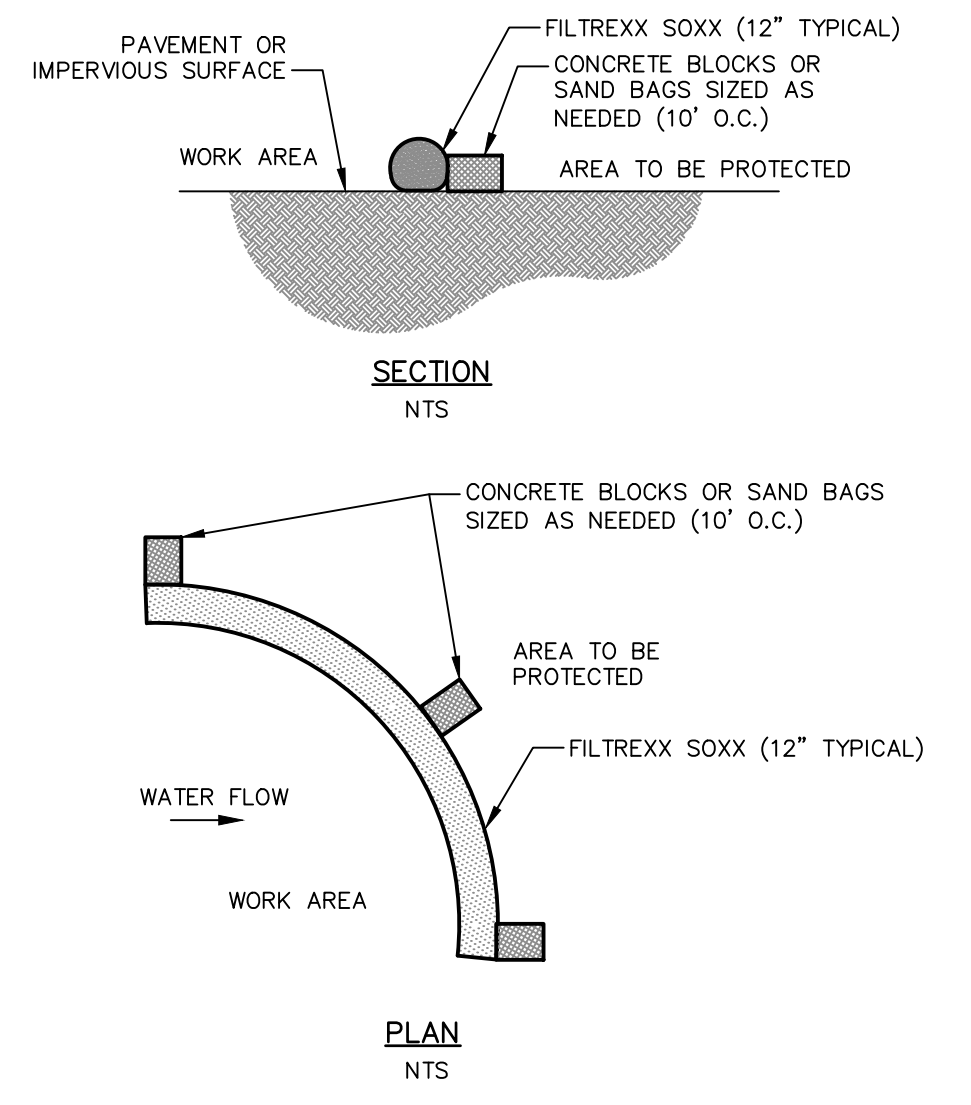
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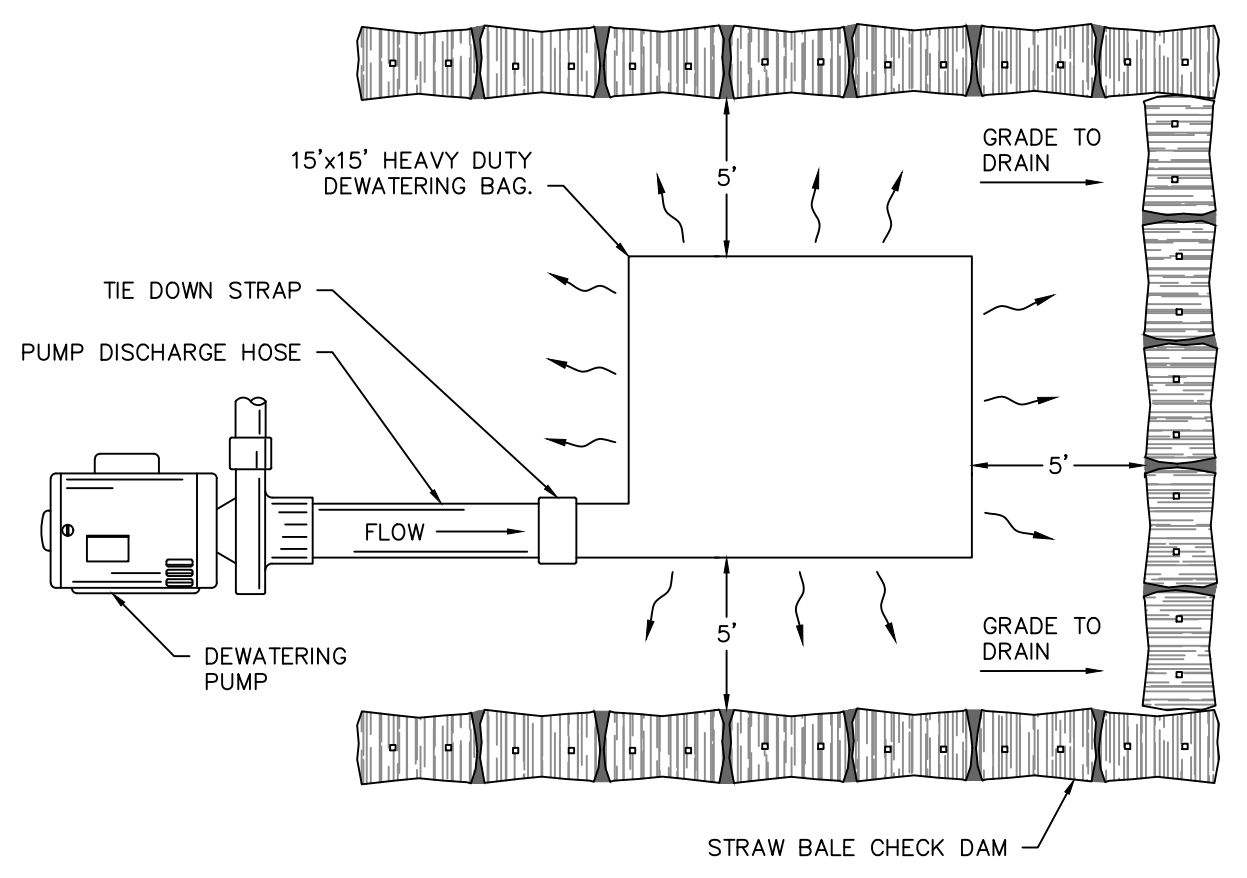
**TEMPORARY EROSION CONTROL BLANKET**  
NOT TO SCALE



**COMPOST FILTER SOCK**  
NOT TO SCALE

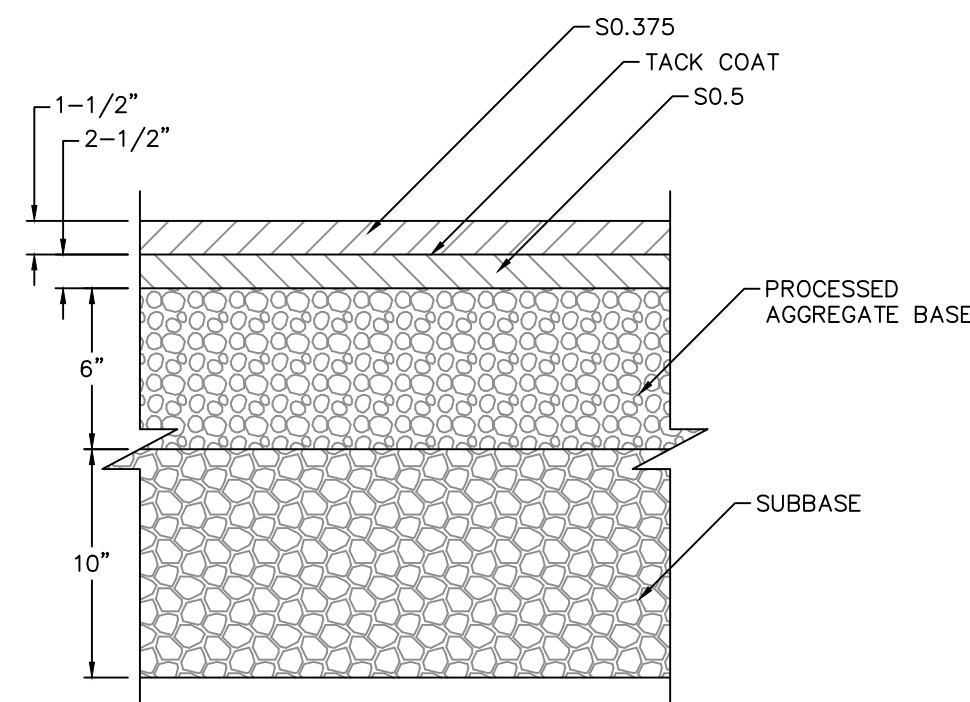


**COMPOST FILTER SOCK ON PAVEMENT**  
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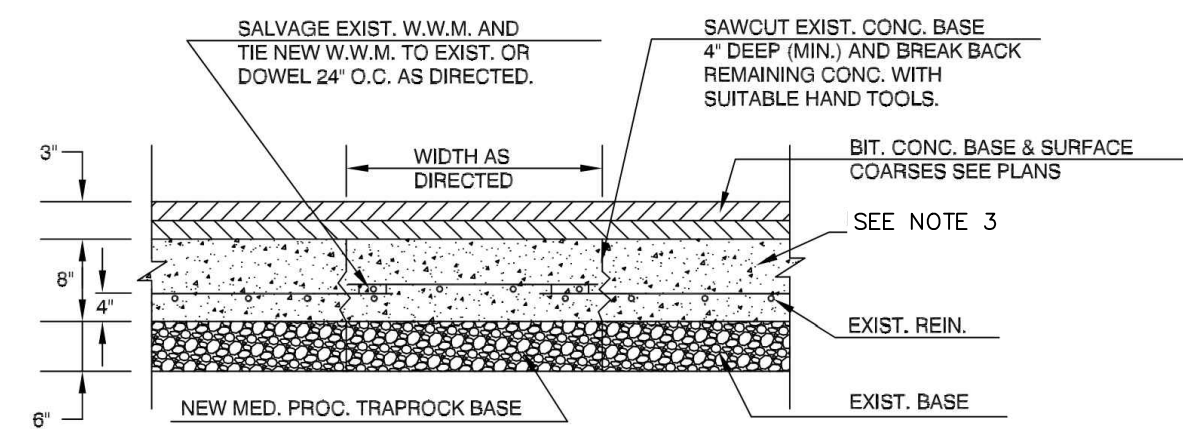


**DEWATERING BAG**  
NOT TO SCALE

**NOT FOR CONSTRUCTION**



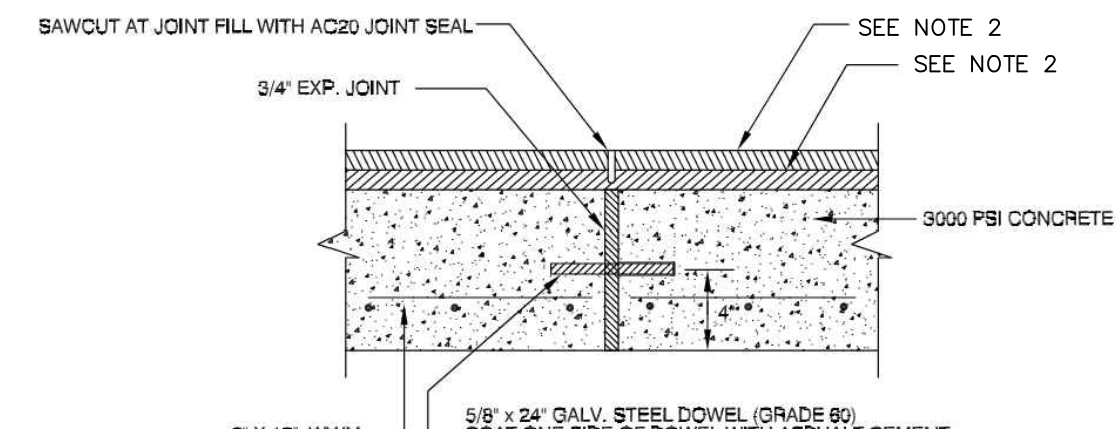
**BITUMINOUS CONCRETE PAVEMENT (HEAVY DUTY)**  
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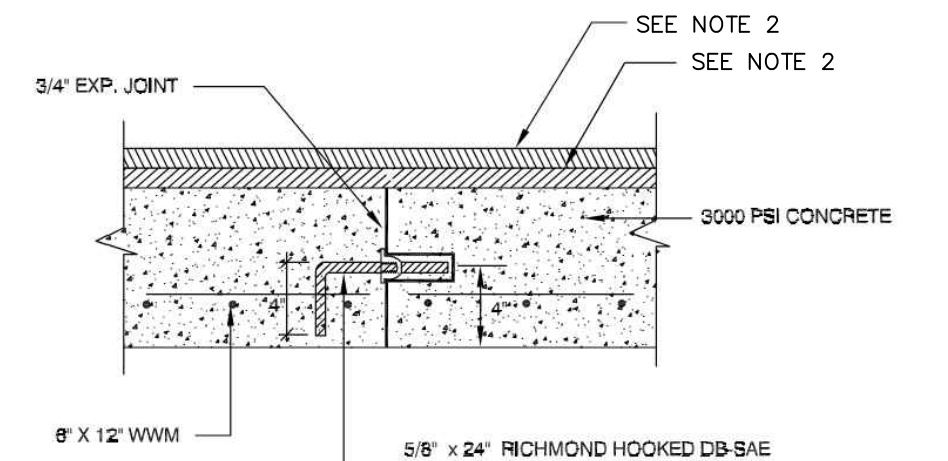
**REPAIR 8" REINFORCED CONCRETE BASE**

- NOTES:
1. MATCH TOP OF CONCRETE BASE REPAIR TO ADJACENT EXISTING CONCRETE BASE ELEVATION
  2. APPLY TACK COAT AND JOINT SEALER TO ALL JOINTS. APPLY TACK COAT ON ALL SURFACES TO RECEIVE BITUMINOUS PAVEMENT.
  3. MATCH TOP OF BITUMINOUS REPAIR TO ADJACENT EXISTING BITUMINOUS ELEVATION. TYPICAL REPAIR IS 3" HMA S0.375 BITUMINOUS CONCRETE PLACED IN 1-1/2" COURSES.

**REPAIR 8" REINFORCED CONCRETE BASE**  
NOT TO SCALE



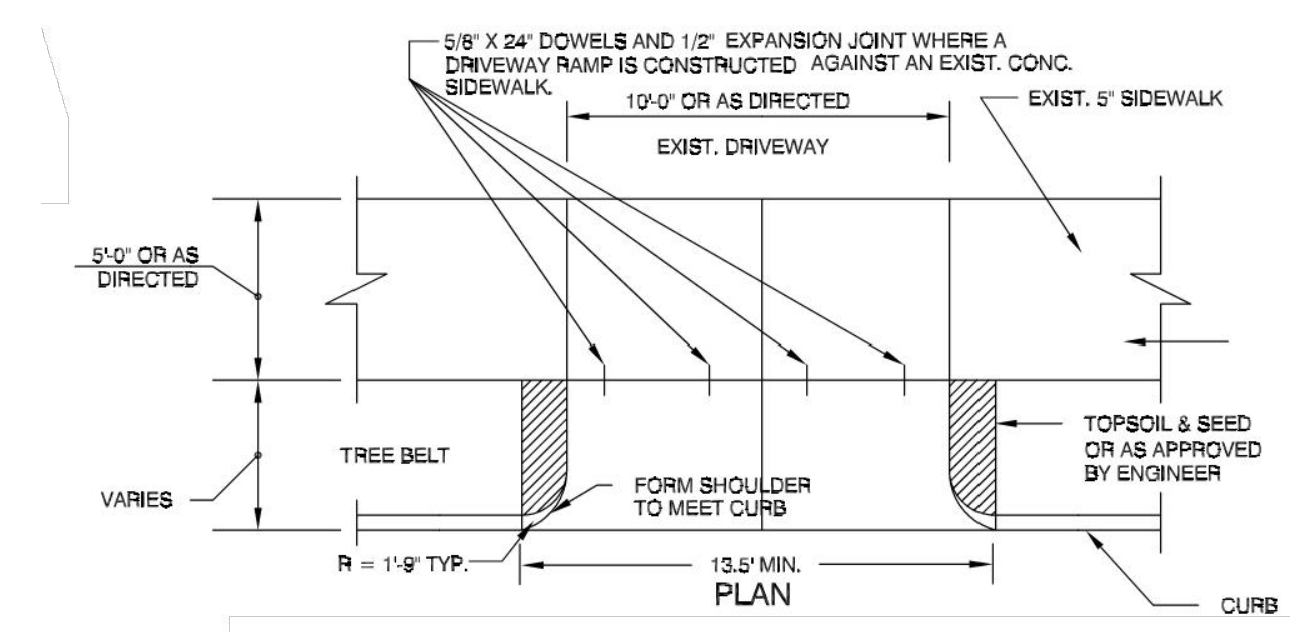
**DOWELED TRANSVERSE EXPANSION JOINT IN NEW OR RECONSTRUCTED CONCRETE ROAD BASE**



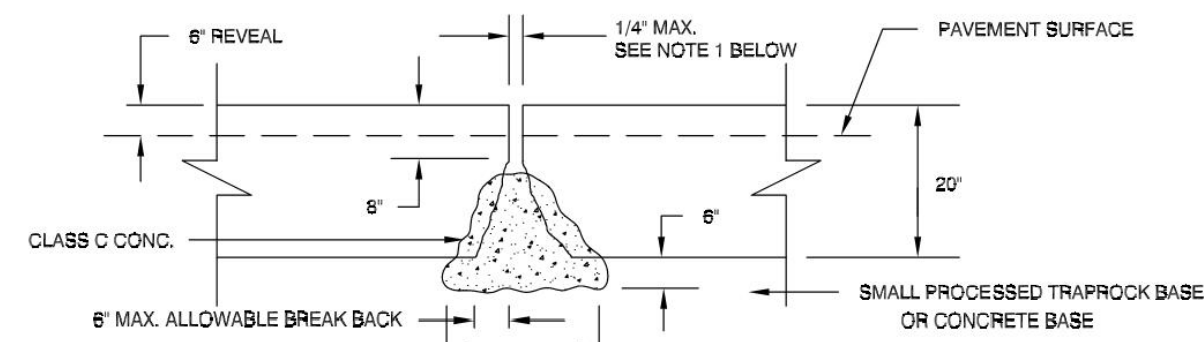
**LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT IN NEW OR RECONSTRUCTED CONCRETE ROAD BASE**

- NOTES:
1. MATCH EXISTING EXPANSION AND CONSTRUCTION JOINTS.
  2. MATCH TOP OF BITUMINOUS REPAIR TO ADJACENT EXISTING BITUMINOUS ELEVATION. TYPICAL REPAIR IS 3" HMA S0.375 BITUMINOUS CONCRETE PLACED IN 1-1/2" COURSES.

**JOINTS IN CONCRETE ROAD BASE**  
NOT TO SCALE

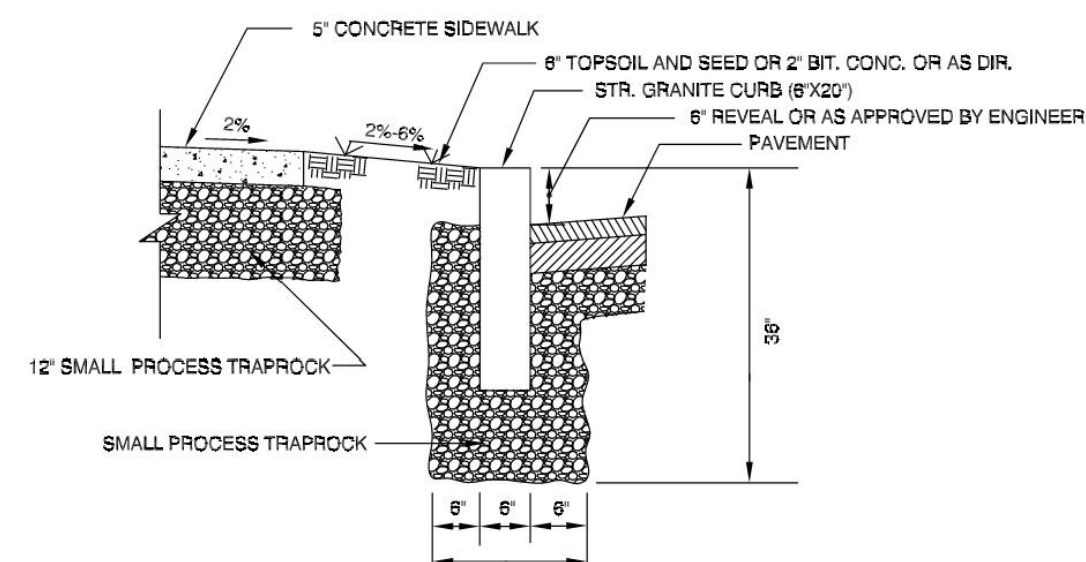


**8" REINFORCED CONCRETE DRIVEWAY**  
NOT TO SCALE

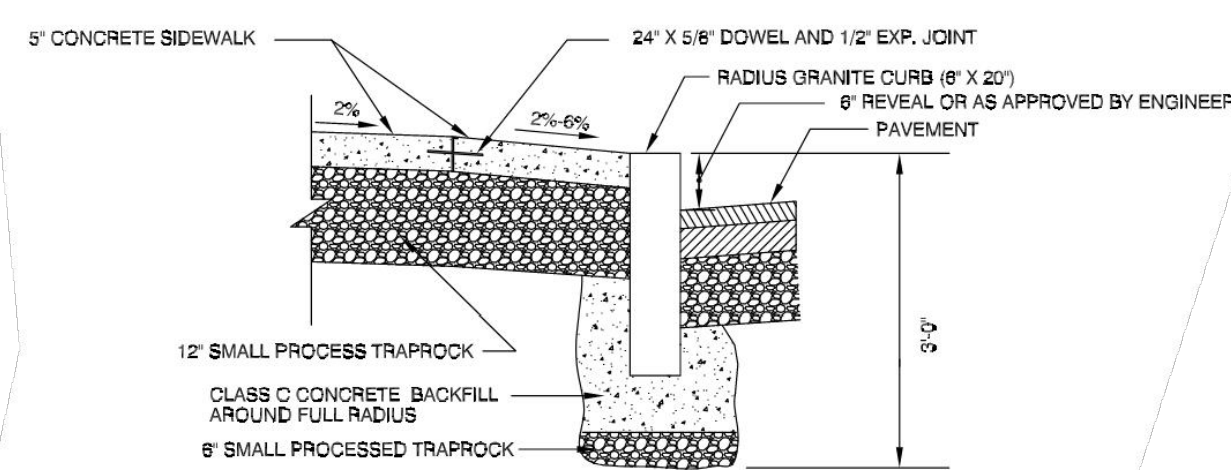


**ELEVATION**

**TYPICAL JOINT DETAIL FOR STRAIGHT GRANITE CURB**

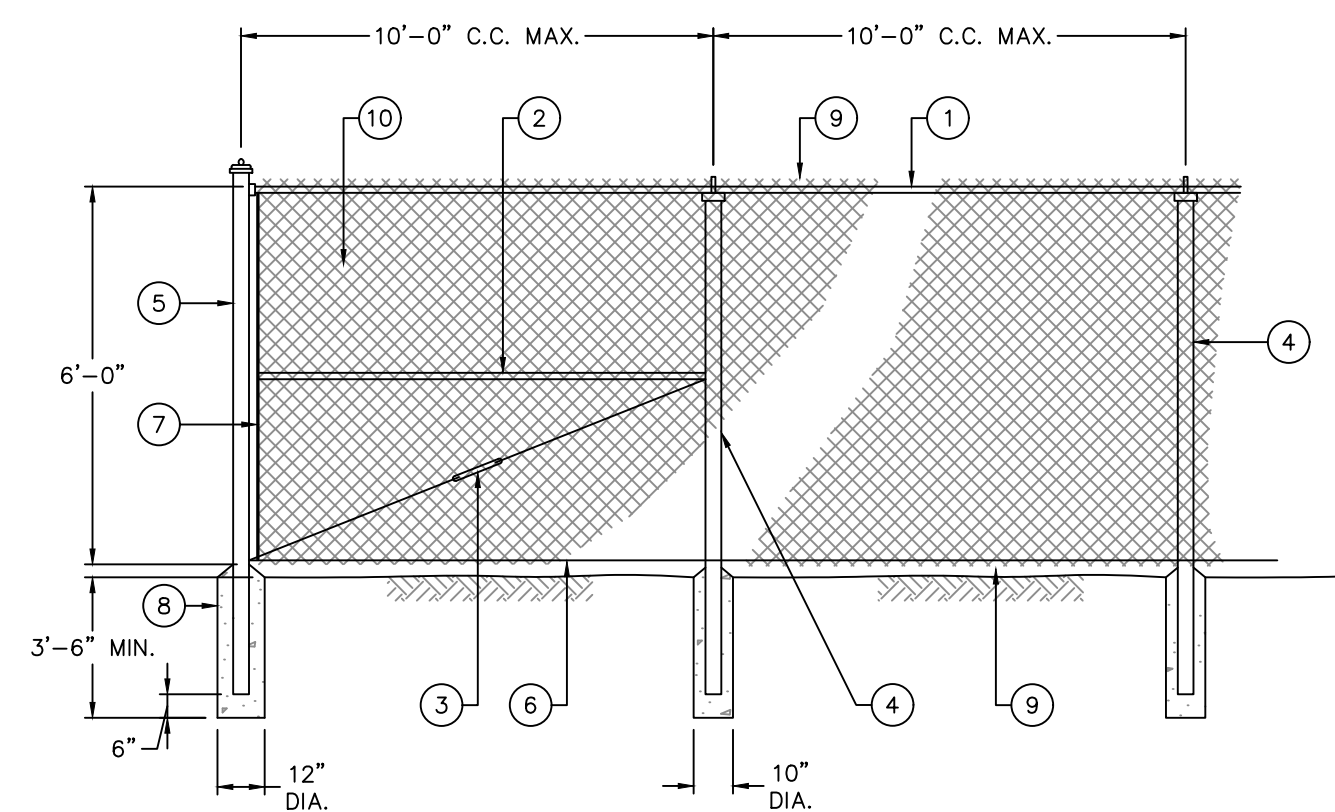


**STRAIGHT GRANITE CURB SECTION**



**RADIUS GRANITE CURB SECTION**

**GRANITE CURB**  
NOT TO SCALE



**ELEVATION**

**CHAIN LINK FENCE**  
SCALE: N.T.S.

- NOTES:
1. FOOTING DESIGN TO BE CHECKED BY AN ENGINEER FOR WIND LOADS IF SLATS ARE USED OR IF POOR SOIL CONDITIONS EXIST.
  2. STRAIGHT RUNS BETWEEN BRACED POSTS SHALL NOT EXCEED 500 FT.
  3. FENCE DETAILS ARE INTENDED AS A GUIDE ONLY. ALL FENCE MATERIALS AND CONSTRUCTION METHODS SHALL BE APPROVED BY THE ENGINEER AND FENCE MANUFACTURER.
  4. PROVIDE BLACK VINYL COATING OVER METALLIC COATING ON ALL MATERIALS INCLUDING POSTS, BRACES, RAILS, FRAMES, CAPS, TIES AND HARDWARE.

**CHAIN LINK FENCE LEGEND**

- 1 5/8" O.D. TOP RAIL ATTACH FABRIC WITH 9 GAUGE WIRE CLIP EVERY 24"
- 2 1 5/8" O.D. BRACE FOR RAIL FENCES OVER 6 FEET HIGH AND ALL FENCES WITHOUT TOP RAIL
- 3 5/16" TRUSS ROD AND TURNBUCKLE
- 4 INTERMEDIATE POST
 

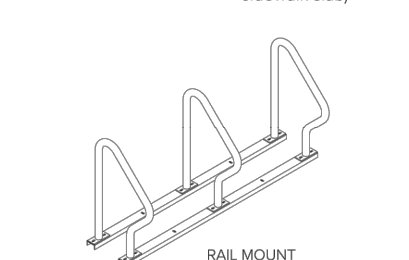
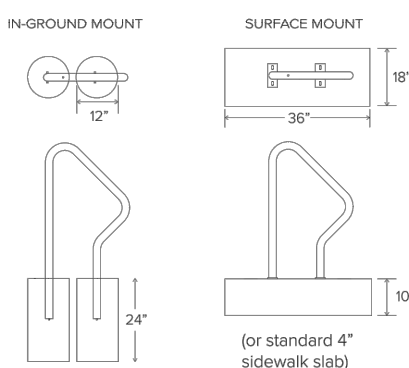
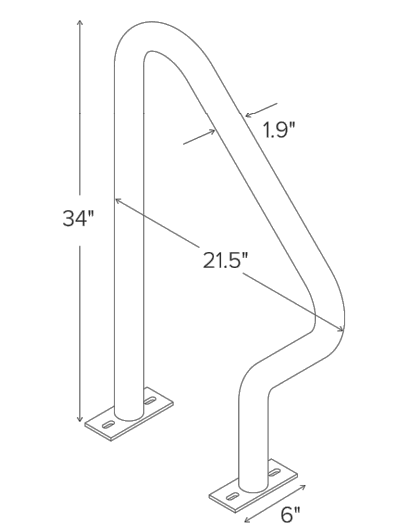
FENCE HEIGHT	SQUARE POST	ROUND POST
6 FEET AND LESS	1 7/8"	2"
OVER 6 FEET	2 1/4"	2 1/2"

 ATTACH TO C.L. FABRIC WITH CLIPS EVERY 15"
- 5 END OR CORNER POST
 

FENCE HEIGHT	SQUARE POST	ROUND POST
6 FEET AND LESS	2"	2 1/2"
OVER 6 FEET	2 1/2"	3"
- 6 6 GAUGE BOTTOM TENSION WIRE ATTACH TO FABRIC WITH HOG RING AT 24" C.C.
- 7 TENSION ROD ATTACHED TO END OR CORNER POST
- 8 CONCRETE FOOTING 36" DEEP WITH 12" DIA. AT END POST AND 10" DIA. AT INTERMEDIATE POST. HOLE CORE IN UNDISTURBED OR COMPACTED SOIL. (SEE NOTE NO. 1)
- 9 FABRIC SELVAGE: KNUCKLED TOP AND BOTTOM
- 10 9 GAUGE 2" WIRE MESH FABRIC BLACK VINYL COATED.



Submission Sheet

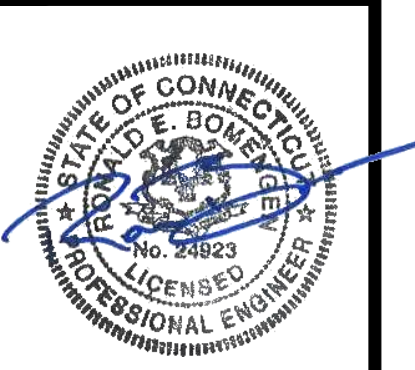


<b>CAPACITY</b>	2 Bikes
<b>MATERIALS</b>	1.9" OD schedule 40 pipe
<b>FINISHES</b>	<input type="checkbox"/> Galvanized An after fabrication hot dipped galvanized finish is our standard option. <input type="checkbox"/> Powder Coat Our powder coat finish assures a high level of adhesion and durability by following these steps: 1. Sandblast 2. Epoxy primer electrostatically applied 3. Final thick TGIC polyester powder coat <input type="checkbox"/> Stainless Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.
<b>MOUNT OPTIONS</b>	<input type="checkbox"/> Surface Foot Mount has two 2.5" x 6" x .25" feet with two anchors per foot. Specify foot mount for this option. Tamper-resistant fasteners available upon request. <input type="checkbox"/> In-Ground In-ground mount is embedded into concrete base. Specify in-ground mount for this option. <input type="checkbox"/> Rail Rail Mounted Downtown Racks are bolted to two parallel rails which can be left freestanding or anchored to the ground. Rails are heavy duty 3" x 14" x 3/16" thick galvanized mounting rails. Specify rail mount for this option.
<b>Rack Angle:</b>	<input type="checkbox"/> 90 <input type="checkbox"/> 45A <input type="checkbox"/> 45B <input type="checkbox"/> 60A <input type="checkbox"/> 60B

**DERO SWERVE BICYCLE RACK**  
NOT TO SCALE

**NOT FOR CONSTRUCTION**

NO.	DATE	SITE PLAN APPLICATION	DESCRIPTION	DESIGNER	REVIEWER
0	4/6/2023				



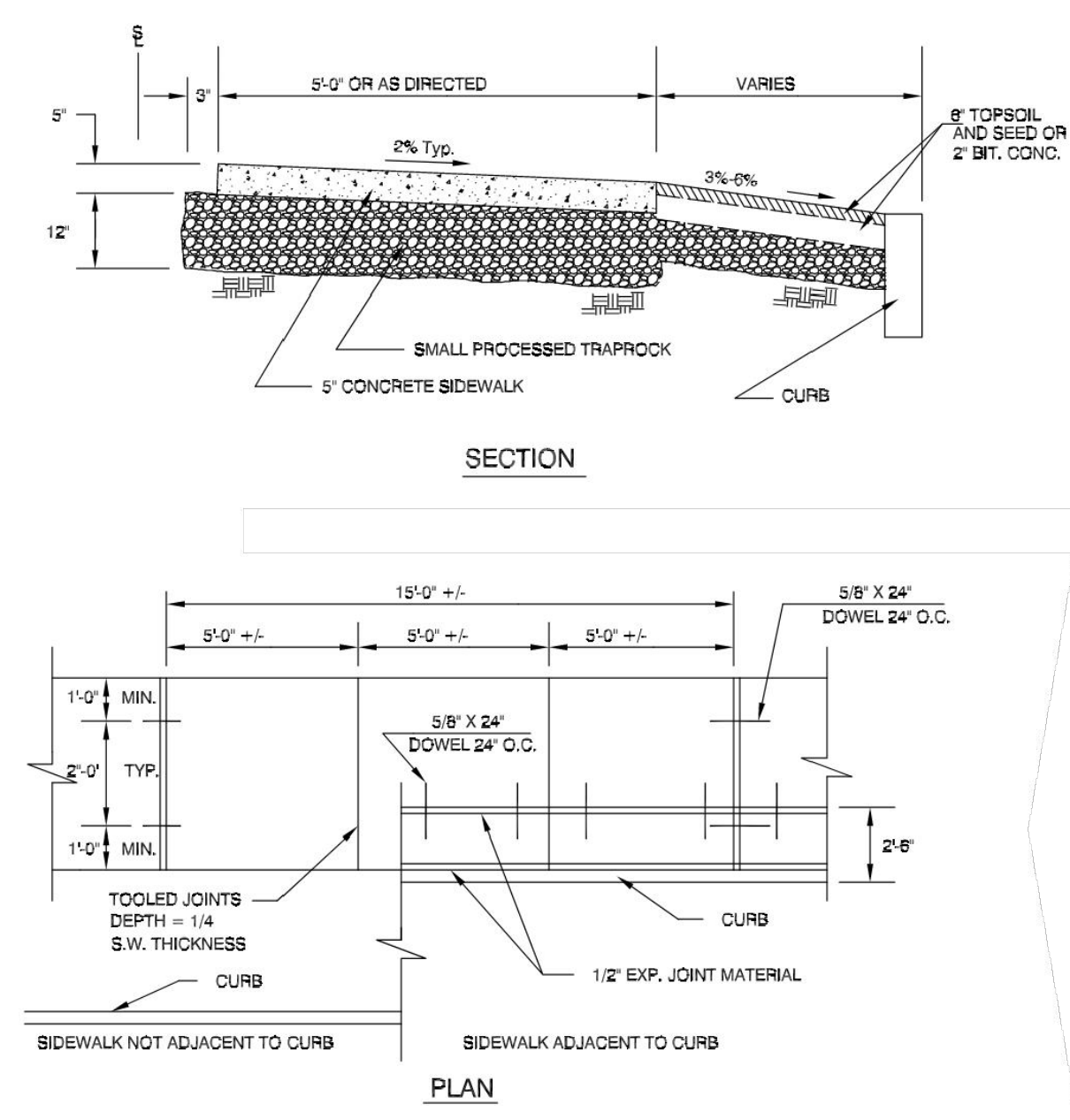
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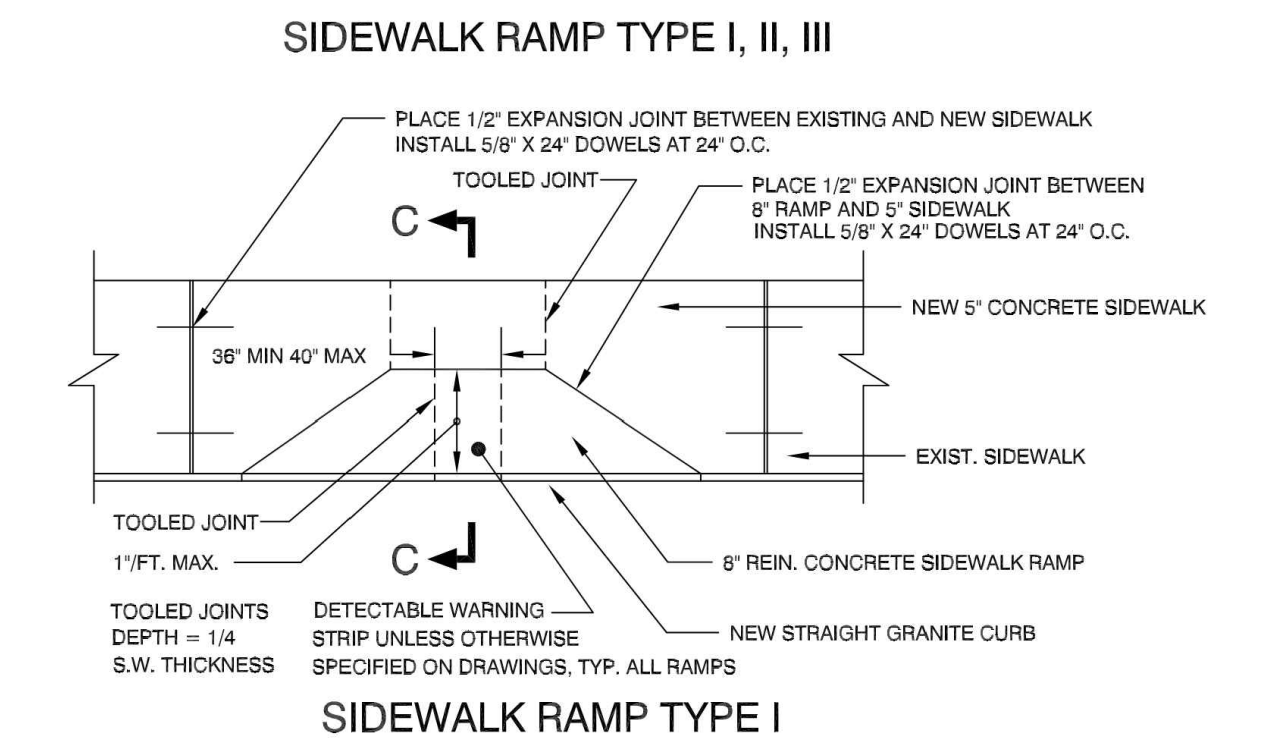
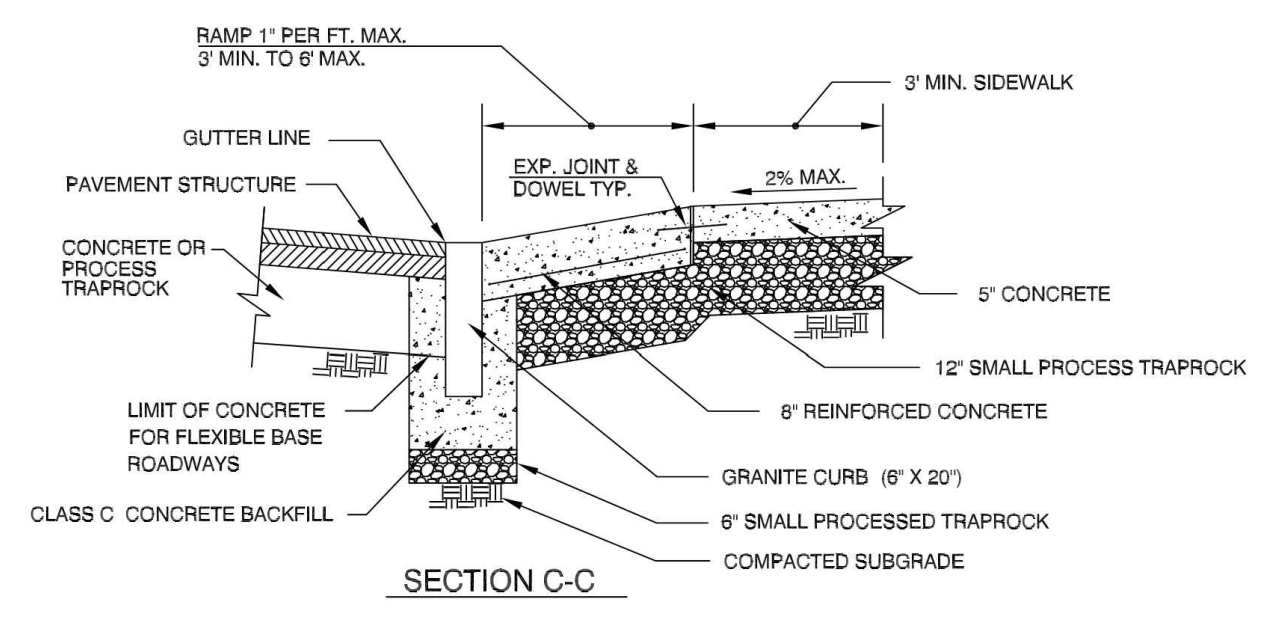
LAZ PARKING REALITY INVESTORS  
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PROJ. No.: 2022097.A10  
DATE: 4/6/2023

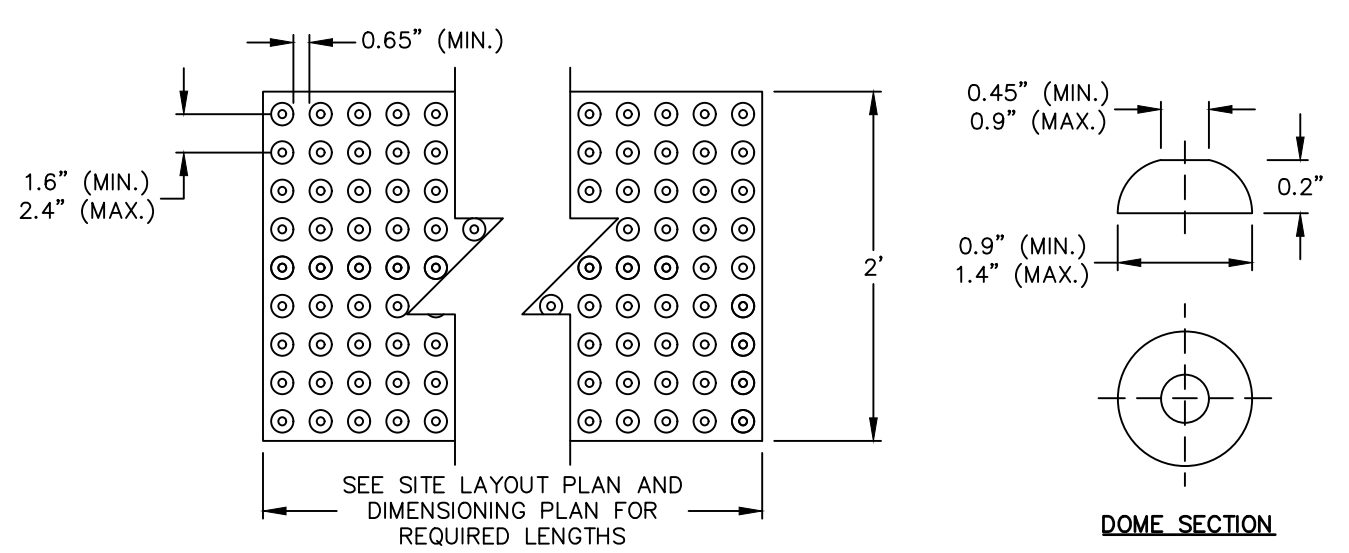
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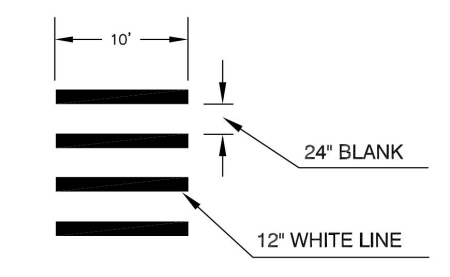
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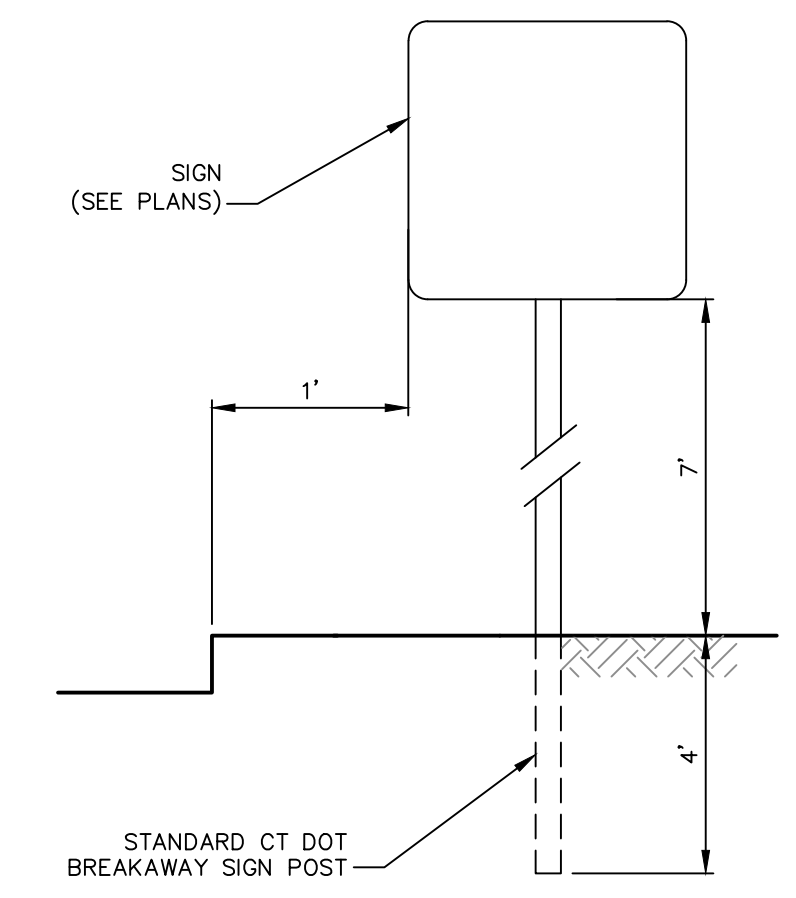
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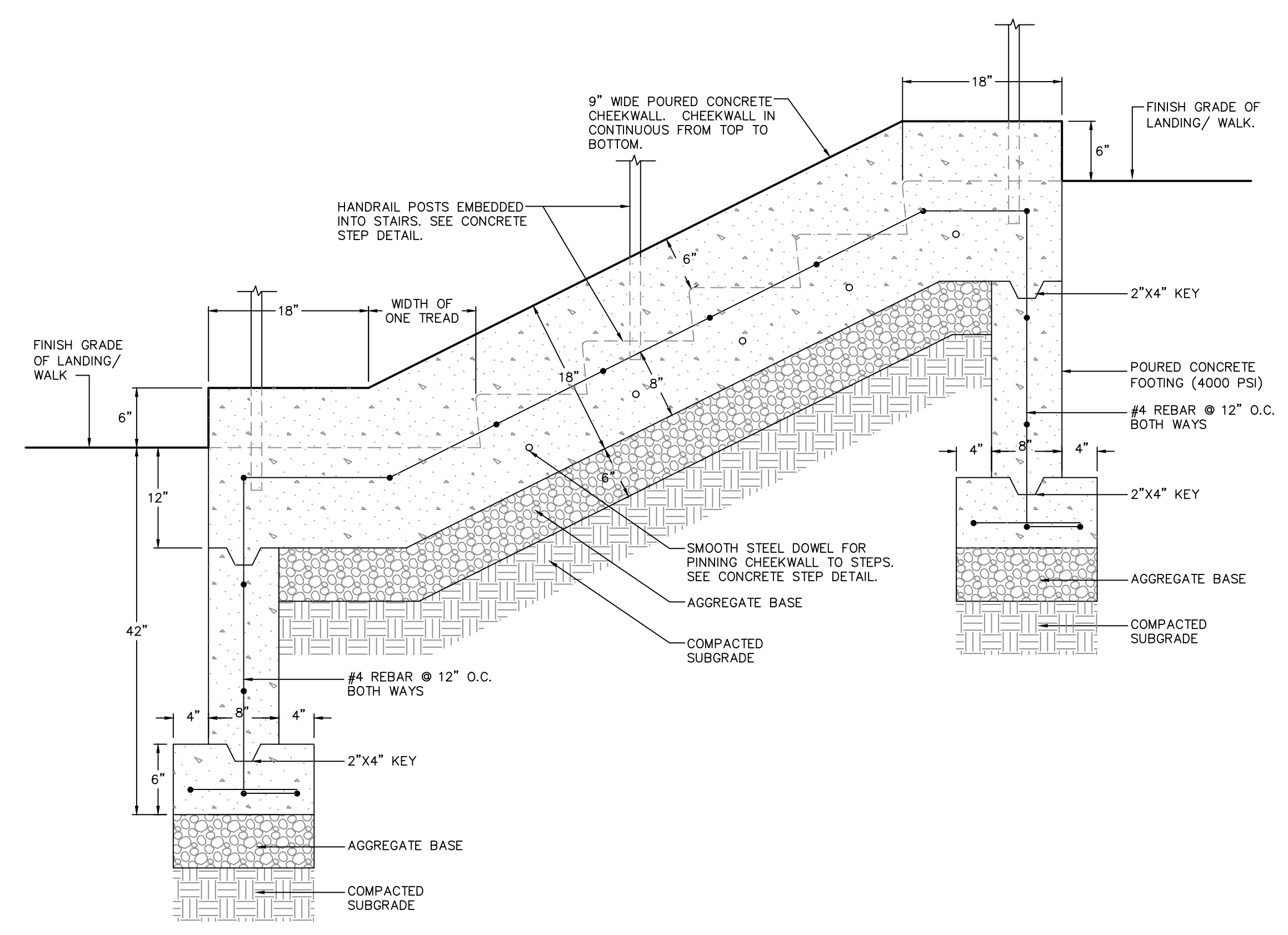
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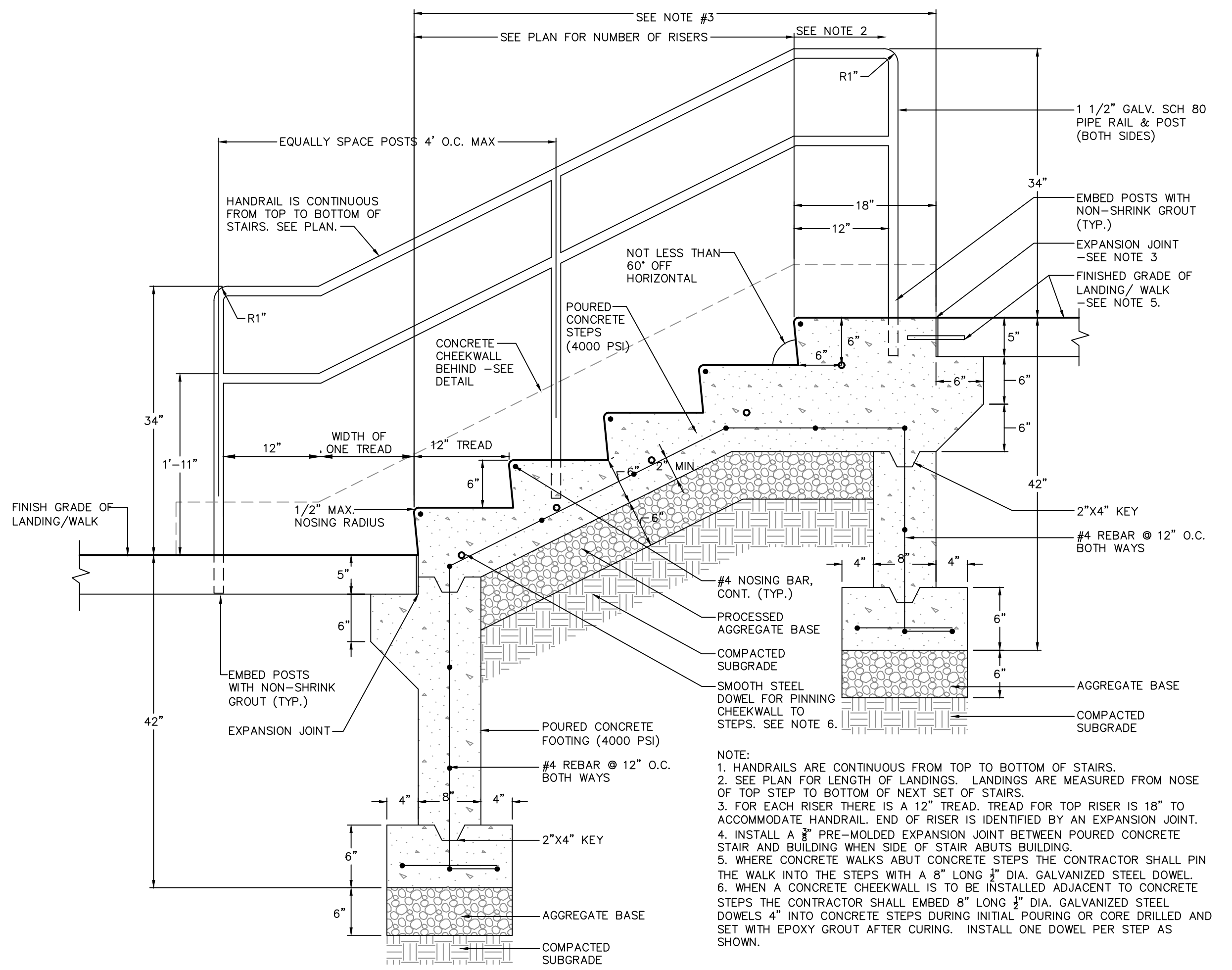
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**SIGN**  
NOT TO SCALE



**CONCRETE CHEEKWALL**  
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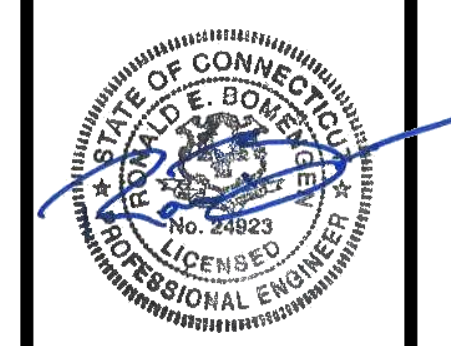


**CONCRETE STEPS (12" TREAD) WITH HANDRAIL**  
NOT TO SCALE

**NOT FOR CONSTRUCTION**

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0	4/6/2023			



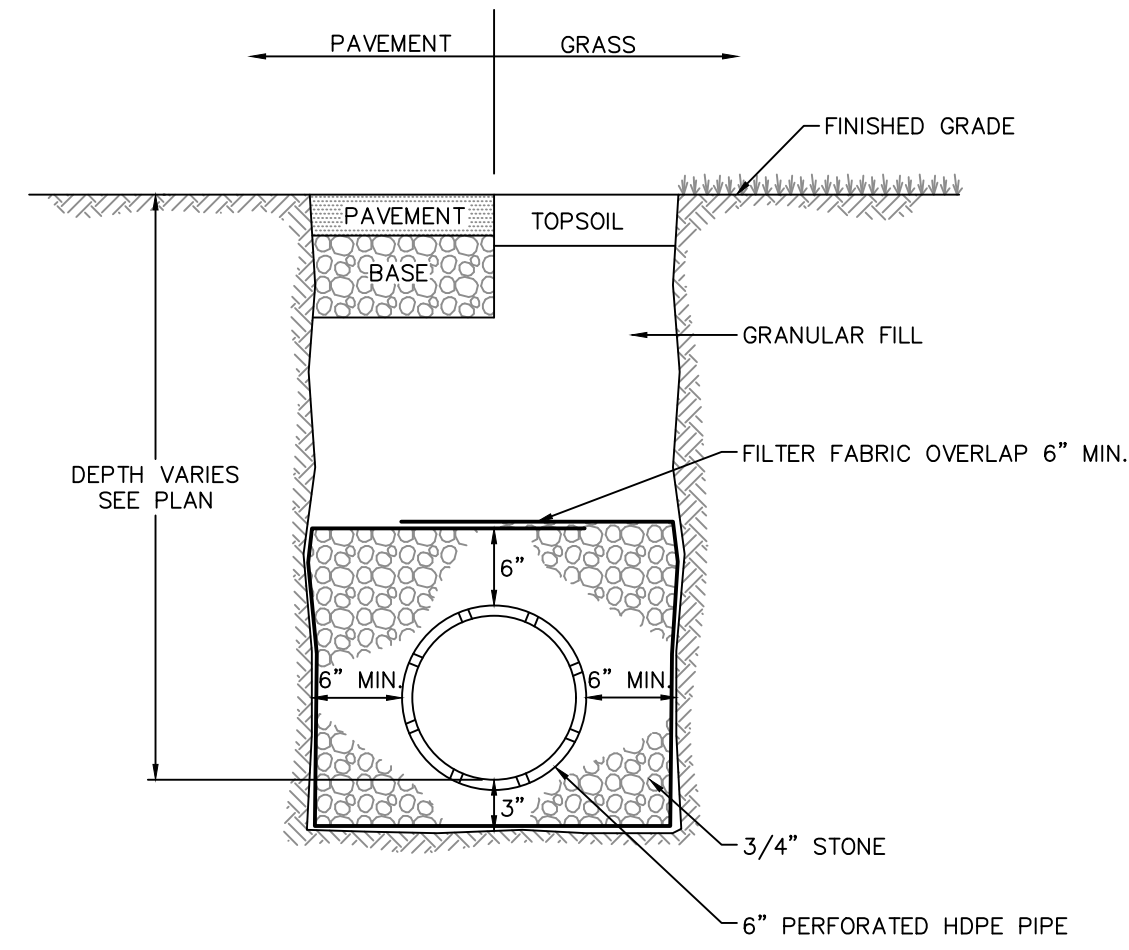
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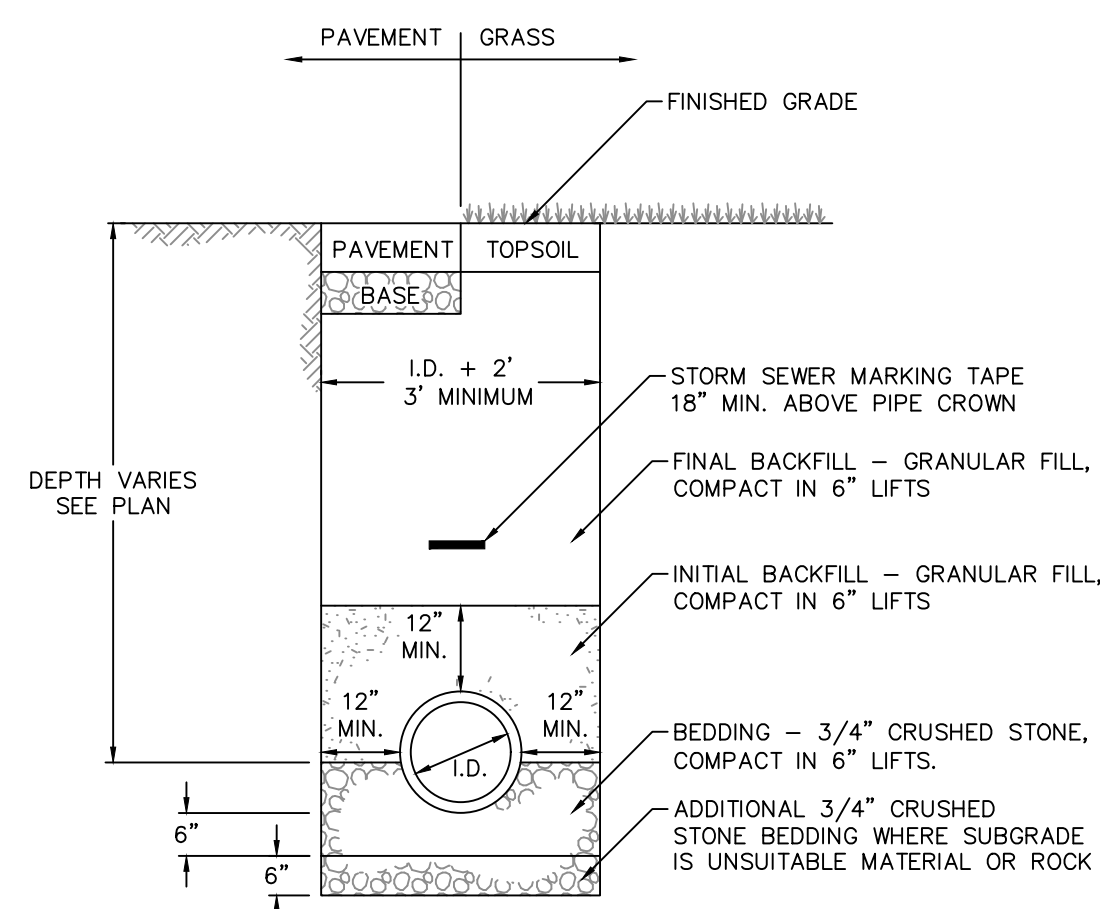
LAZ PARKING REALTY INVESTORS  
CIVIL DETAILS  
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PROJ. No.: 2022097A10  
DATE: 4/6/2023

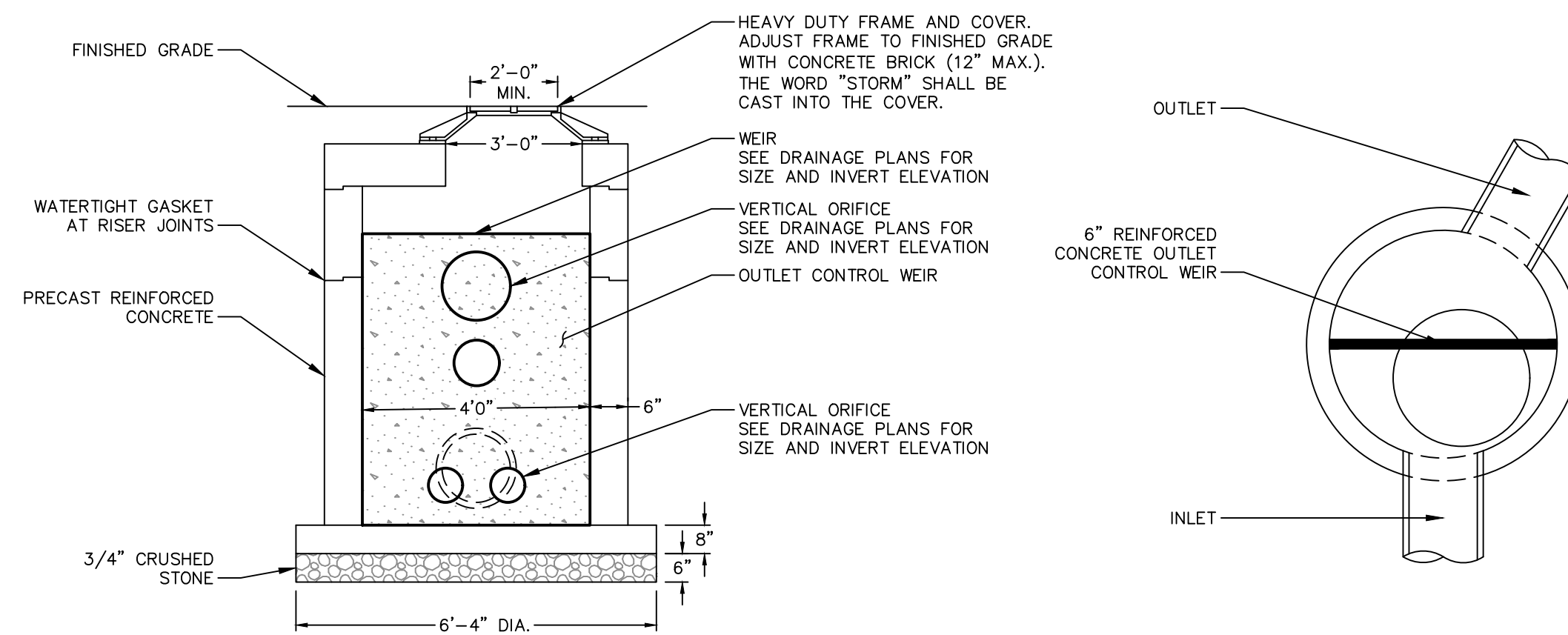
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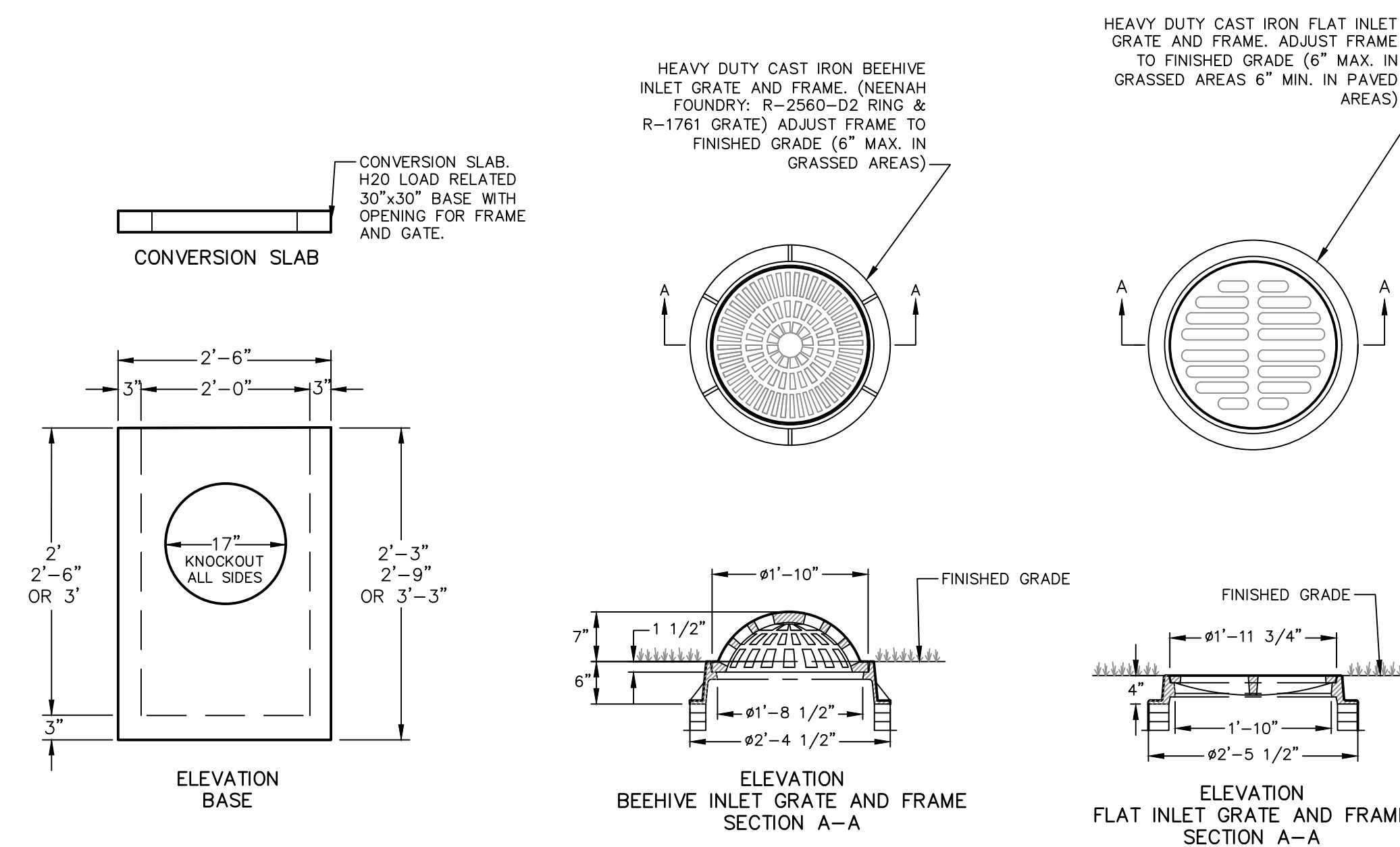
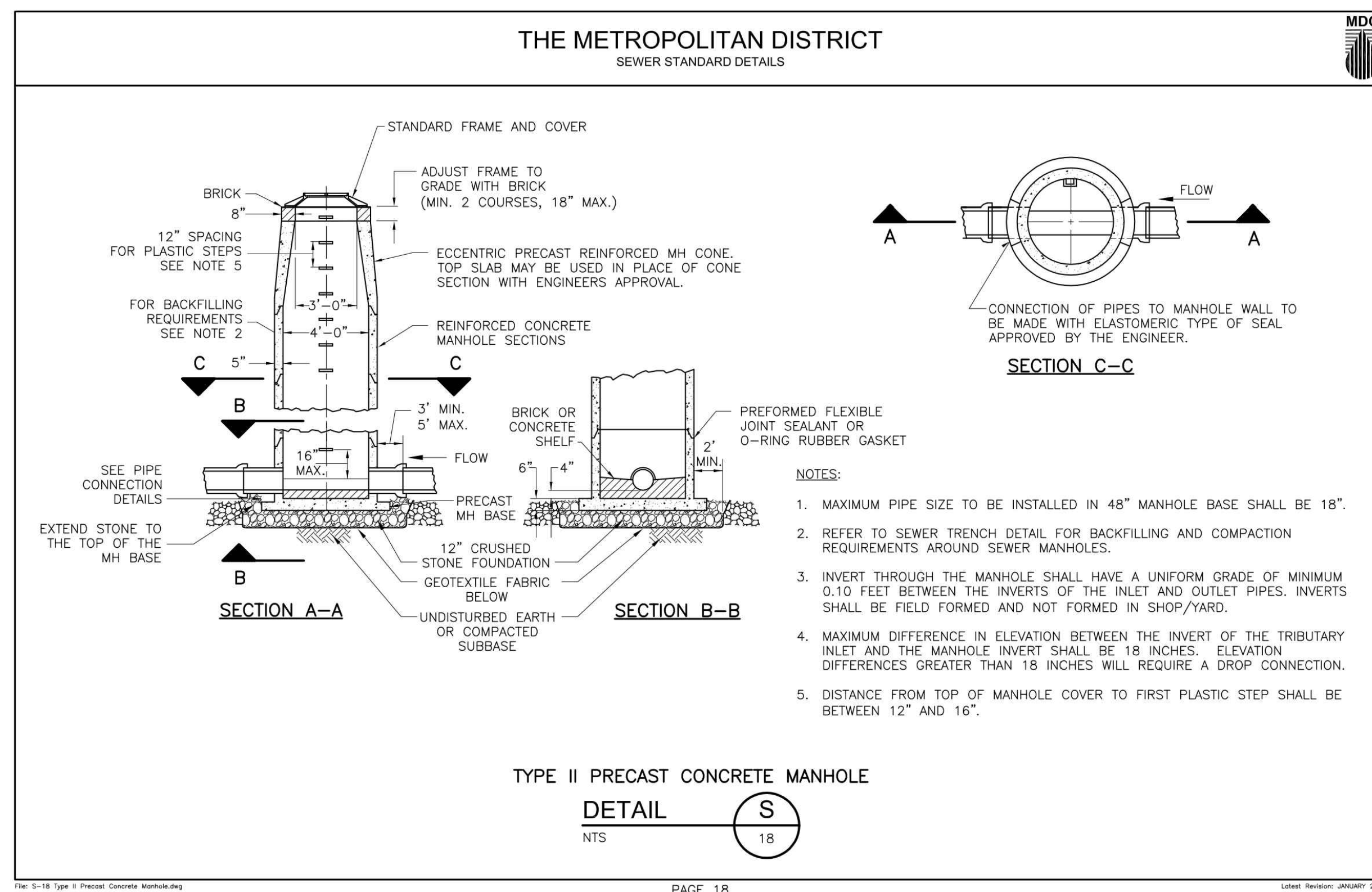
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**STORM SEWER TRENCH**  
NOT TO SCALE



**OUTLET CONTROL STRUCTURE**  
NOT TO SCALE



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NO.	DATE	DESCRIPTION	DESIGNER	REVIEWER
0	4/6/2023	SITE PLAN APPLICATION	NR	RB



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DATUM:	HORIZ.: 0
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	GRAPHIC SCALE

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PROJ. No.: 20220997.A10  
DATE: 4/6/2023

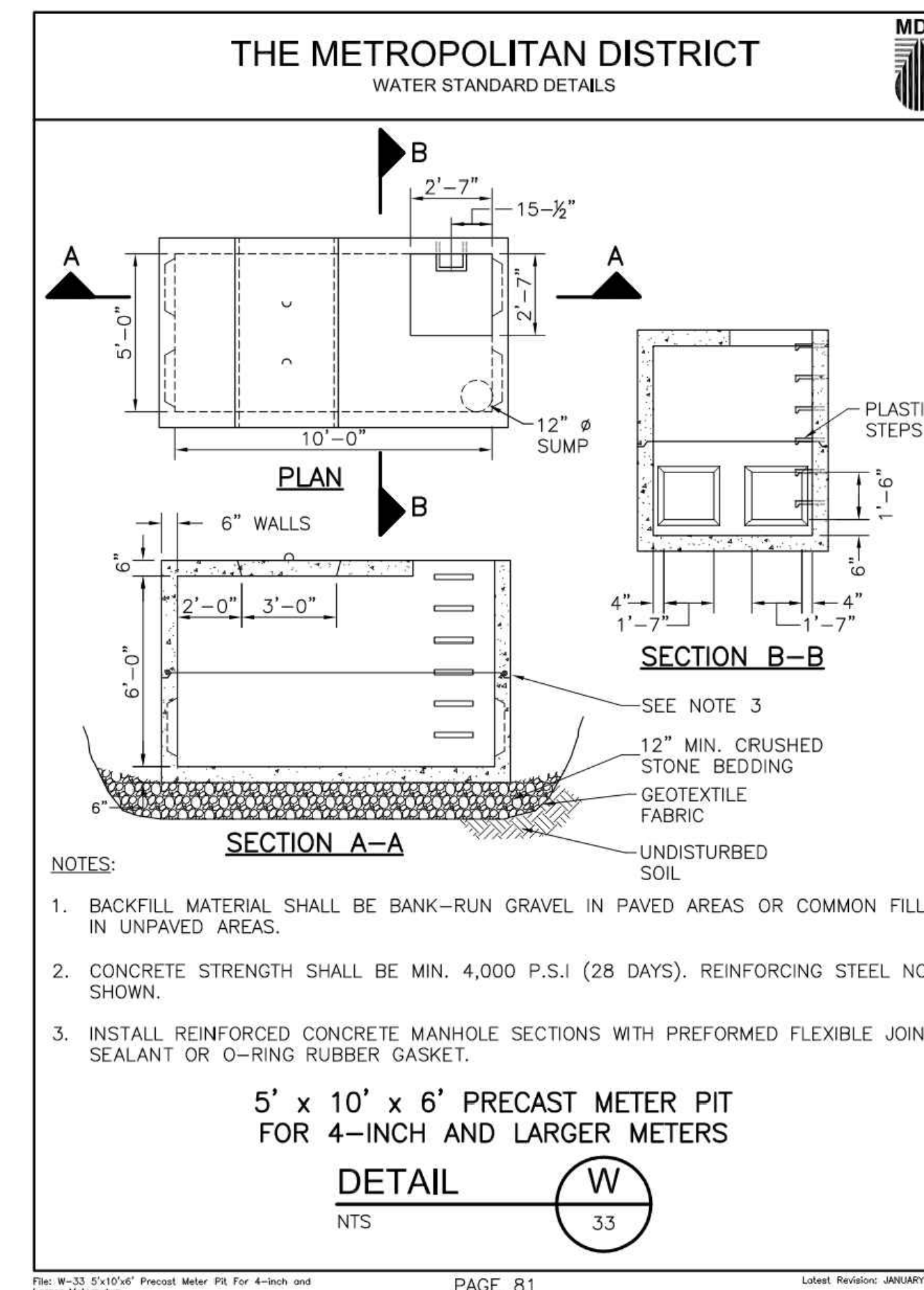
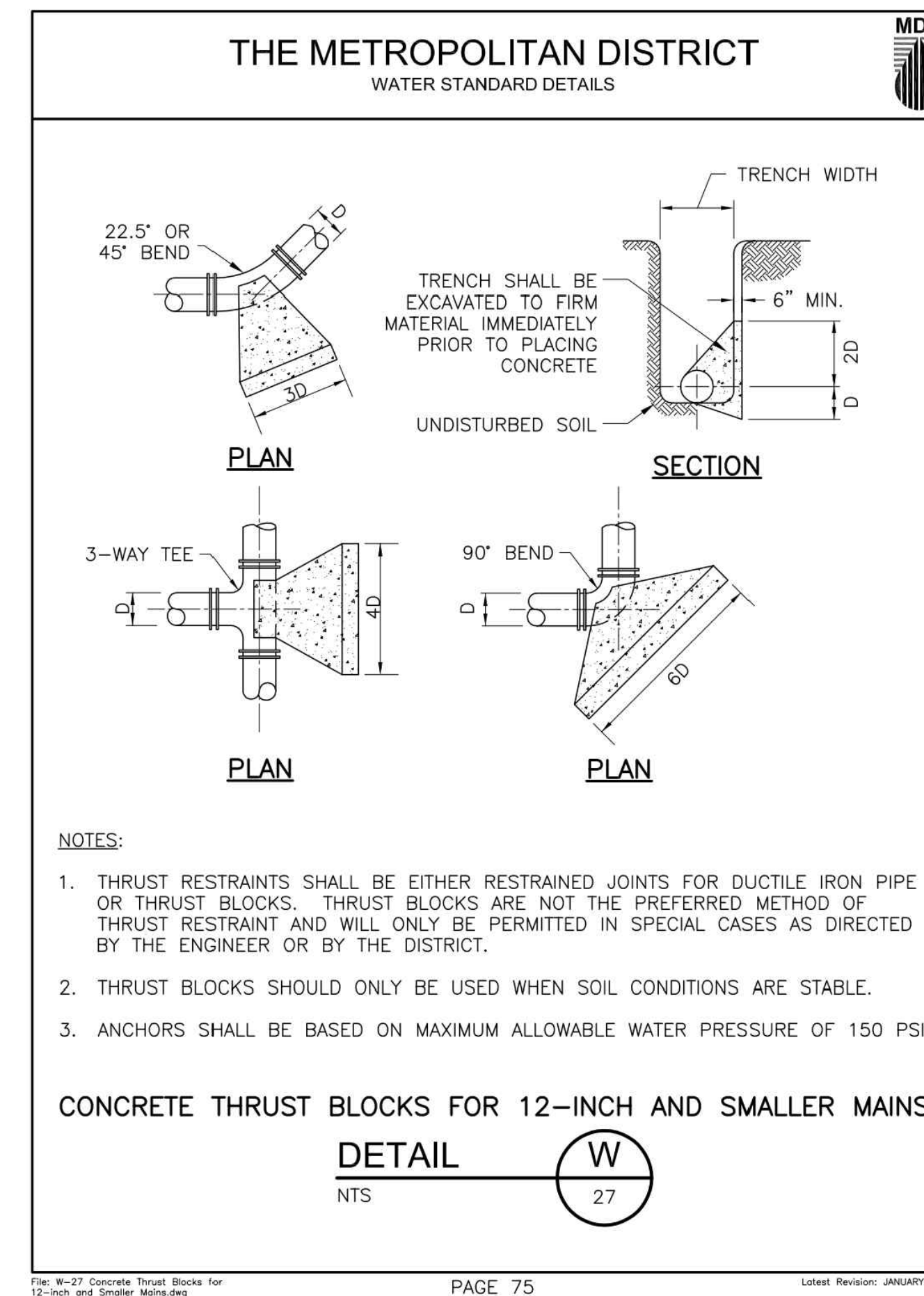
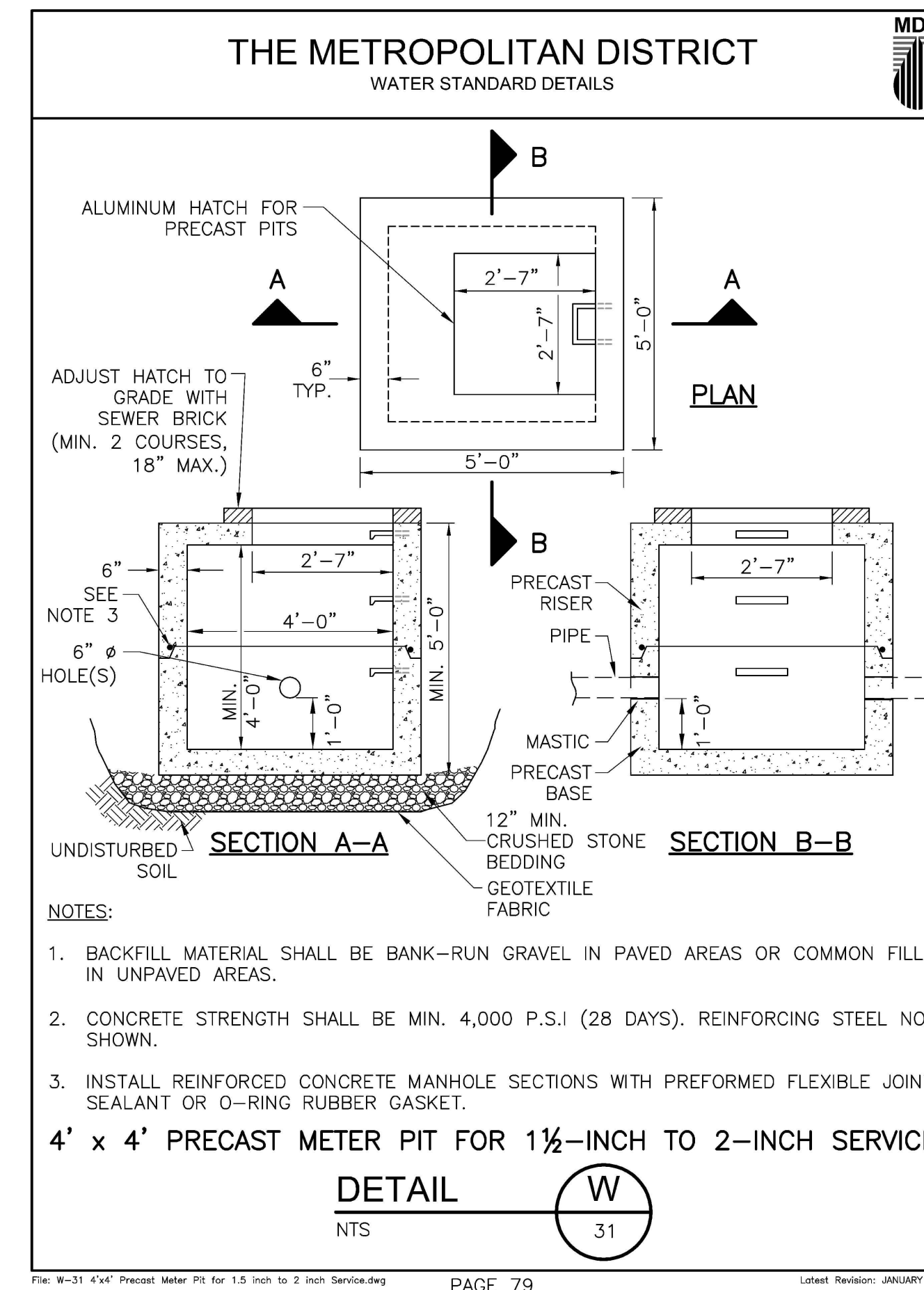
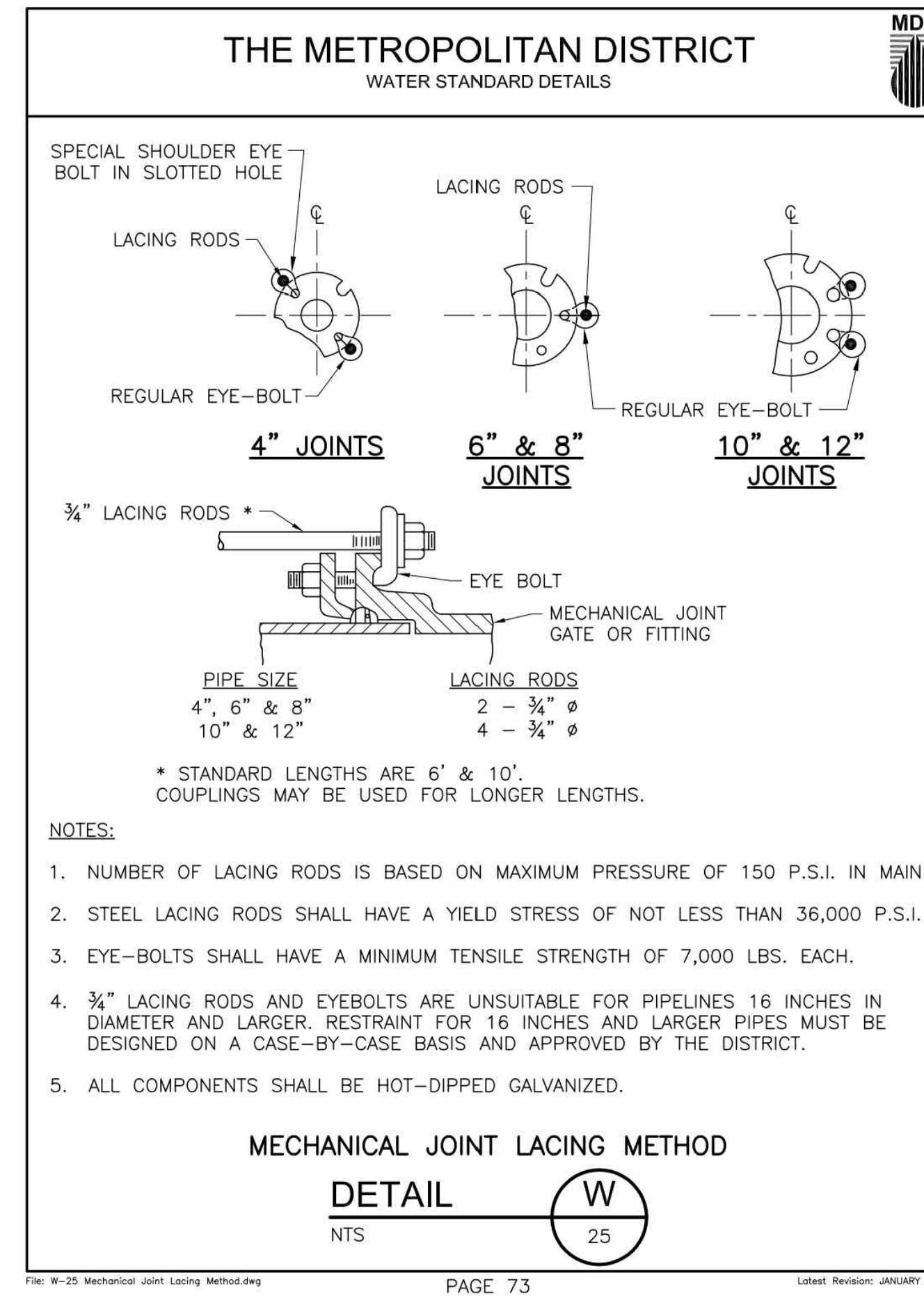
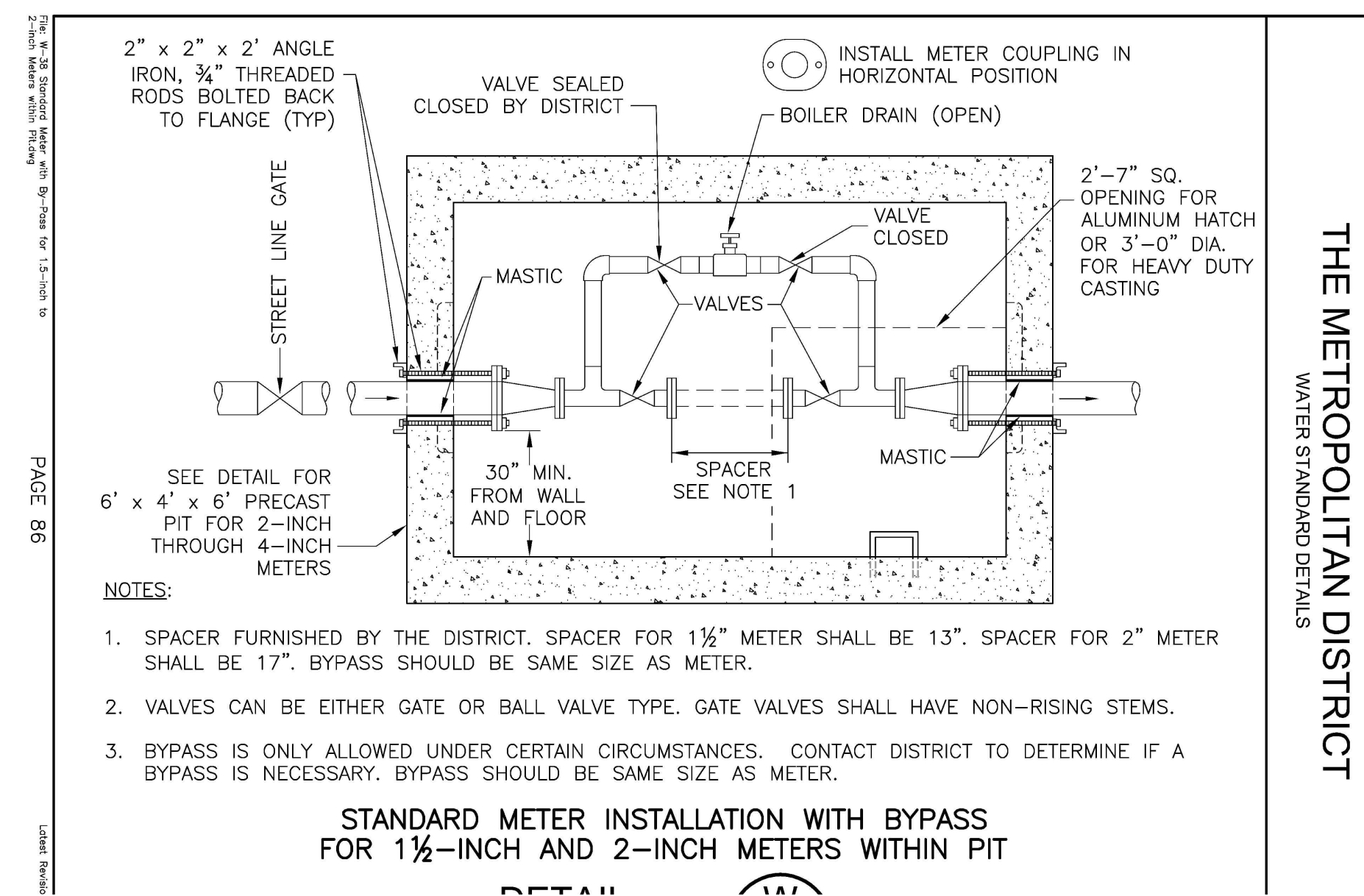
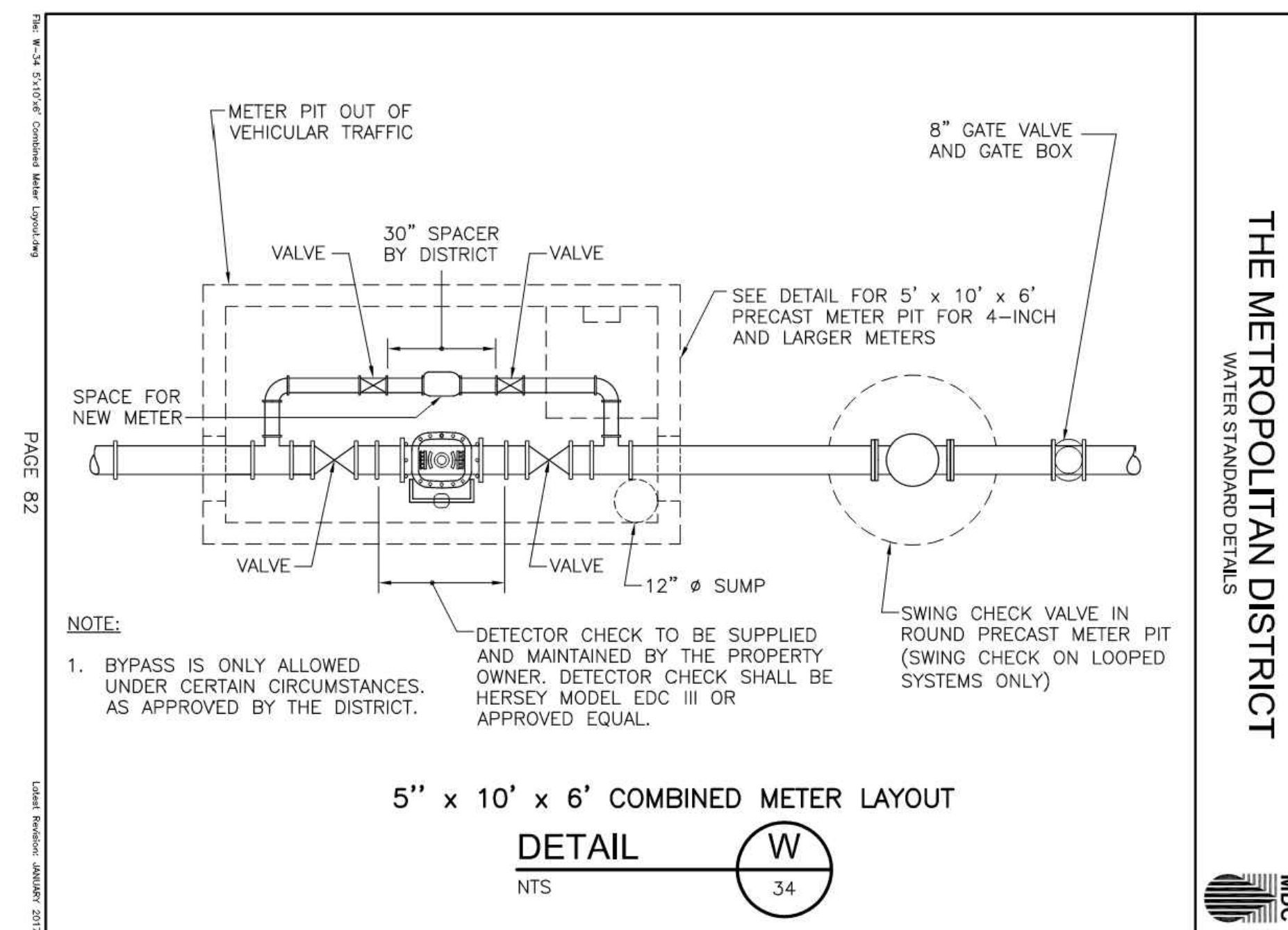
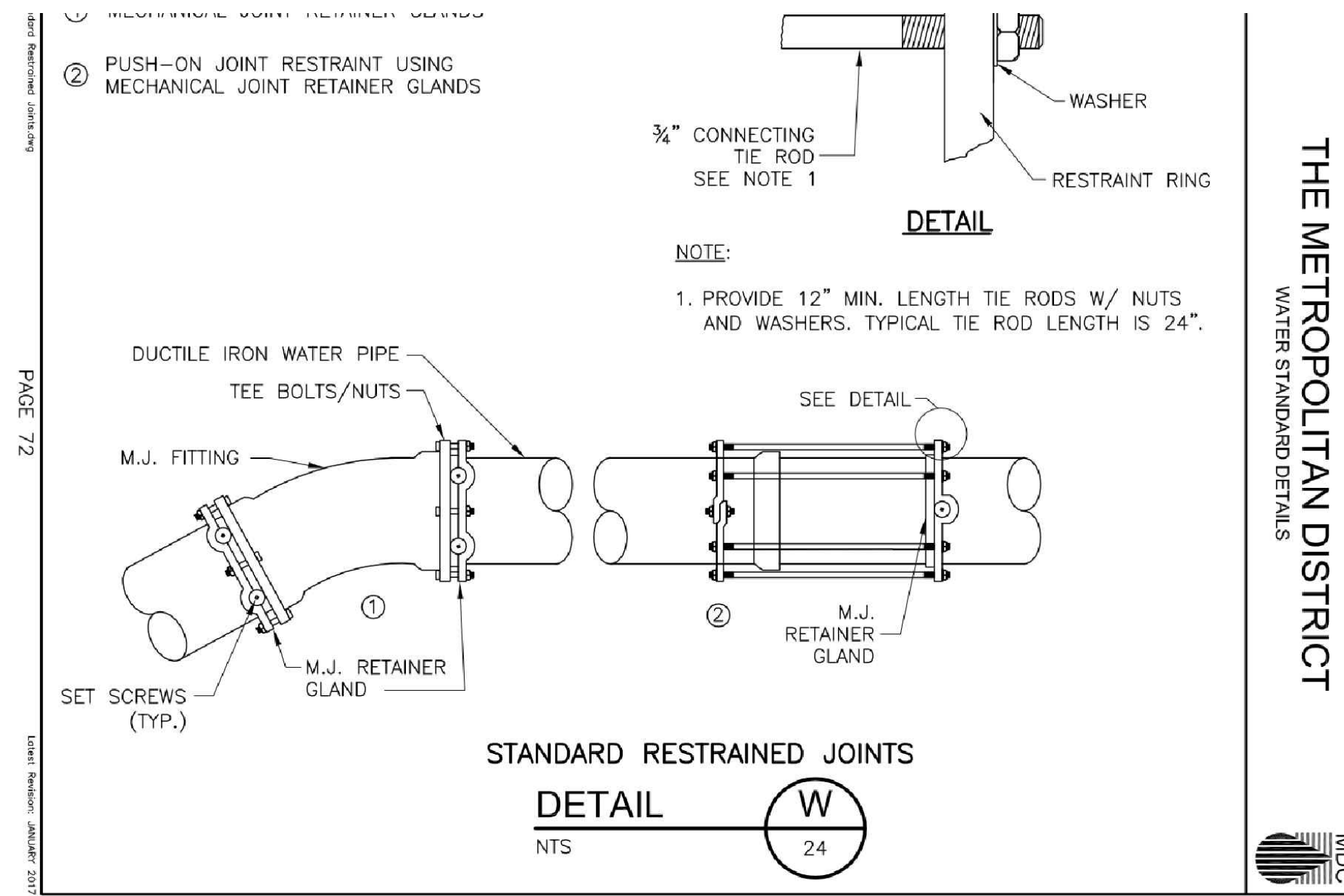
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DATE	DATE
DESCRIPTION	DESCRIPTION
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0	4/6/2023

STATE OF CONNECTICUT  
PROFESSIONAL ENGINEER  
No. 24923  
L. FUSS & O'NEILL

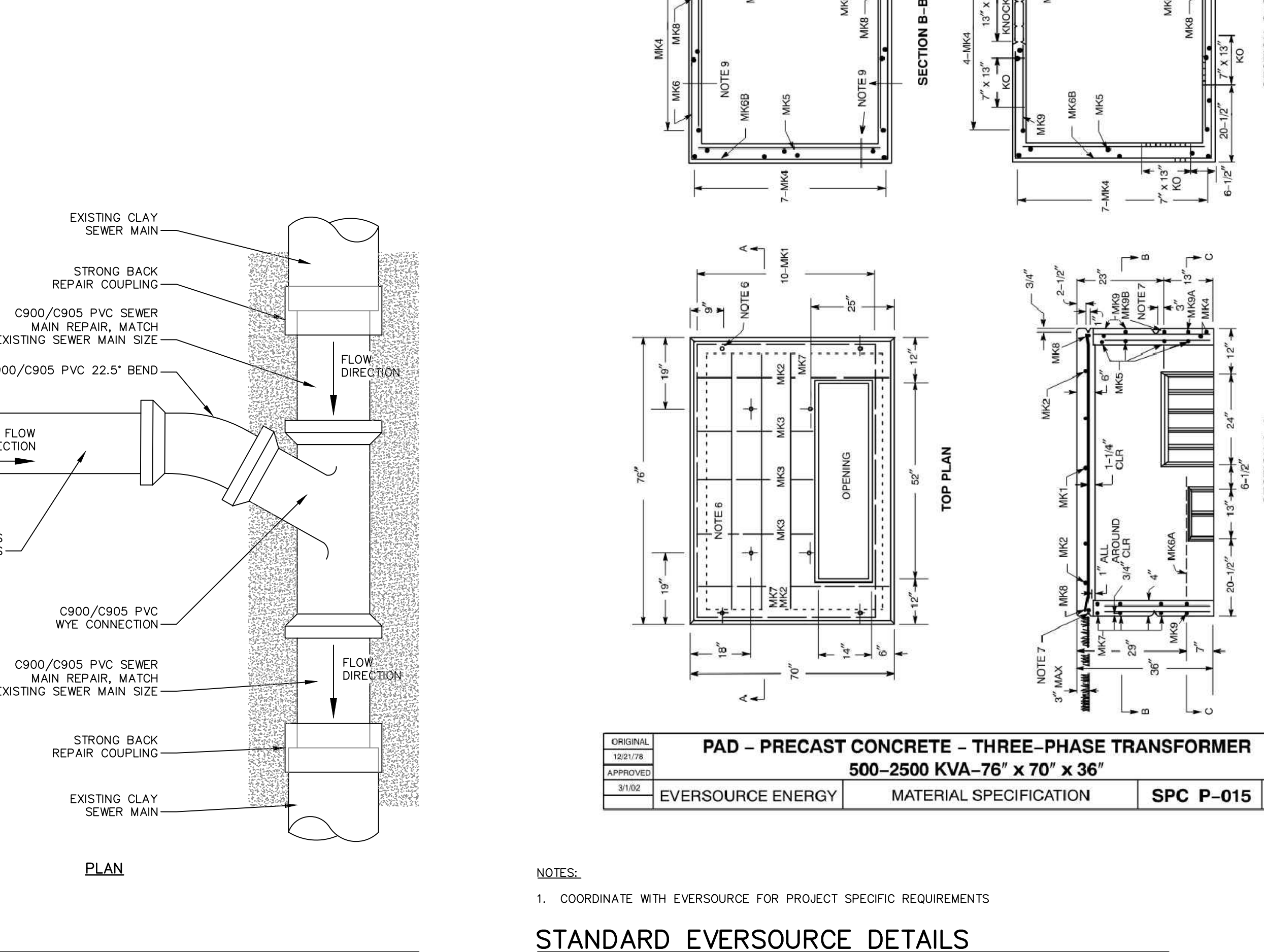
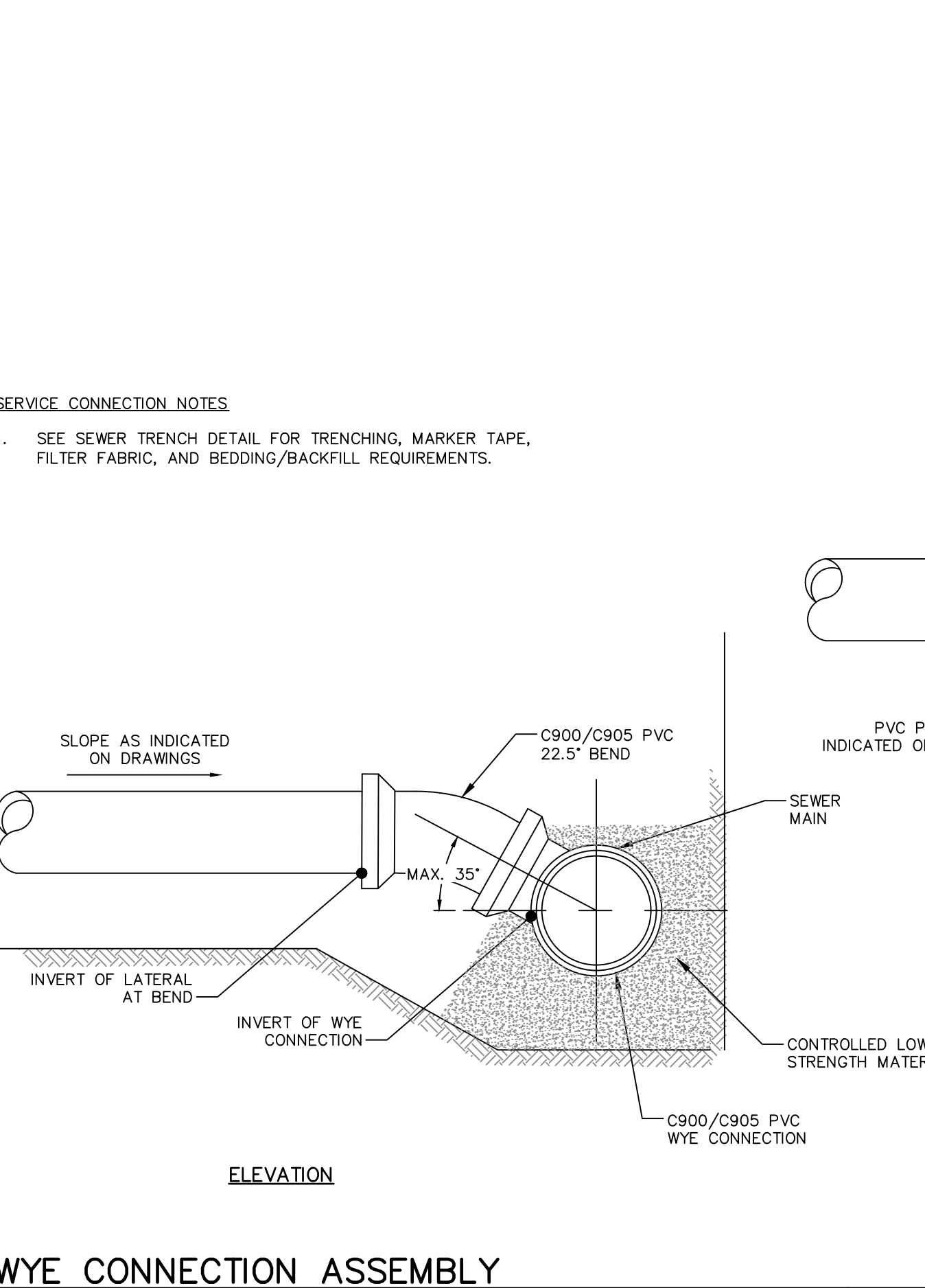
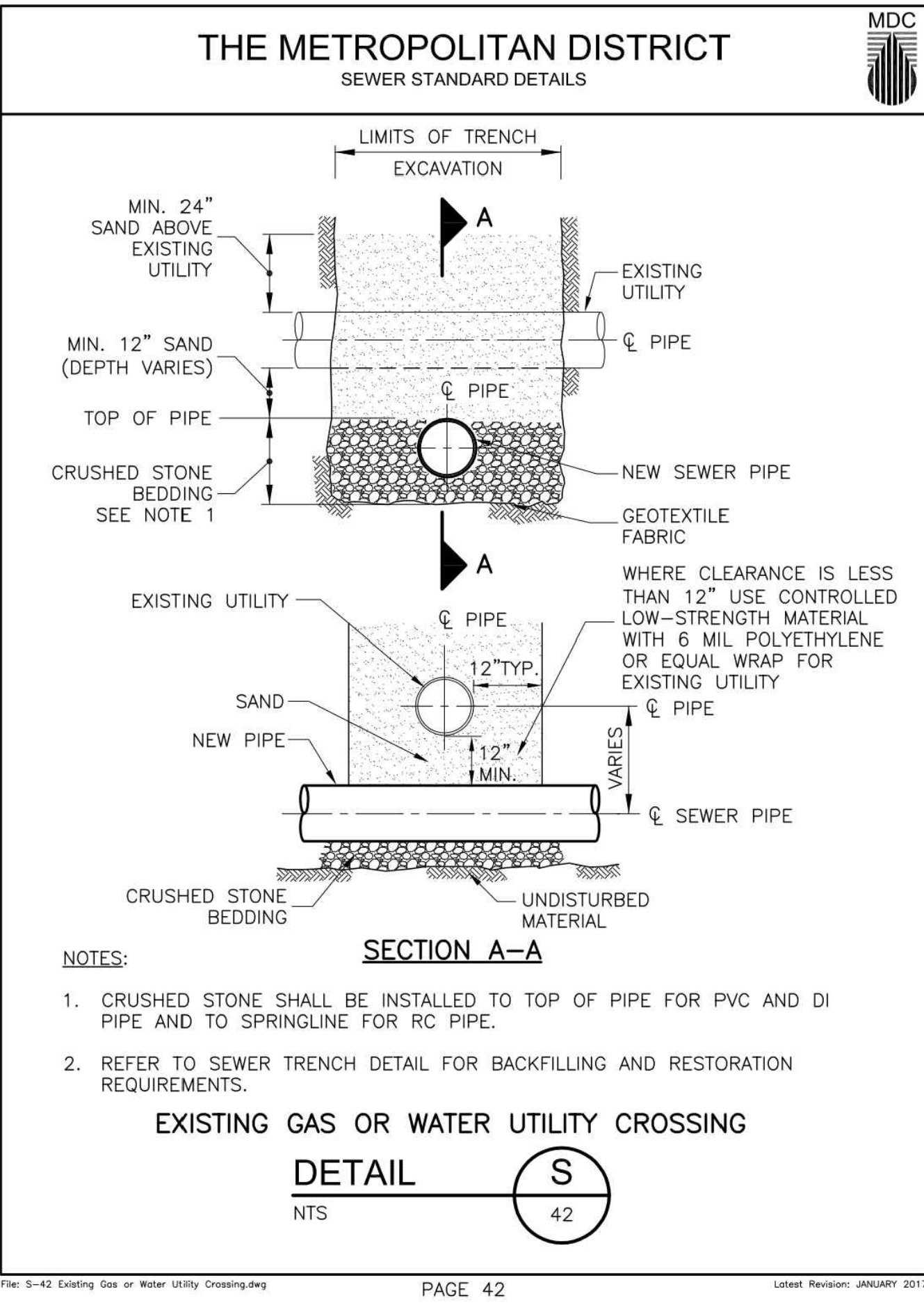
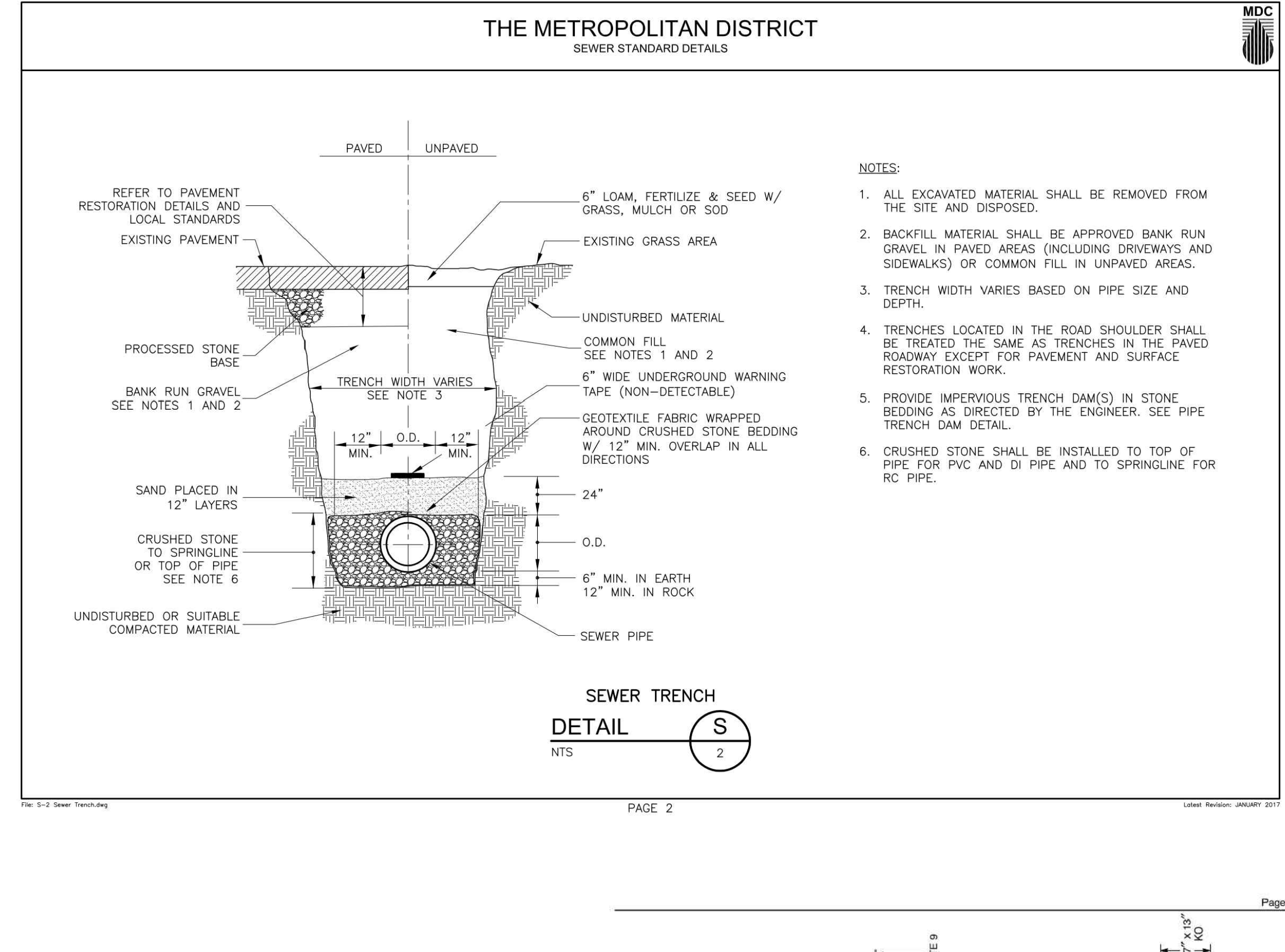
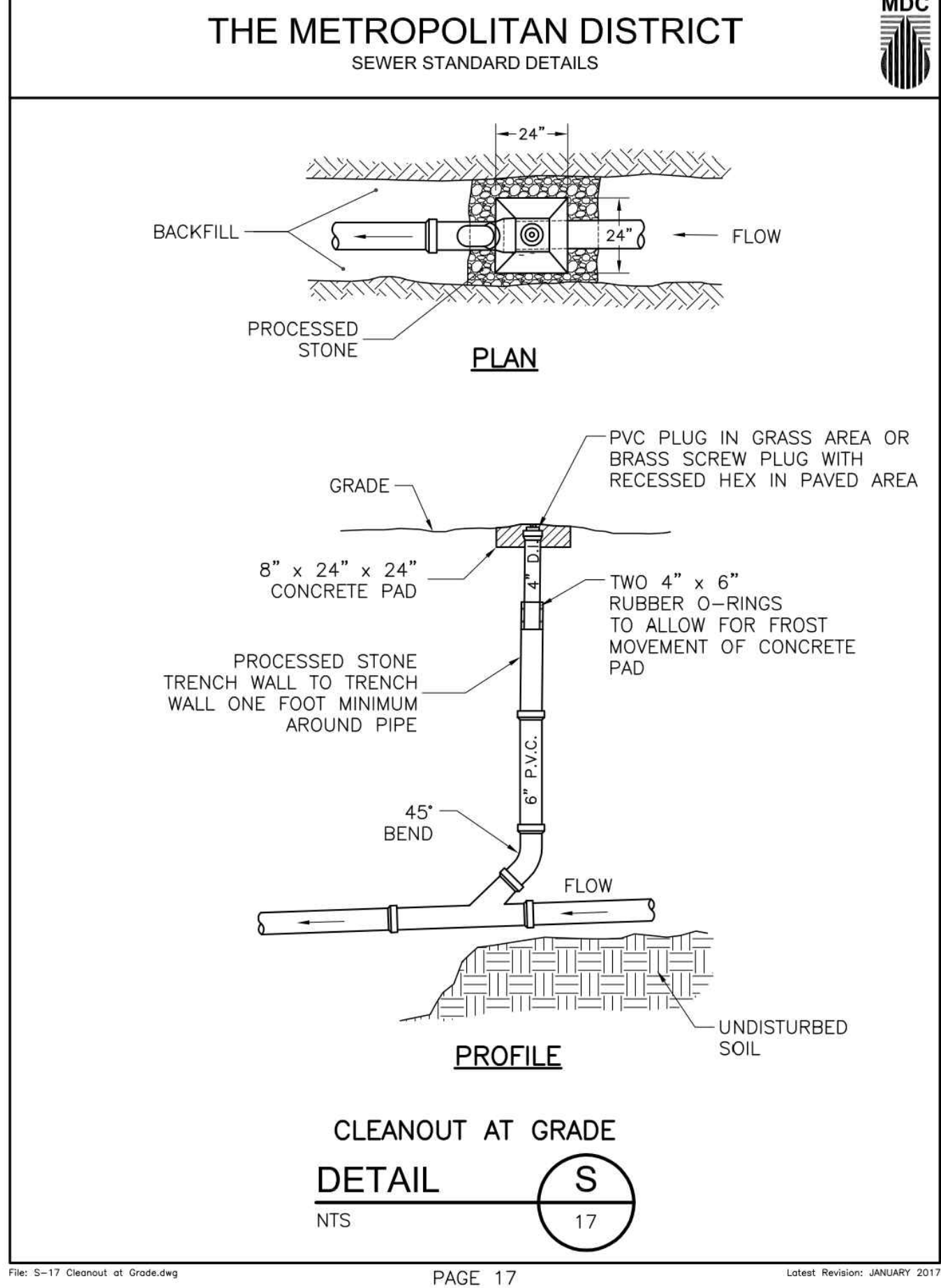
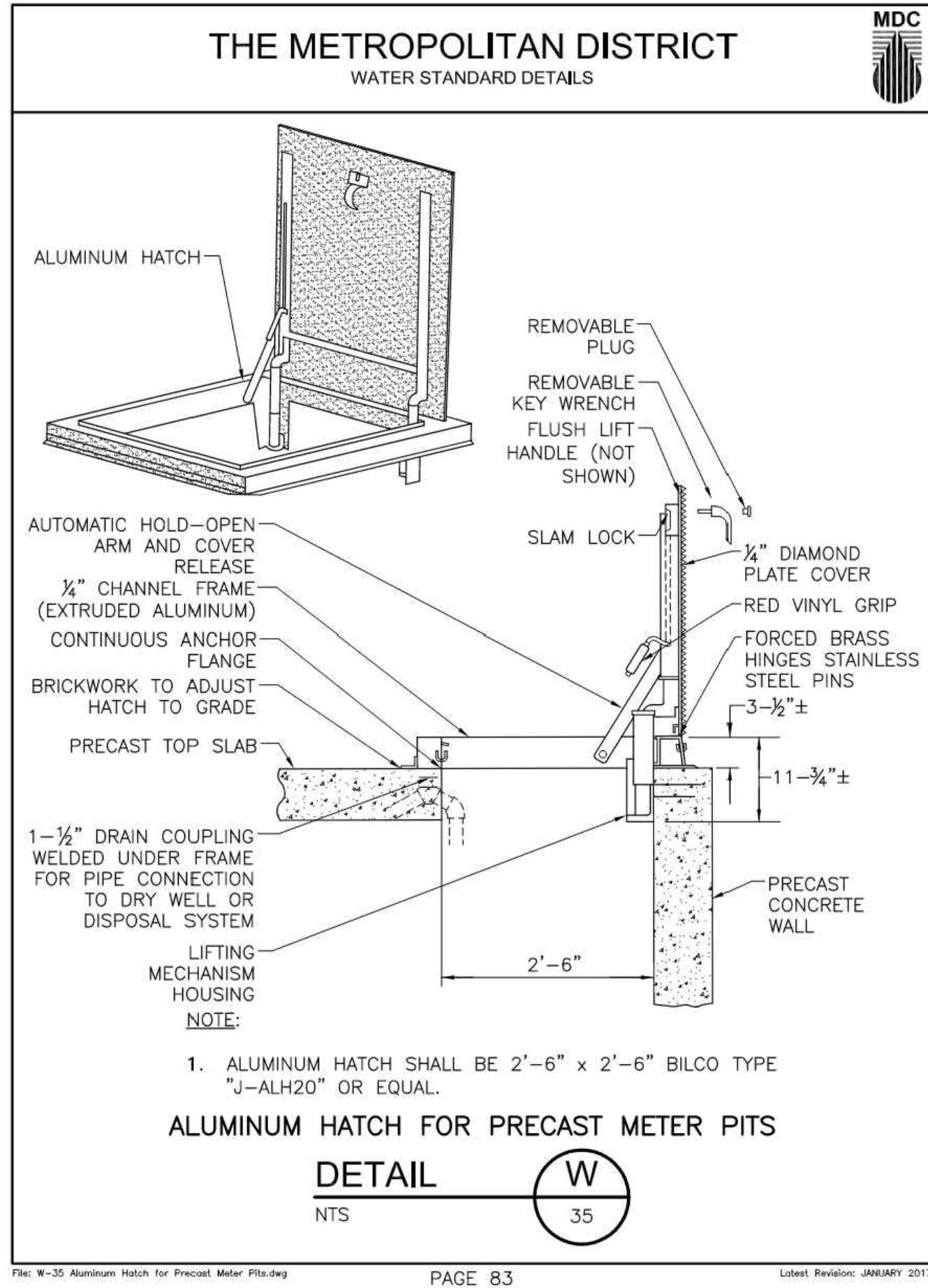
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VERT.:  
GRAPHIC SCALE

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DATE: 4/6/2023

CD-507



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PROJ. No.: 2022097A10  
DATE: 4/6/2023

DESIGNER: MDC  
REVIEWER: RB

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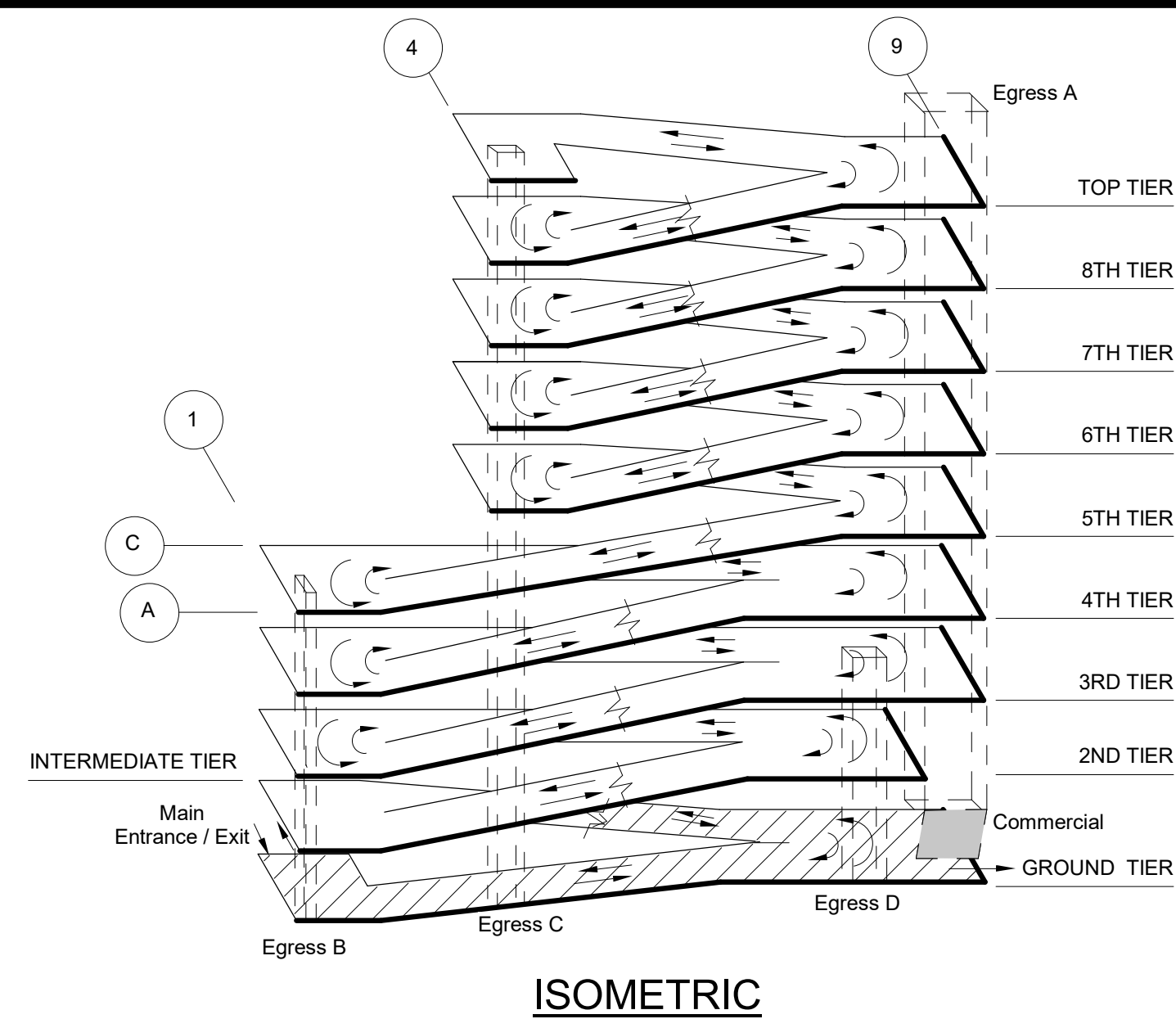
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DATE: 4/6/2023

**CD-508**

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MS VIEW: LAYER STATE: PLOTTER: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: FO.STB



PARKING CAR COUNT							
TIER	STANDARD STALL	ACCESSIBLE STALL	ACCESSIBLE VAN STALL	EV STALL	ACCESSIBLE EV STALL	ACCESSIBLE VAN EV STALL	TOTAL STALL
GROUND TIER	55	2	1	0	0	0	58
INTERMEDIATE TIER	64	0	0	0	0	0	64
SECOND TIER	92	7	0	10	0	0	109
THIRD TIER	92	3	3	8	1	1	108
FOURTH TIER	118	3	0	8	0	0	129
FIFTH TIER	93	0	0	0	0	0	93
SIXTH TIER	92	0	0	0	0	0	92
SEVENTH TIER	93	0	0	0	0	0	93
EIGHTH TIER	93	0	0	0	0	0	93
TOP TIER	81	0	0	0	0	0	81
	873	15	4	26	1	1	920



SHEET NOTES



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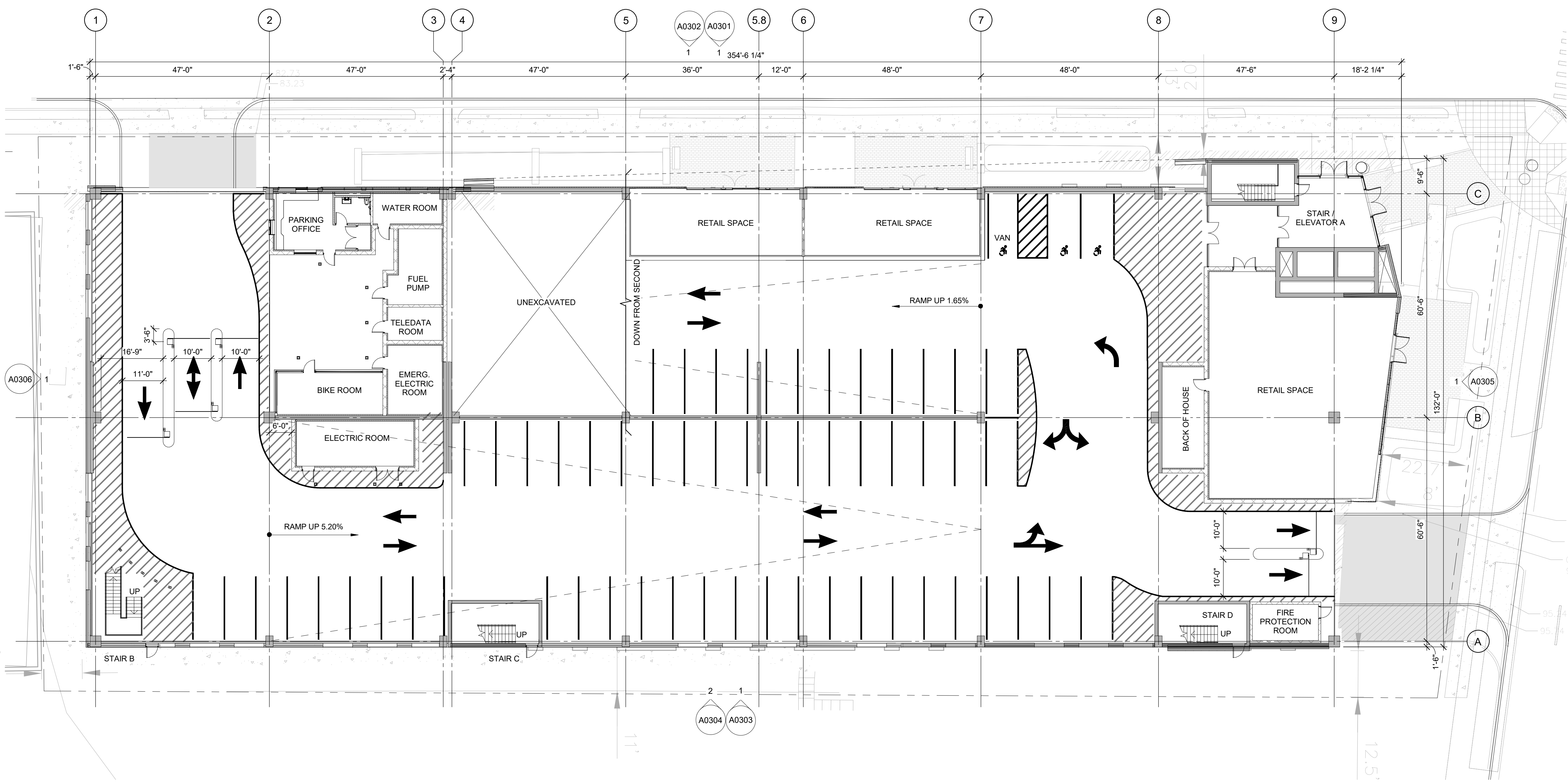
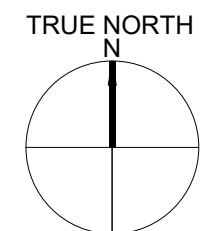
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- CIP
- CIP (PLAN CUT)
- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

MARK	DATE	DESCRIPTION
		REVISIONS
ISSUE:		SITE PLAN SUBMISSION
ISSUE DATE:	04/06/2023	
PROJECT NO.:	16-003325.00	
DRAWN BY:	JRM	
CHECKED BY:	BCS	

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SHEET TITLE:  
GROUND TIER PLAN



1 GROUND TIER PLAN  
1/16" = 1'-0"

4/8/2023 12:09:12 PM Autodesk Docs://16-003325-00\_LPRI - CT Children's Hospital Garage/16-003325-00\_LPRI/CT-CHG\_New-Concept\_R23.rvt

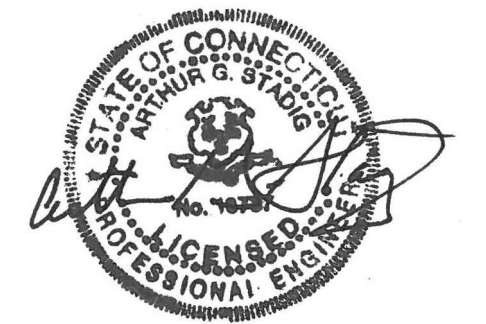
SHEET NOTES



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LEGEND

- CIP
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- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

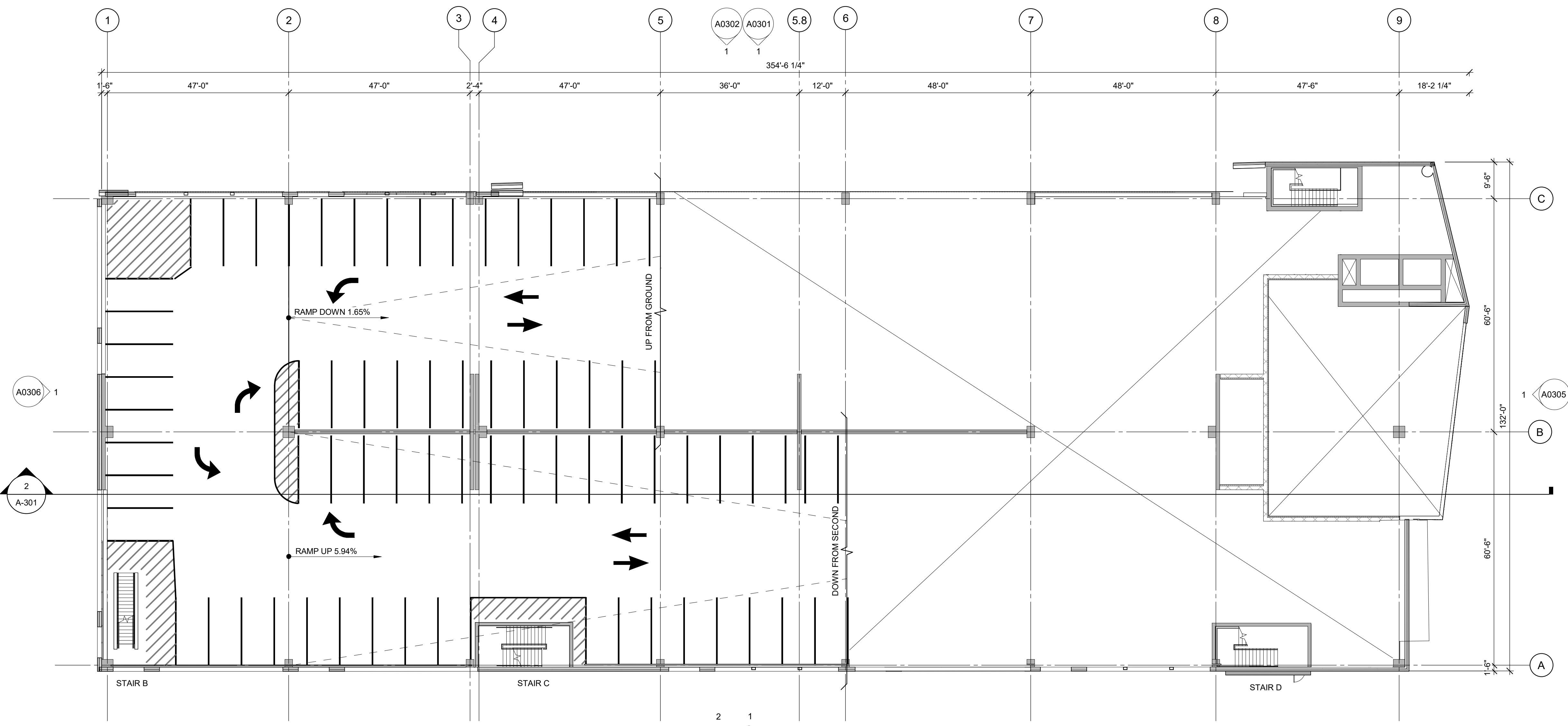
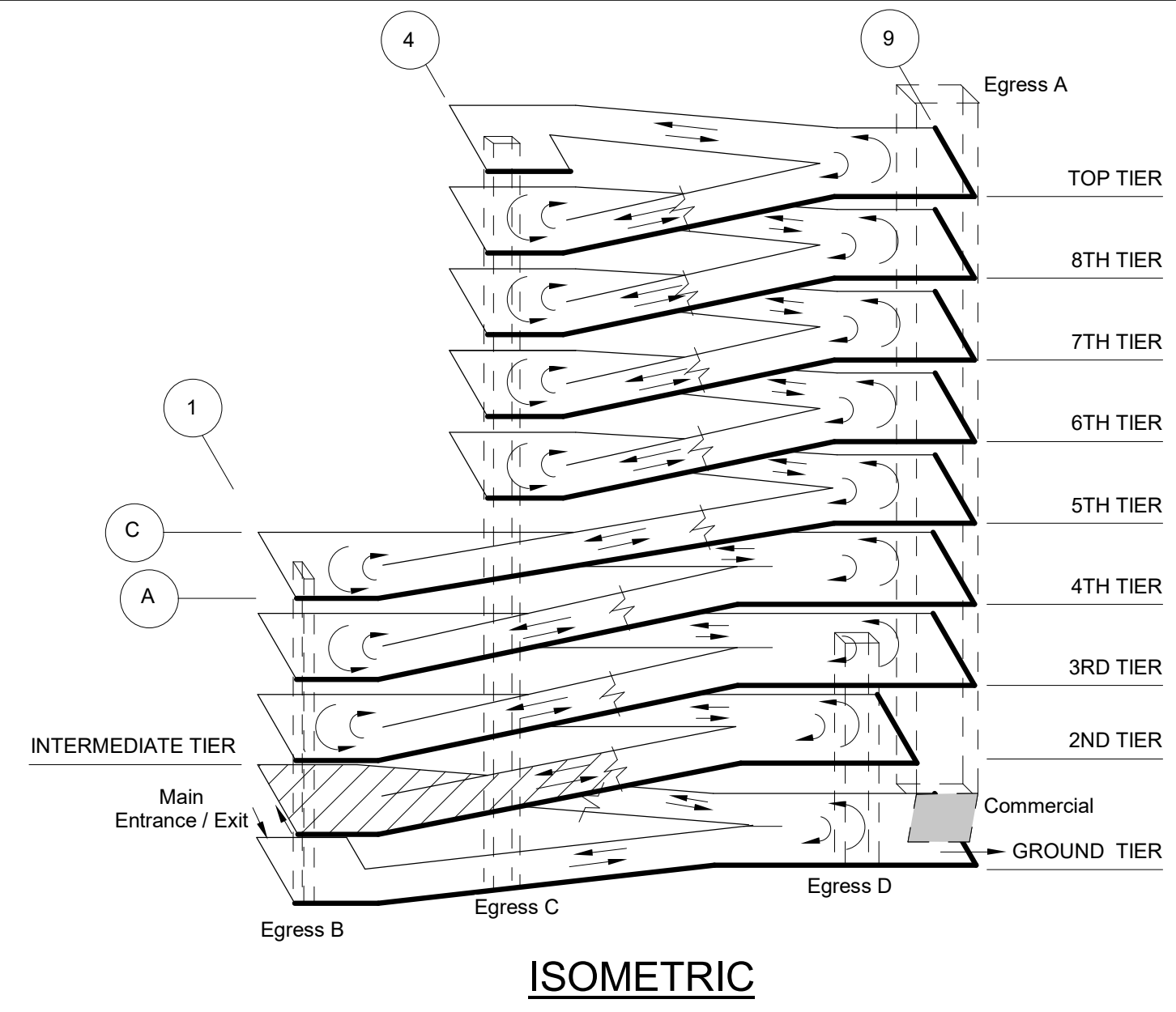
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REVISIONS		
		SITE PLAN SUBMISSION

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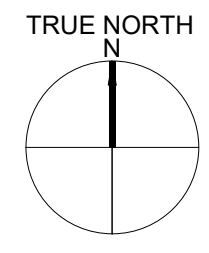
SHEET TITLE:  
INTERMEDIATE TIER PLAN

A-101.5



NOTE:  
1. LEVEL INTERMEDIATE IS SHOW TO TRANSITION THE BREAKLINE BETWEEN THE RAMPING CONFIGURATION OF LEVEL 1 TO THE TYPICAL RAMPING SYSTEM OF THE LEVELS ABOVE.

**1** INTERMEDIATE TIER PLAN  
1/16" = 1'-0"



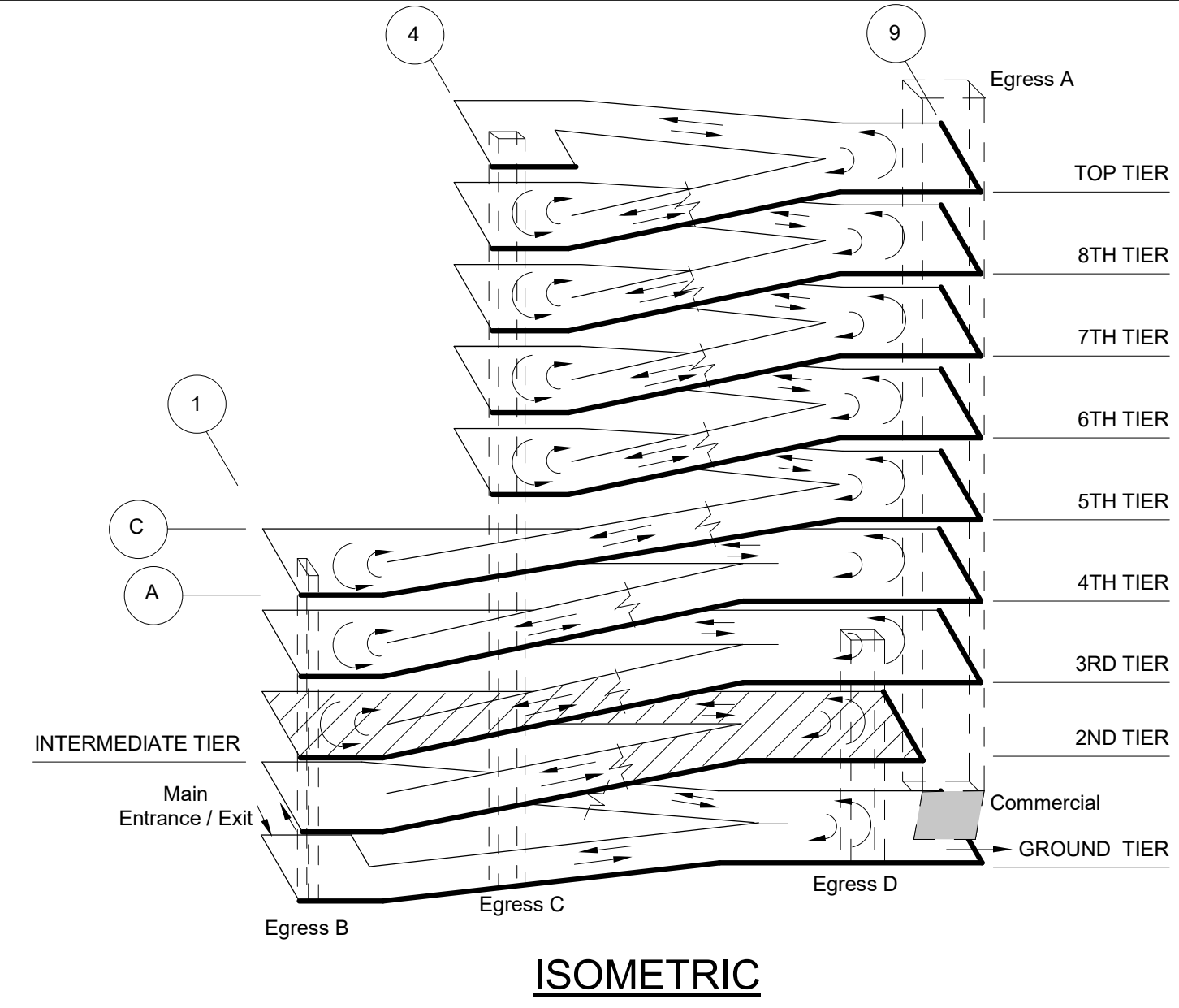
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SHEET NOTES

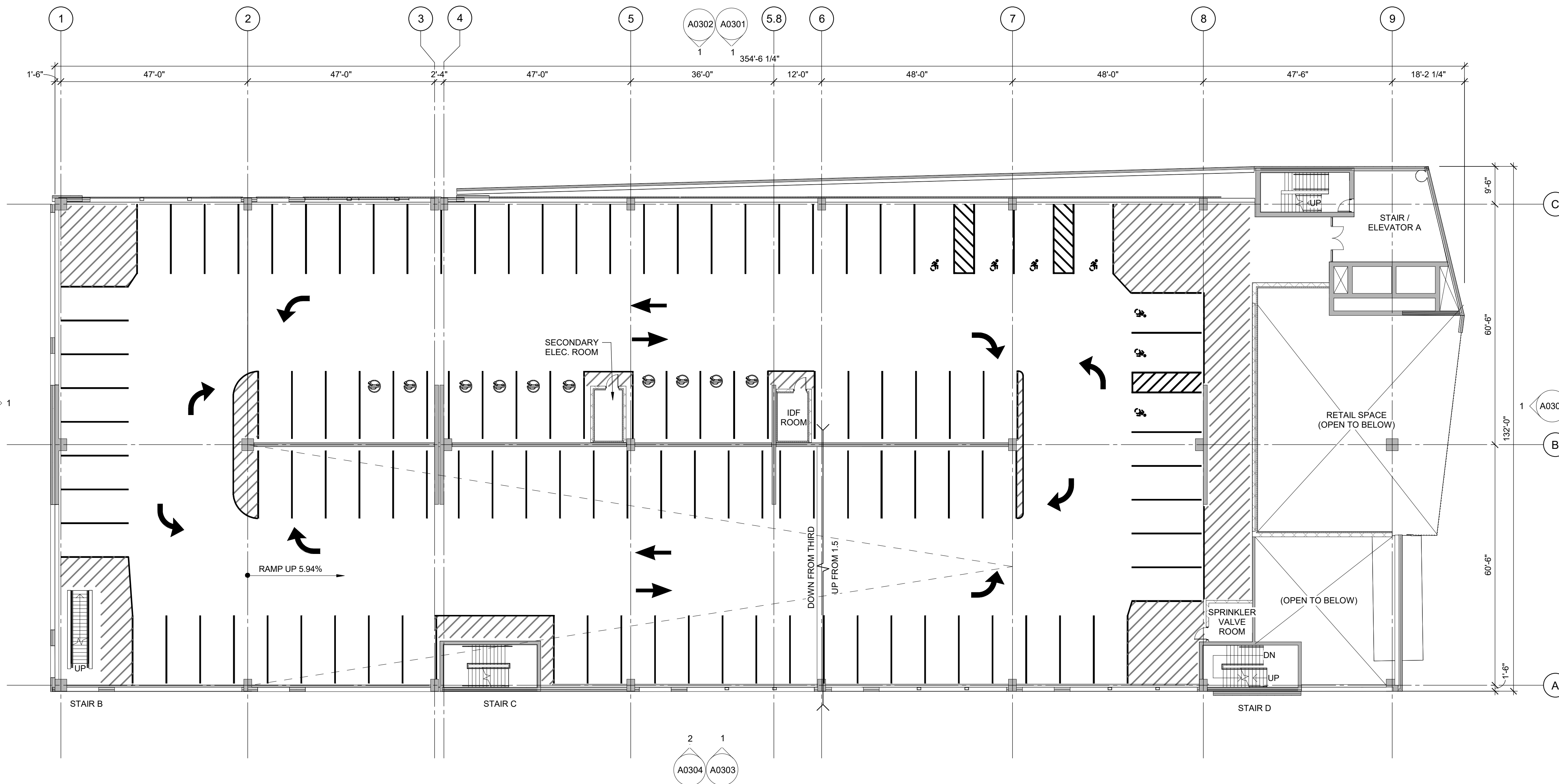


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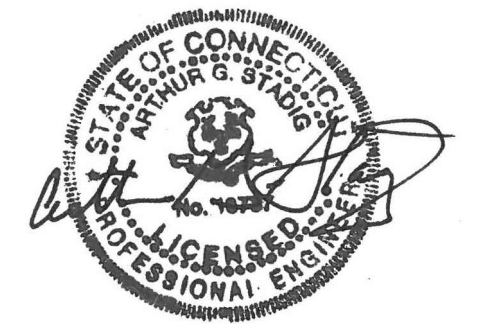
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LEGEND

- CIP
- CIP (PLAN CUT)
- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

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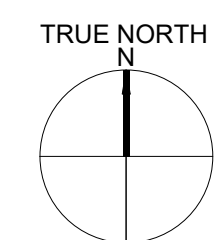


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MARK	DATE	DESCRIPTION
		REVISIONS
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	16-003325-00	PROJECT NO.:
	JRM	DRAWN BY:
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SHEET TITLE:  
SECOND TIER PLAN



1 SECOND TIER PLAN  
1/16" = 1'-0"

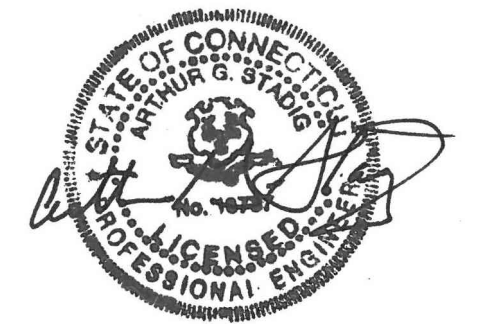
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LEGEND

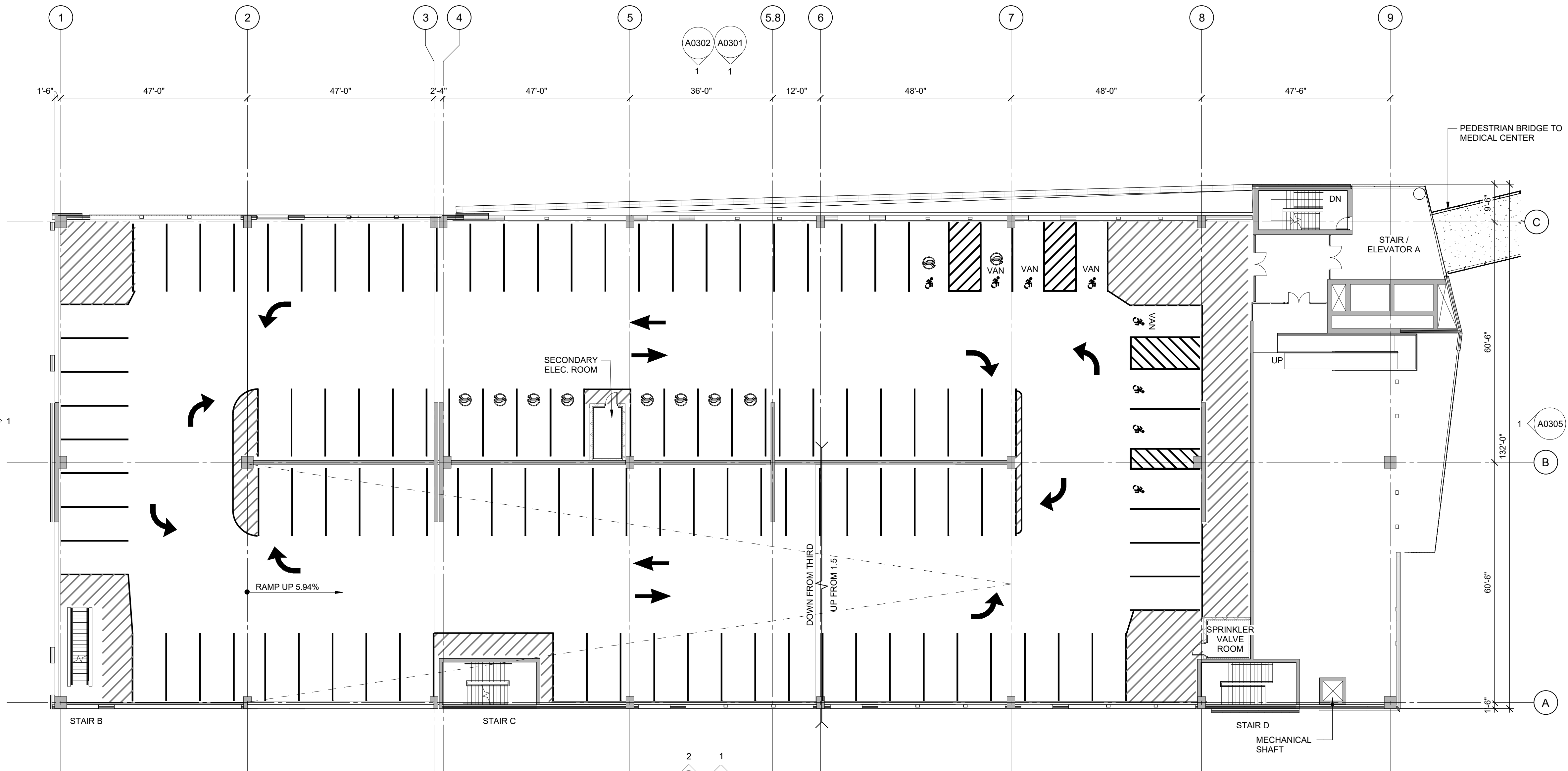
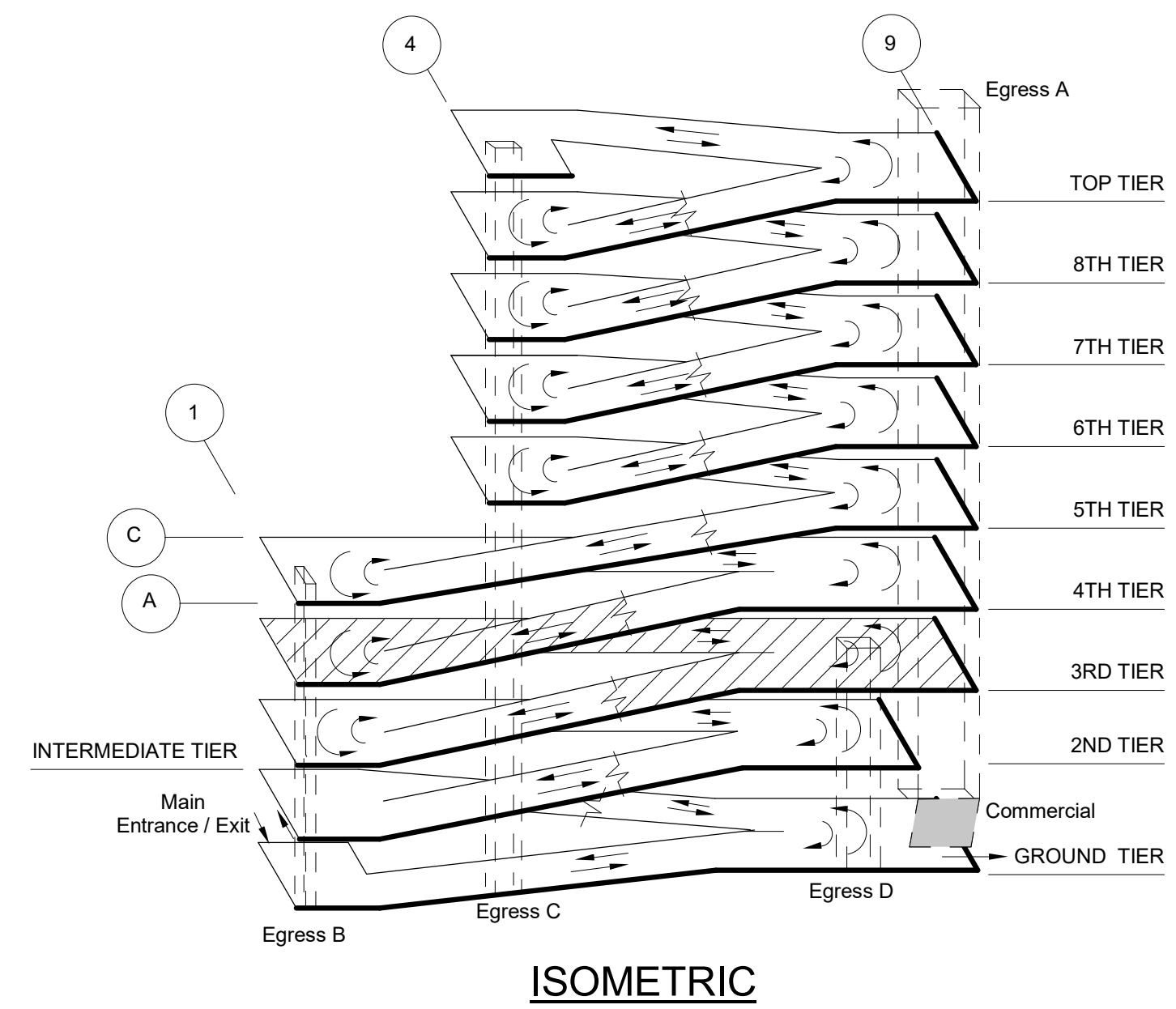
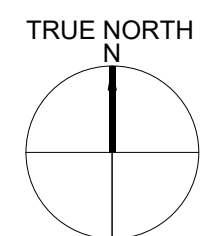
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- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

MARK	DATE	DESCRIPTION
		REVISIONS
		SITE PLAN SUBMISSION

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PROJECT NO: 16-003325.00  
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SHEET TITLE:  
THIRD TIER PLAN



**1** THIRD TIER PLAN  
1/16" = 1'-0"

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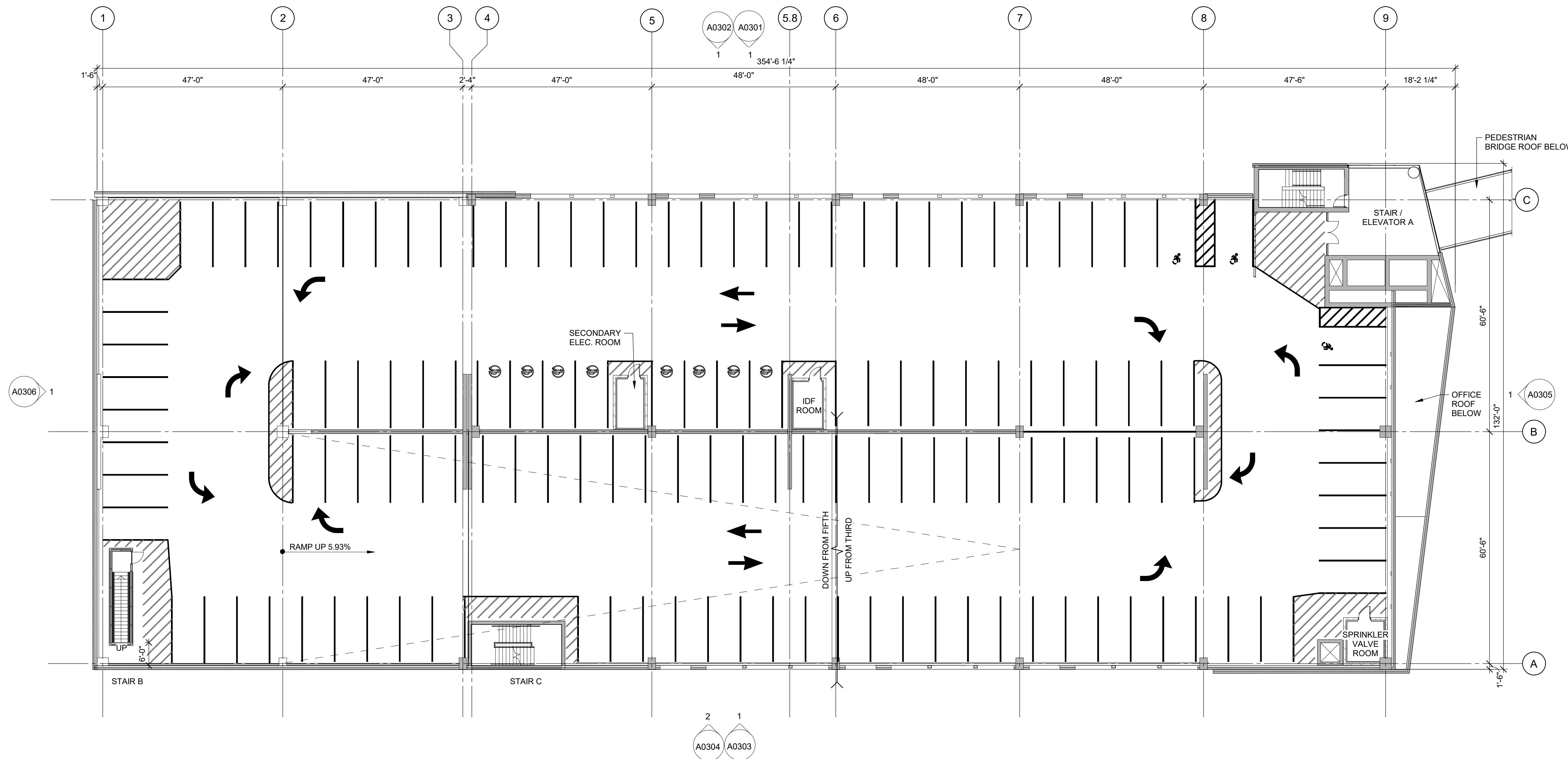
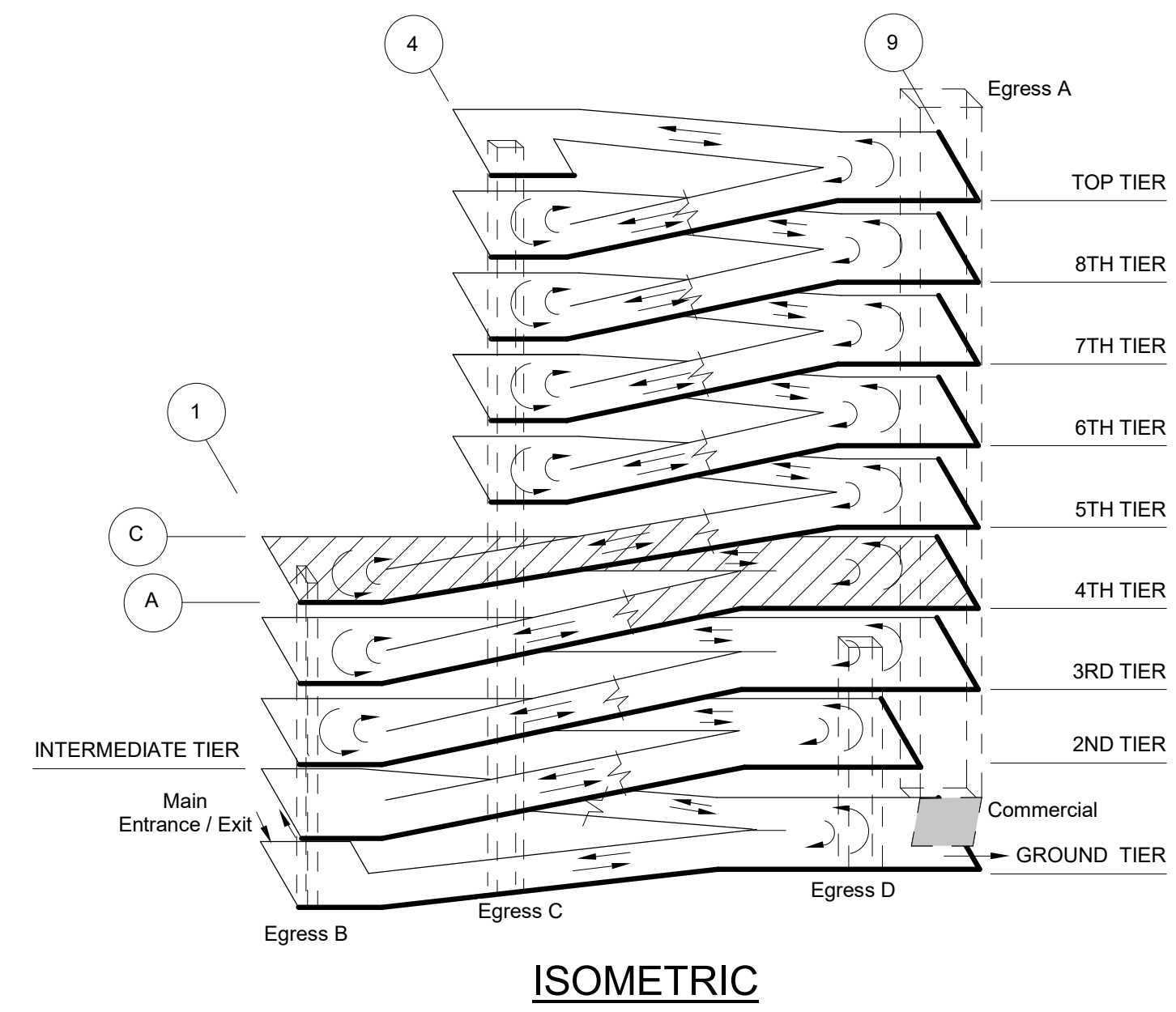


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**LEGEND**

- CIP
- CIP (PLAN CUT)
- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

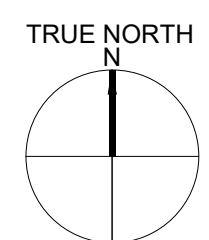


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MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:		SITE PLAN SUBMISSION
ISSUE DATE:	04/06/2023	
PROJECT NO.:	16-003325-00	
DRAWN BY:	JRM	
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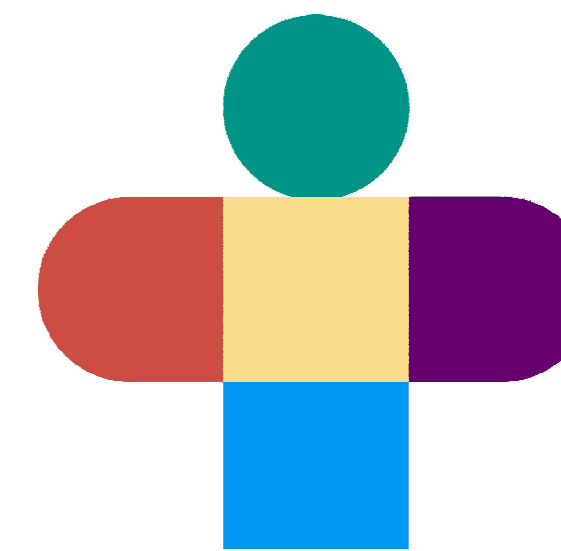
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SHEET TITLE:  
**FOURTH TIER PLAN**



**1** FOURTH TIER PLAN  
1/16" = 1'-0"

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**CONNECTICUT CHILDREN'S  
NEW TOWER PROJECT**  
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HARTFORD, CT 06106

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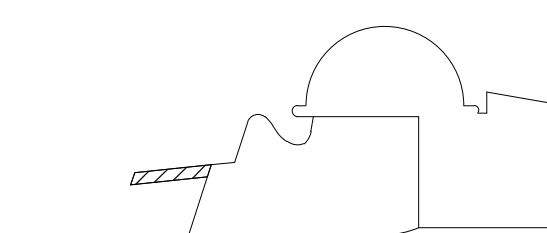
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Owner's Project Manager  
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P: 617.330.8000

**Fuss & O'Neill**  
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**Walker Consultants**  
Garage Designer  
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Waltham, MA 02451  
P: 617.350.5040

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CONSTRUCTION**

Rev.	Description	Date
Site Plan Submission		Apr. 12, 2023



**KEY PLAN**

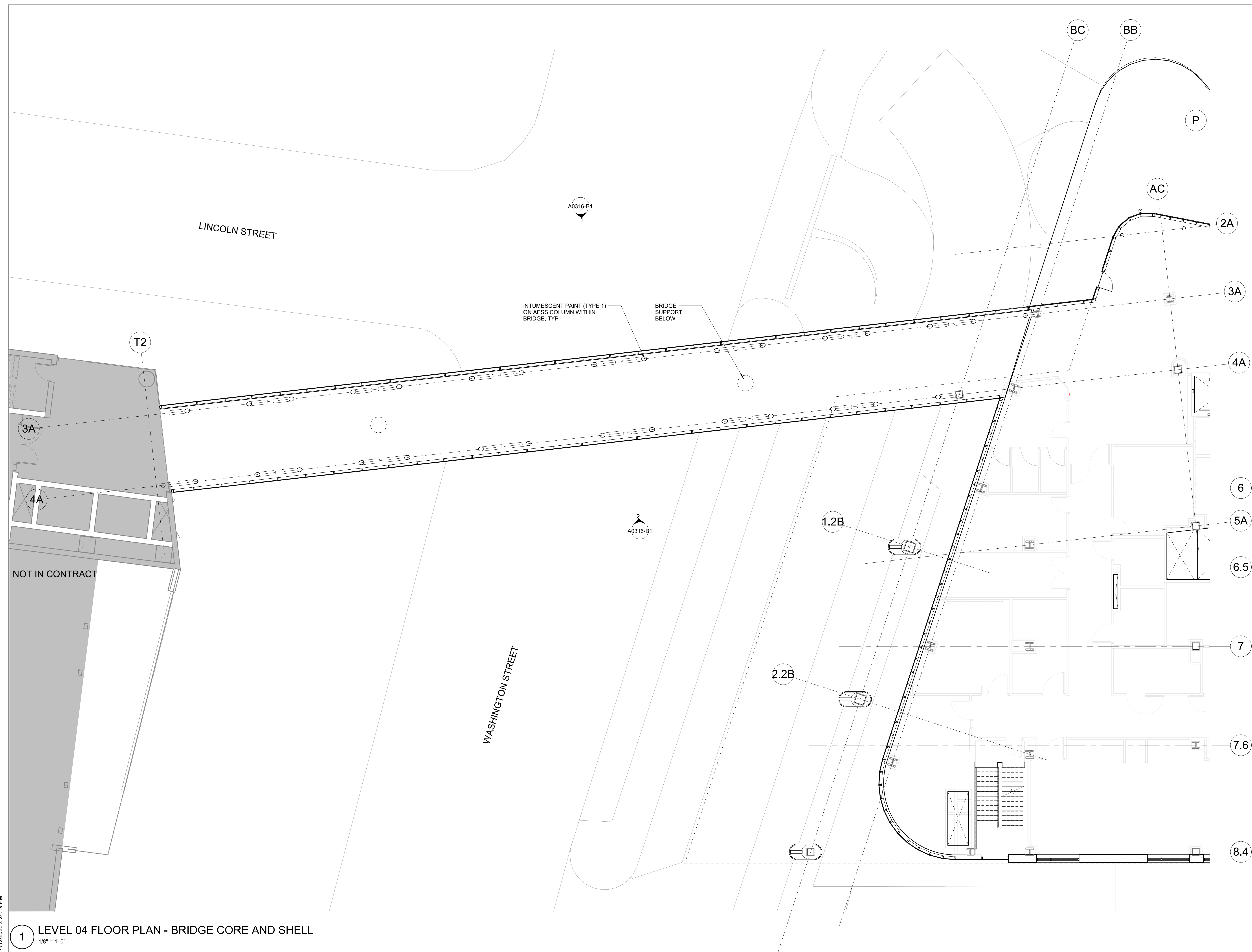
Drawing Title:

**LEVEL 04 - BRIDGE CORE  
AND SHELL PLAN**

Project No.: 006719.00 Checked by: GC

**A0104.1-B1**

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**1 LEVEL 04 FLOOR PLAN - BRIDGE CORE AND SHELL**  
1/8" = 1'-0"

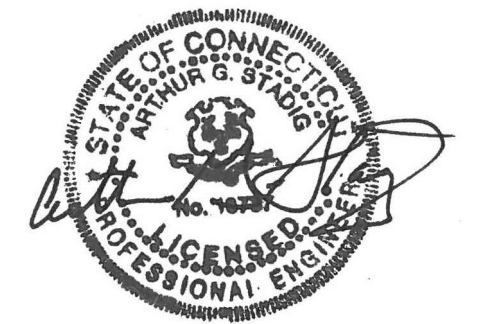
SHEET NOTES



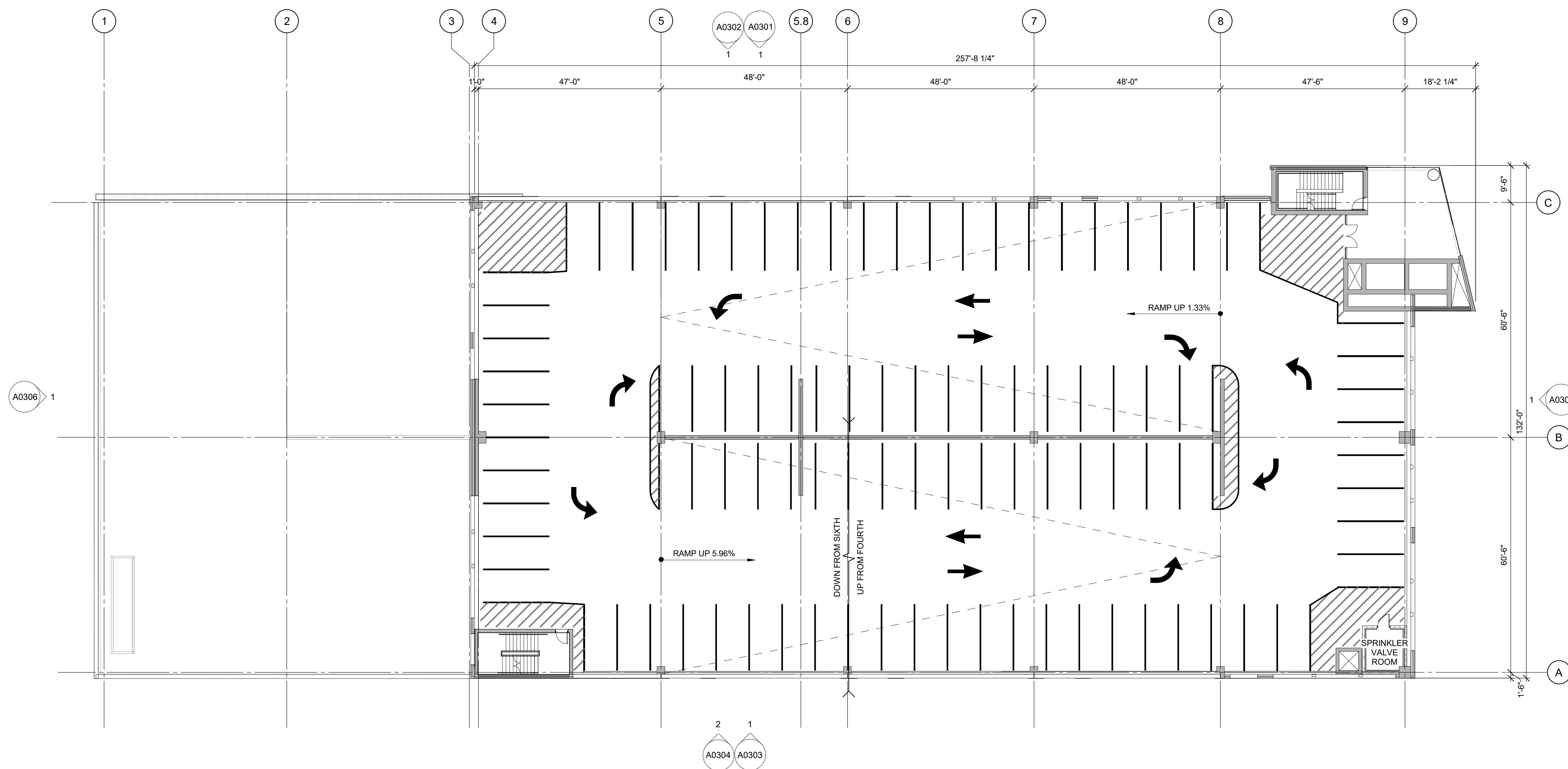
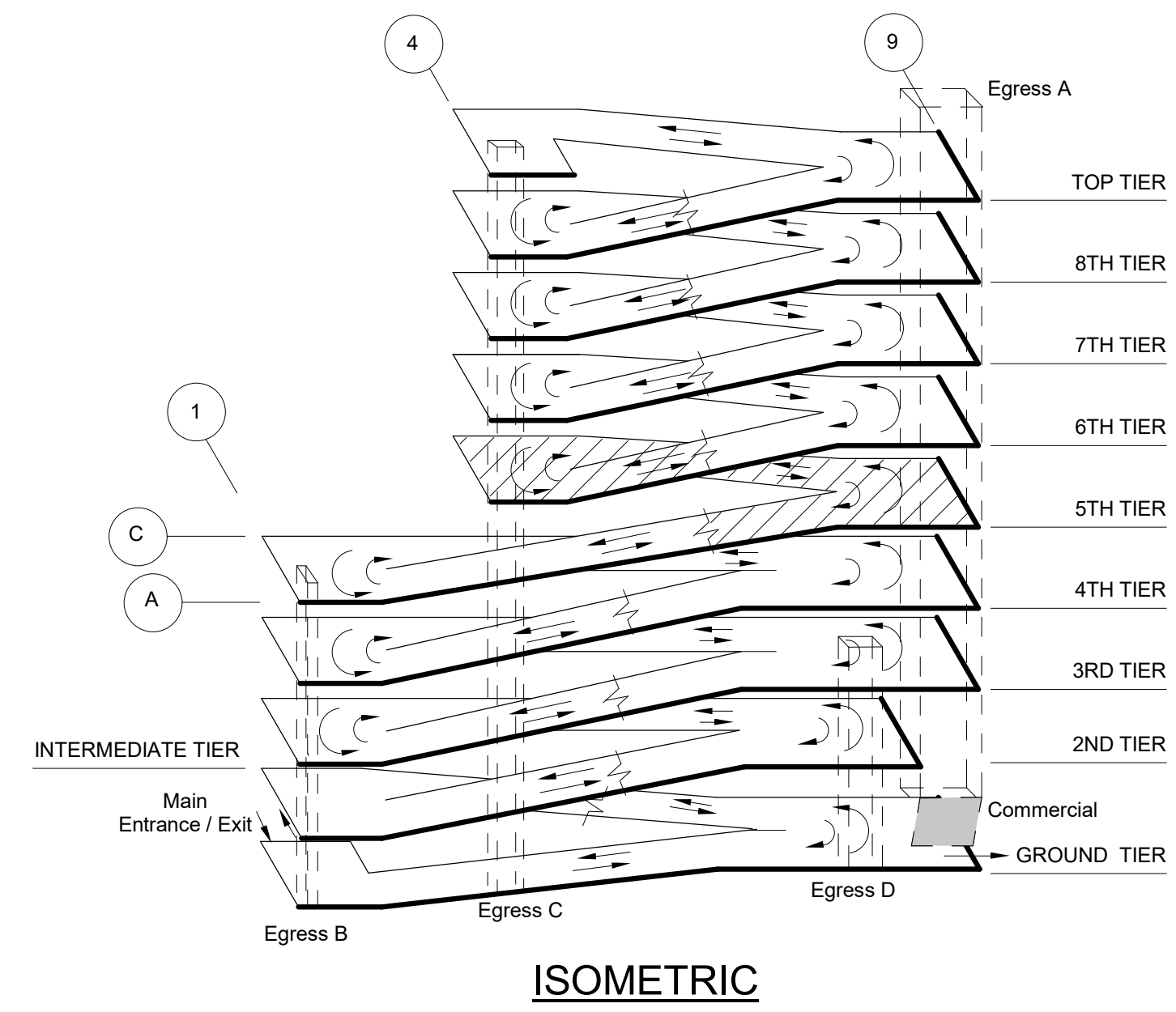
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**LEGEND**

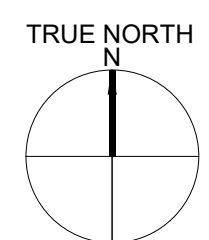
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- CIP (PLAN CUT)
- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

MARK	DATE	REVISIONS	DESCRIPTION
		1	SITE PLAN SUBMISSION

ISSUE DATE: 04/06/2023  
PROJECT NO: 16-003325-00  
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CHECKED BY: BCS

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SHEET TITLE:  
**FIFTH TIER PLAN**



**1 FIFTH TIER PLAN**  
1/16" = 1'-0"

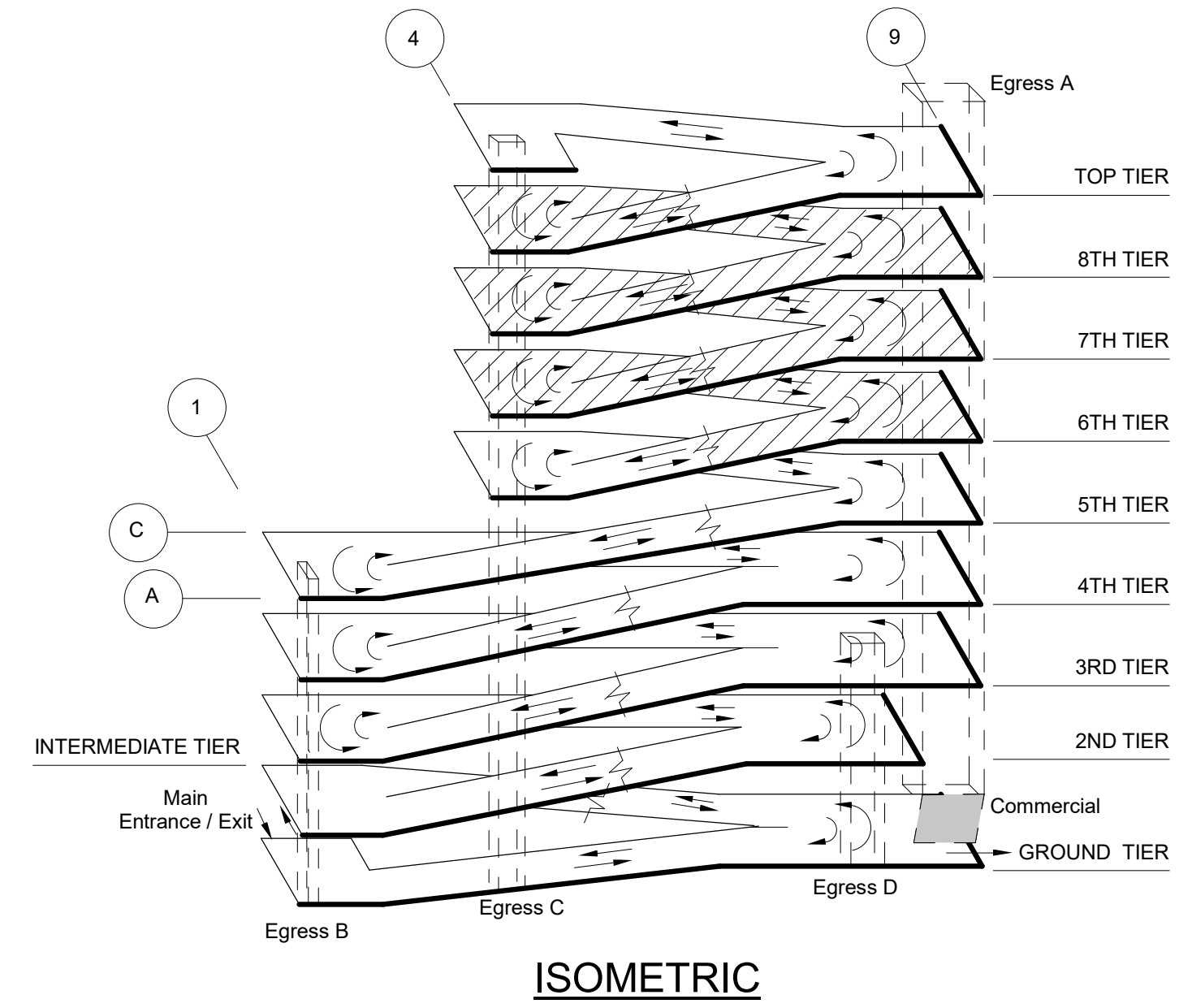
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SHEET NOTES

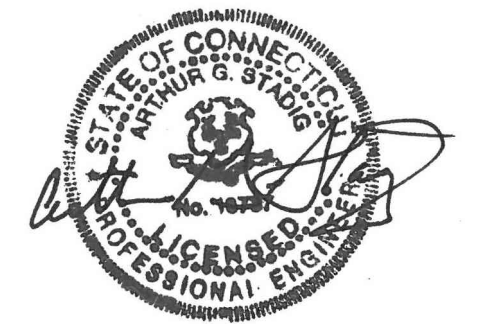


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LEGEND

- CIP
- CIP (PLAN CUT)
- PRECAST CONCRETE
- CMU
- PAVEMENT MARKING - NO PARKING AREA
- PIPE BOLLARD

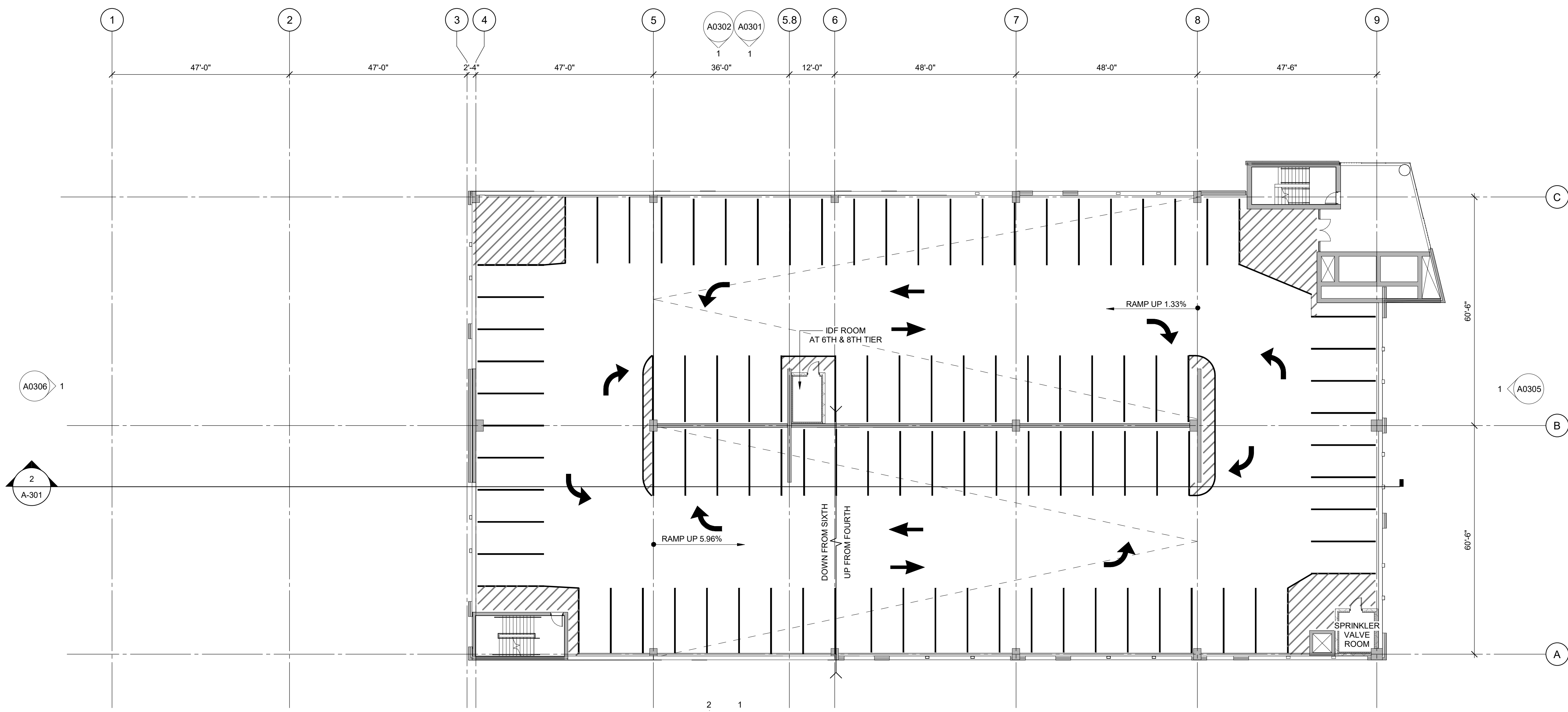
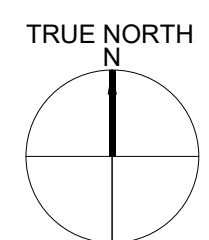
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SHEET TITLE:

SIXTH, SEVENTH & EIGHTH TIER PLAN



1 SIXTH, SEVENTH & EIGHTH TIER PLAN  
1/16" = 1'-0"

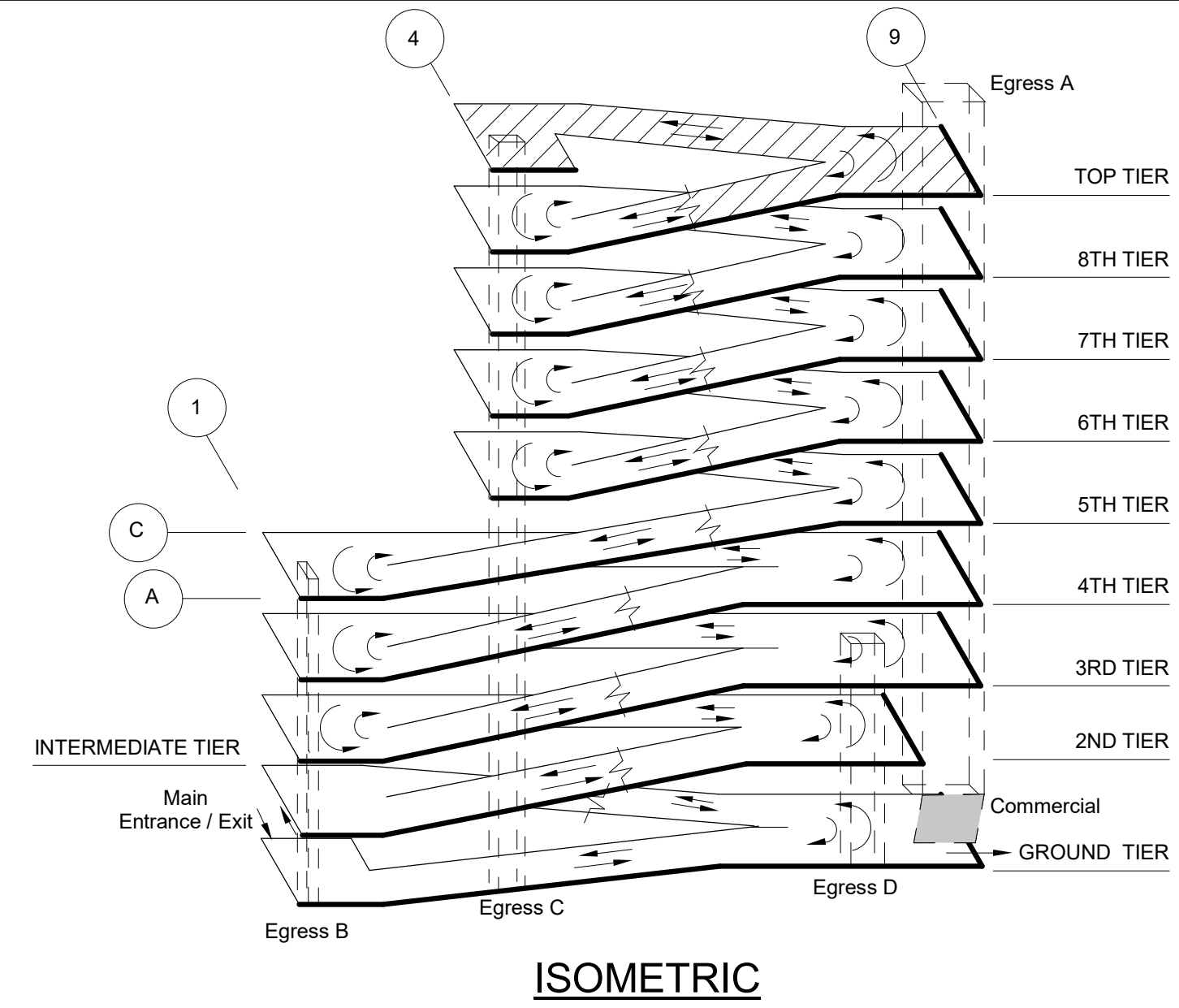
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SHEET NOTES

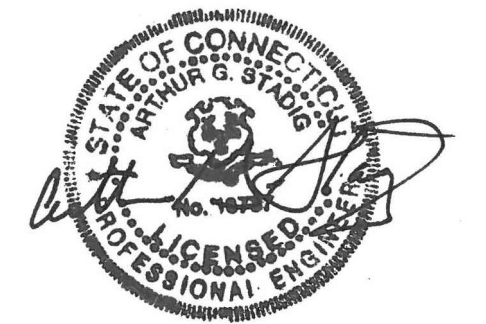


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LEGEND

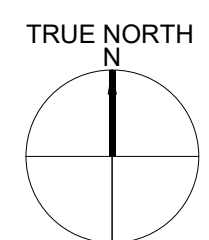
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- PIPE BOLLARD

MARK	DATE	REVISIONS	DESCRIPTION

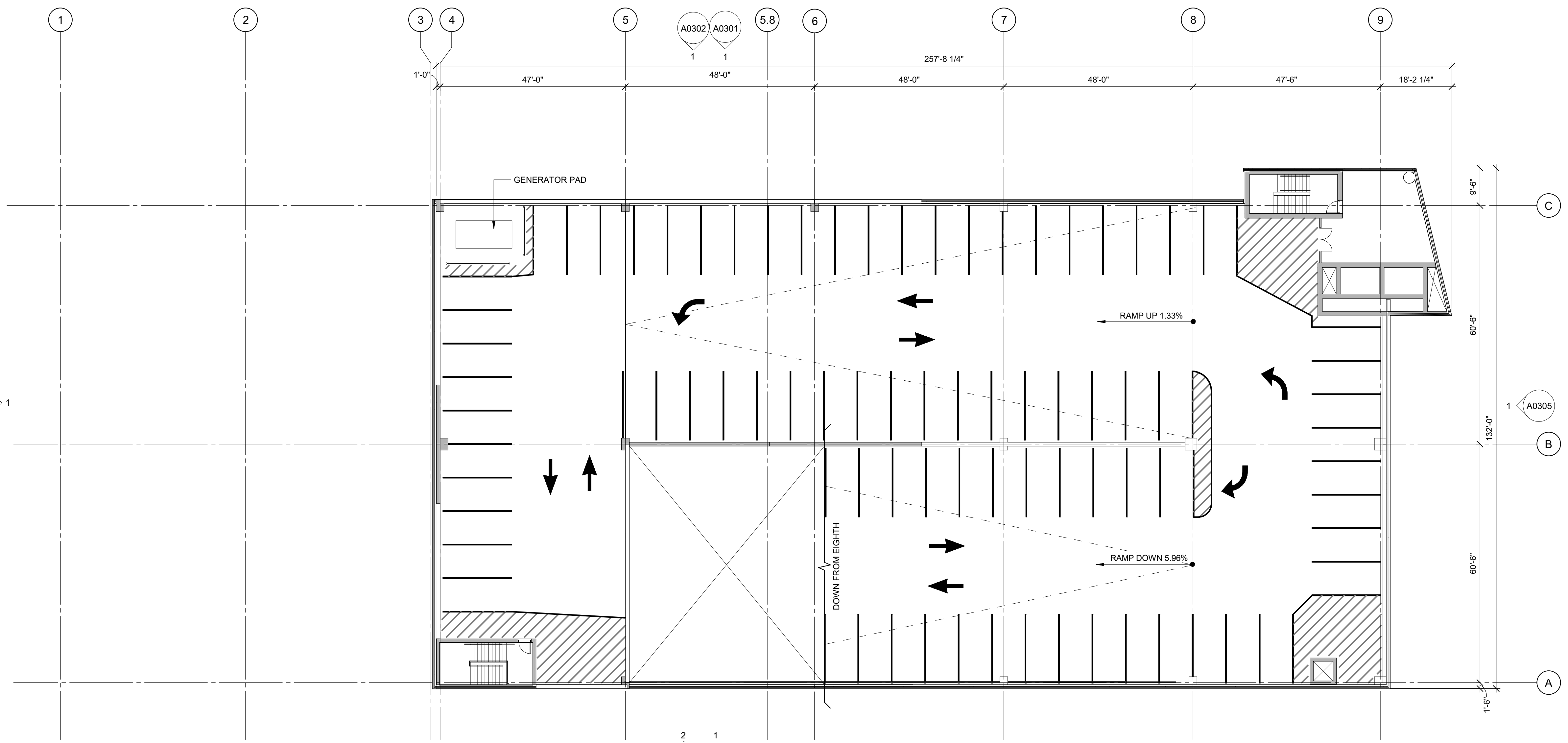
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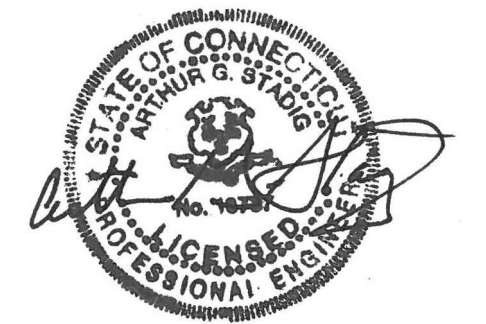
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**TOP TIER PLAN**



**1 TOP TIER PLAN**  
1/16" = 1'-0"



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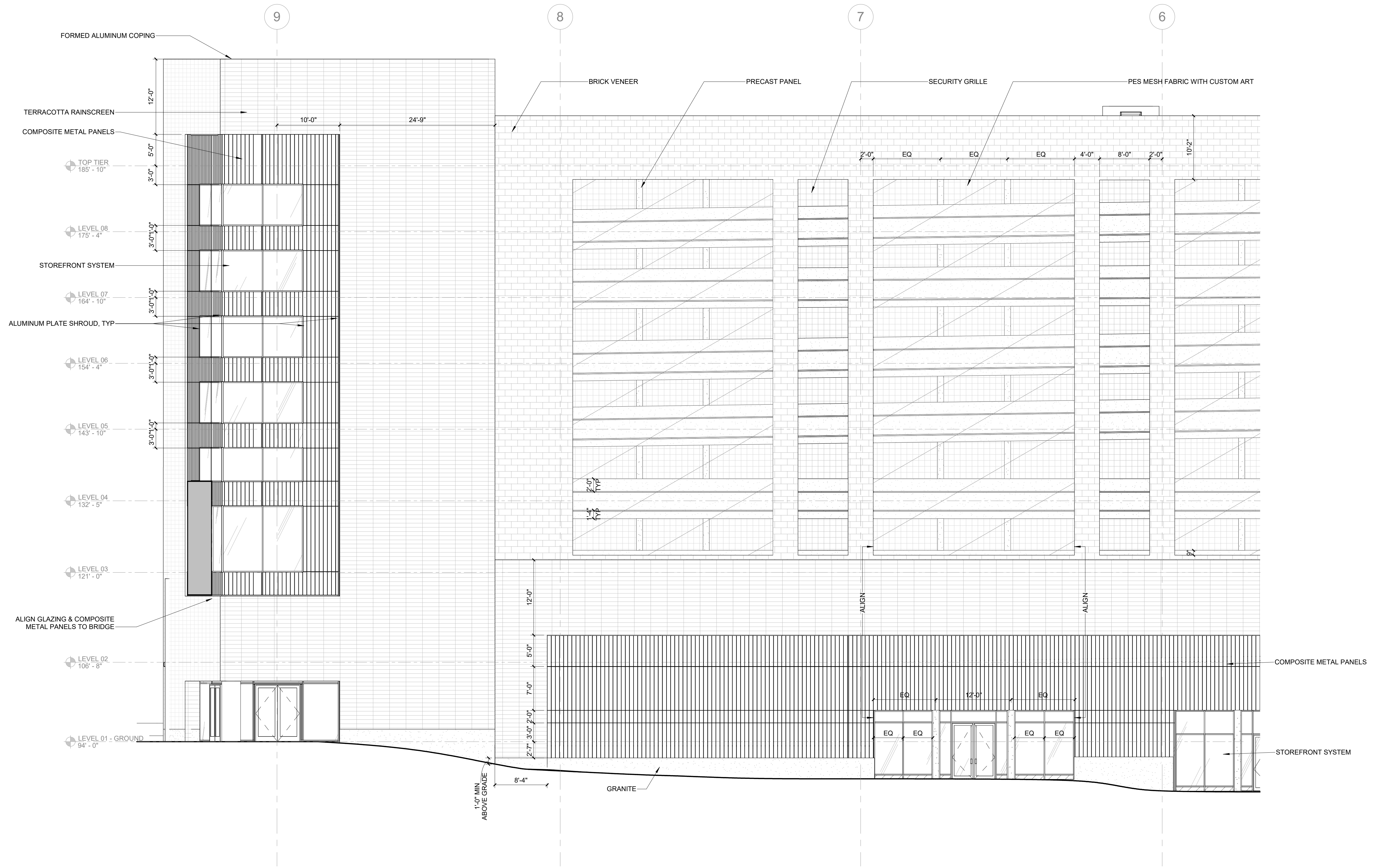
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Hartford, CT

MARK	DATE	DESCRIPTION
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		SITE PLAN SUBMISSION
	04/06/2023	ISSUE DATE:
	16-003325.00	PROJECT NO.:
	EN/CC	DRAWN BY:
	DF	CHECKED BY:

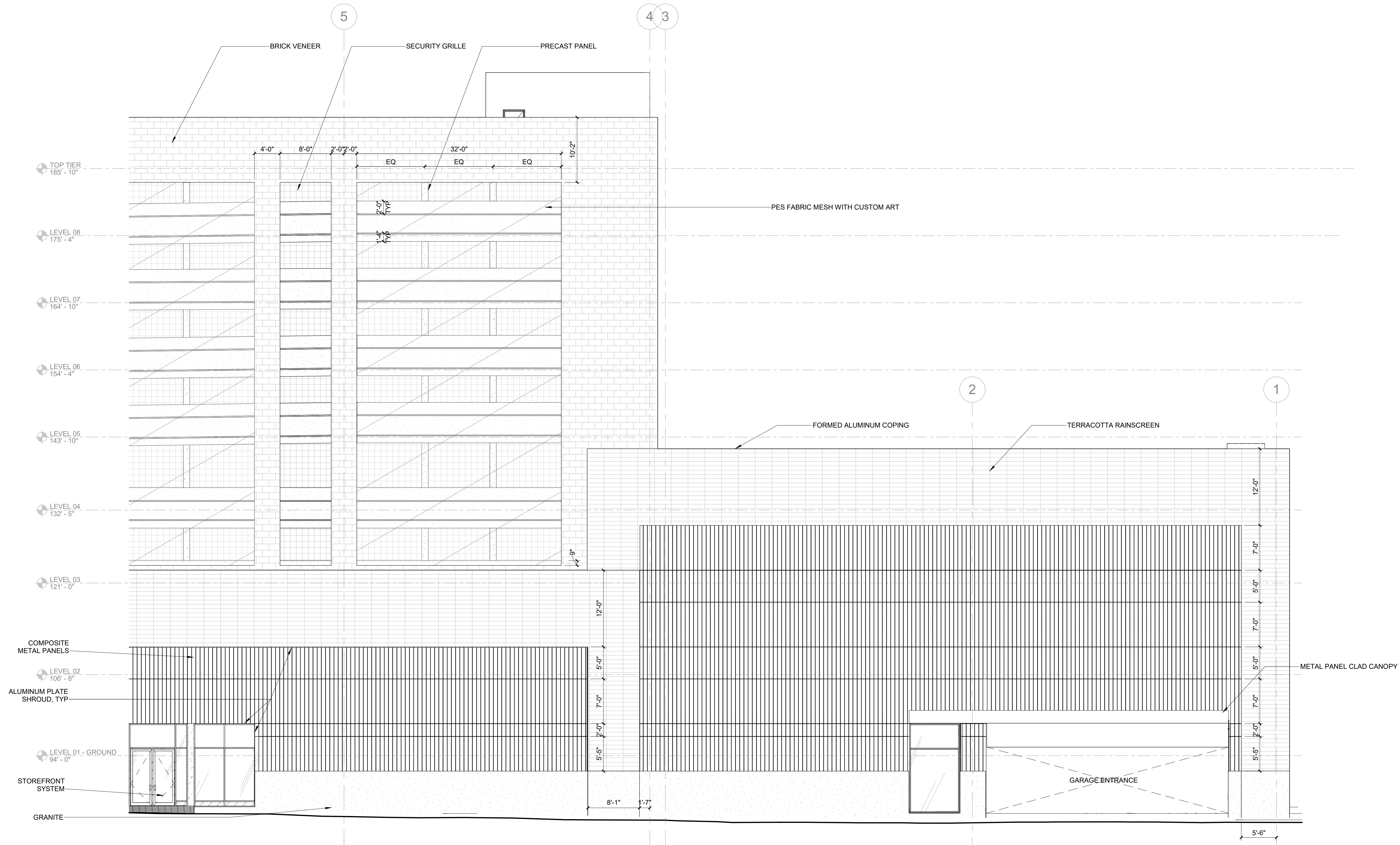
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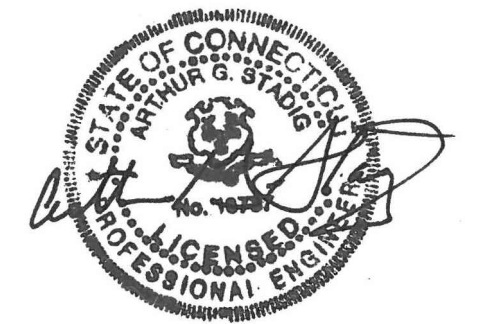
**A0301**



**1** ELEVATION - NORTH - PART A  
1/8" = 1'-0"



**1** ELEVATION - NORTH - PART B  
1/8" = 1'-0"

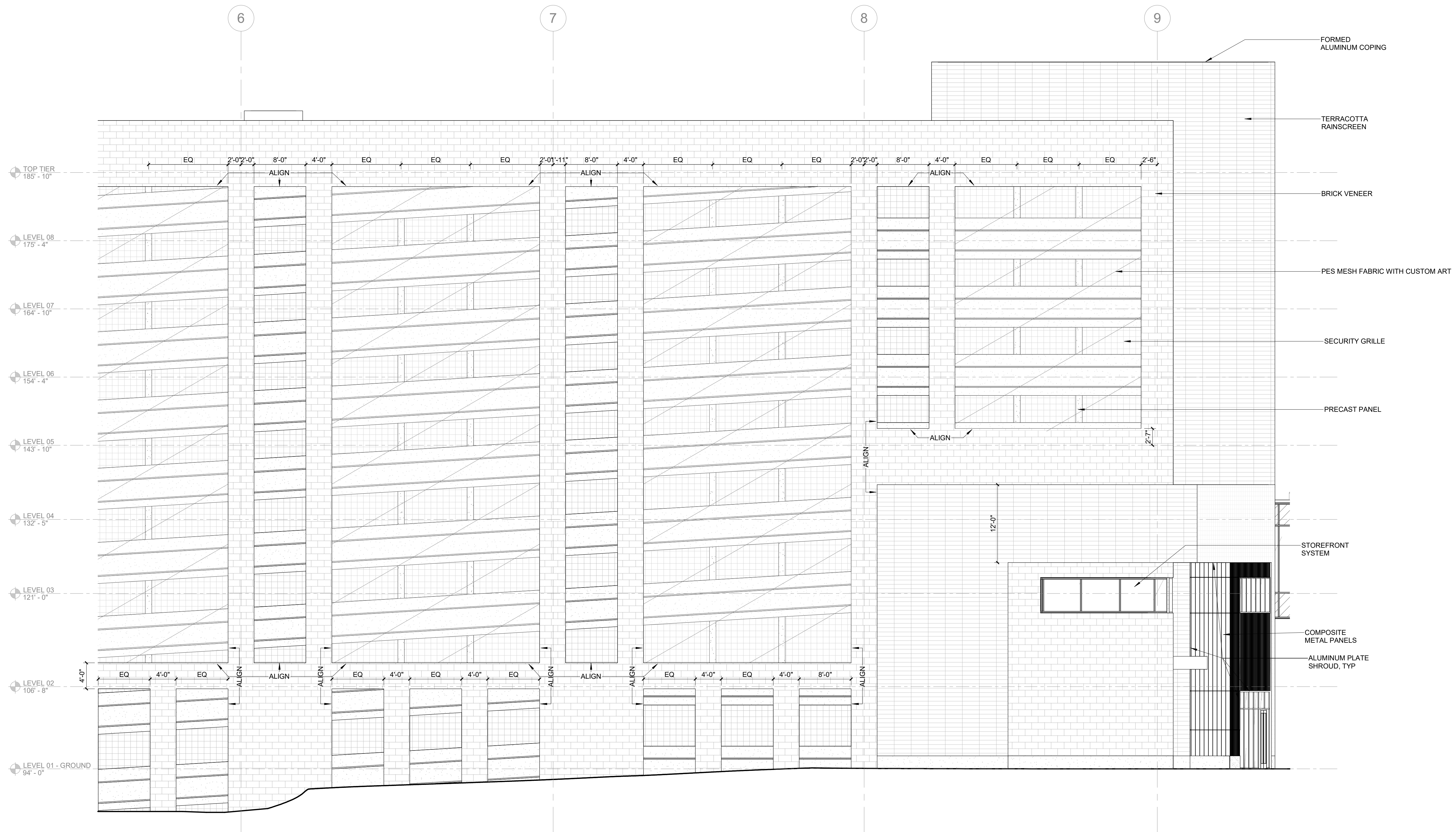


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SHEET TITLE:  
**EXTERIOR ELEVATIONS - NORTH - PART B**



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Hartford, CT

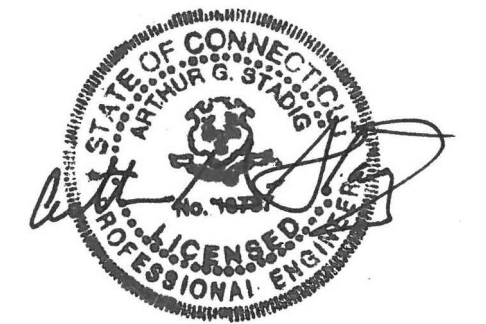
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ISSUE:		SITE PLAN SUBMISSION
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SHEET TITLE:  
**EXTERIOR ELEVATIONS - SOUTH - PART A**

**1** ELEVATION - SOUTH - PART A  
1/8" = 1'-0"





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Washington & Lincoln Garage  
Hartford, CT

MARK	DATE	DESCRIPTION
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		SITE PLAN SUBMISSION
ISSUE DATE: 04/06/2023		
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SHEET TITLE:  
**EXTERIOR ELEVATIONS - SOUTH - PART B**

**A0304**



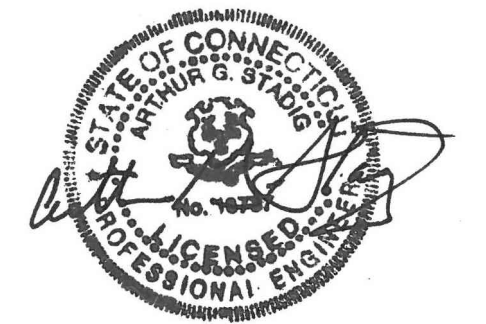
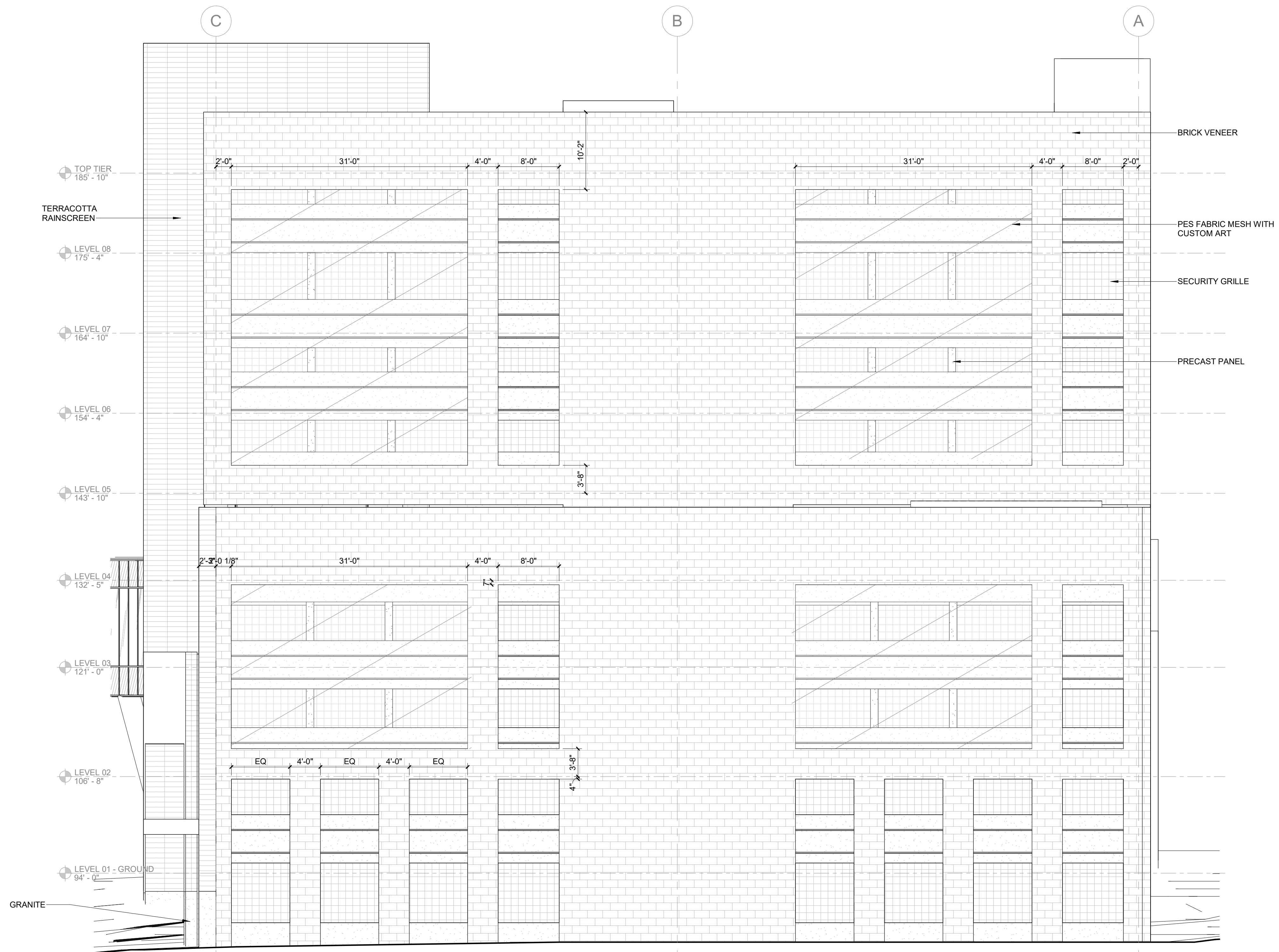
**2** ELEVATION-SOUTH  
1/8" = 1'-0"



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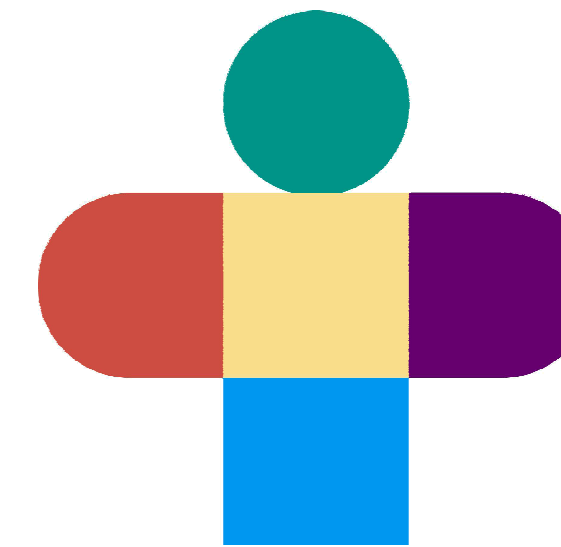
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SHEET TITLE:  
**EXTERIOR ELEVATIONS - WEST**

**1 ELEVATION-WEST**  
1/8" = 1'-0"



**CONNECTICUT CHILDREN'S  
NEW TOWER PROJECT**  
282 WASHINGTON STREET  
HARTFORD, CT 06106

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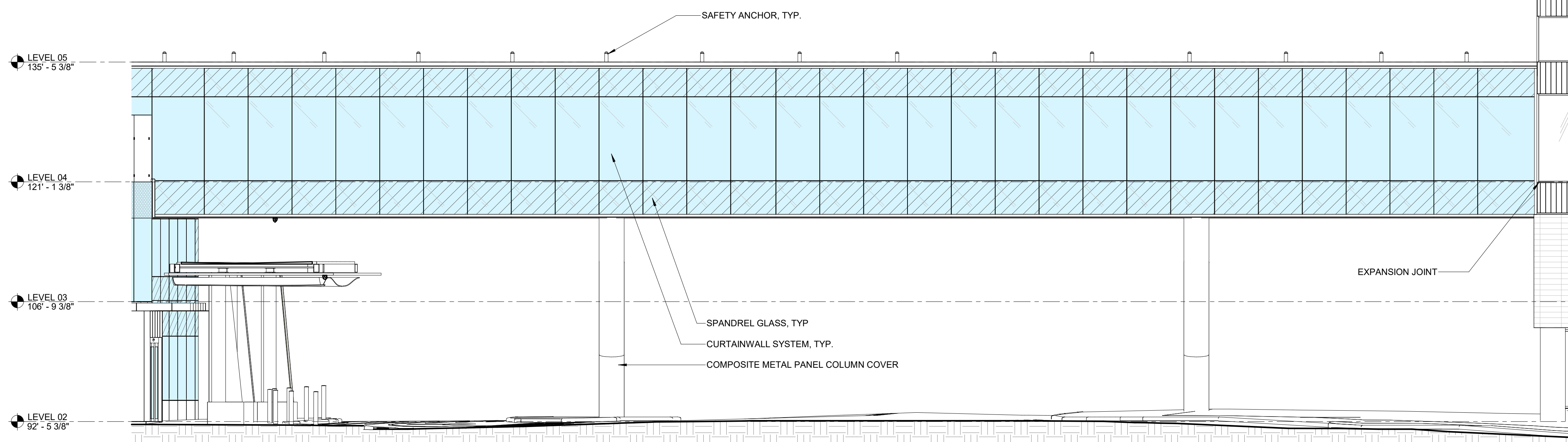
99 Summer Street Suite 600  
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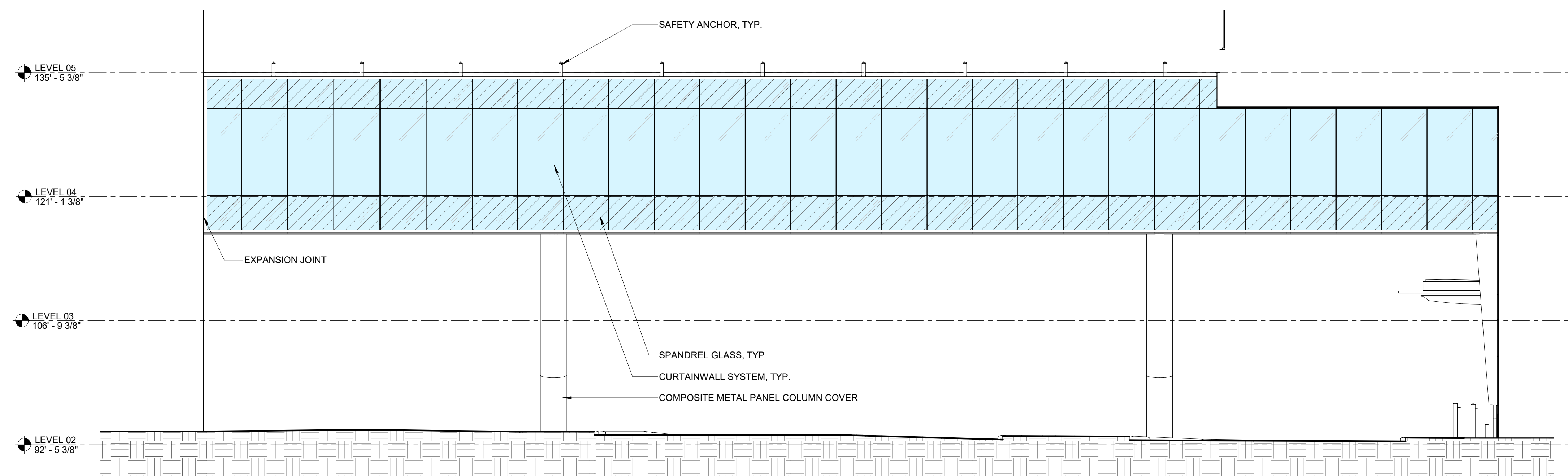
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Owner's Project Manager  
160 Federal Street 11th Floor  
Boston, MA 02110  
P: 617.330.8000

**Fuss & O'Neill**  
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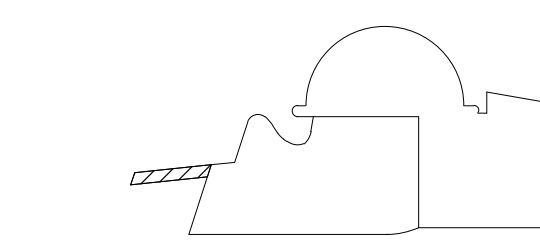
**1 BRIDGE ELEVATION NORTH**  
1/8" = 1'-0"



**2 BRIDGE ELEVATION SOUTH**  
1/8" = 1'-0"

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Rev.	Description	Date
	Site Plan Submission	Apr. 12, 2023



**KEY PLAN**

Drawing Title:

**BRIDGE EXTERIOR  
ELEVATIONS**

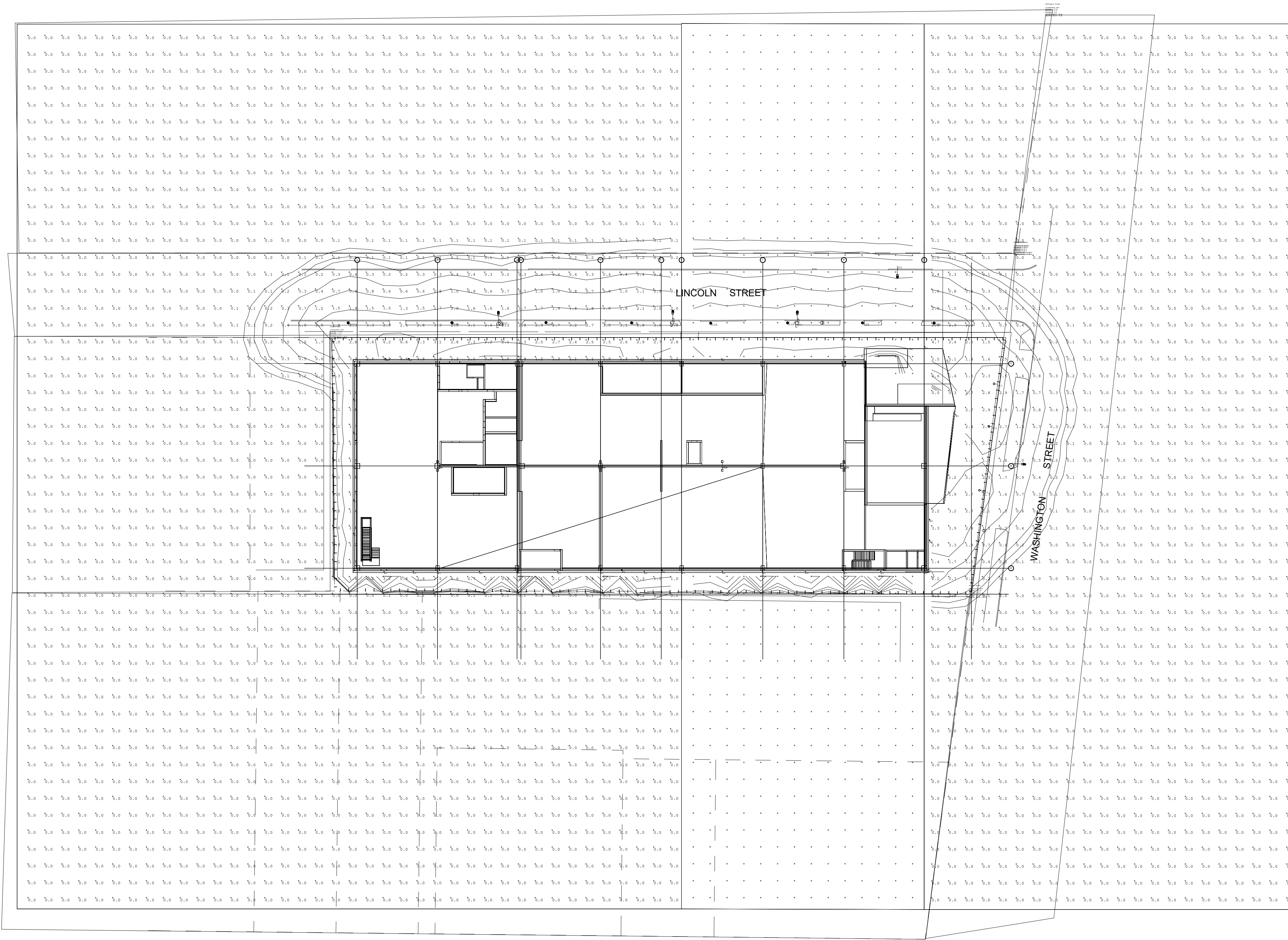
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Symbol	Qty	Label	Description	LLF
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○	3	SL1	37W LED/3000K-3470-t5-no	1.000
○	1	R3A	DSX1 LED P3 35K 80CRI LECO EGS	1.000
○	1	R2B	DSX1 LED P3 35K 80CRI TFM EGS	1.000
○	6	R2A	DSX1 LED P5 35K 80CRI TFM EGS	1.000
○	5	ST1	ATRS P60 XXXX R2 3K	1.000
○	6	W2	W0801 LED P2 35K 80CRI VM	1.000
○	27	W1	NS-LED-e66-WFL-12, AR-LED-TR-e66-WFL-12, AR-LED-RM-e66-WFL-12, DS-LED-e66-WFL-12	1.000

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
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groundent_Top_1	Illuminance	Fc	0.17	6.6	0.0	N.A.	N.A.
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Project South	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.
Project West	Illuminance	Fc	0.02	1.7	0.0	N.A.	N.A.
Washington Street	Illuminance	Fc	0.14	2.9	0.0	N.A.	N.A.

**LIGHTING ANALYSIS NOTES:**

1. DRAWING A-901 IS PROVIDED TO DEMONSTRATE THE ENTIRE SITE LIGHTING INCLUDING STREET POLE FIXTURES AND PERIMETER WALL MOUNTED FIXTURES TO DEMONSTRATE LIGHTING OF SITE FOR SAFETY / SECURITY.

2. DRAWING A-902 TURNS OFF THE SITE LIGHTING FIXTURES TO DEMONSTRATE THE LIGHTING IMPACTS WITH ONLY THE ROOF LEVEL FIXTURES TURNED ON MEETS THE CITY OF HARTFORD REQUIREMENTS.

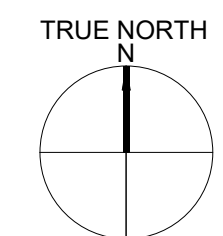
LAZ Parking Realty Investors  
Washington & Lincoln Garage  
Hartford, CT

MARK	DATE	DESCRIPTION
		REVISIONS
		SITE PLAN SUBMISSION

ISSUE DATE: 04/06/2023  
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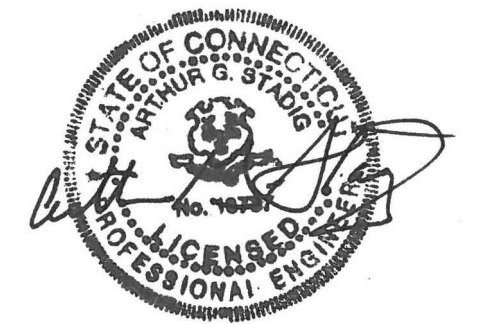
SHEET TITLE:  
**SITE LIGHTING  
PHOTOMETRIC PLAN**



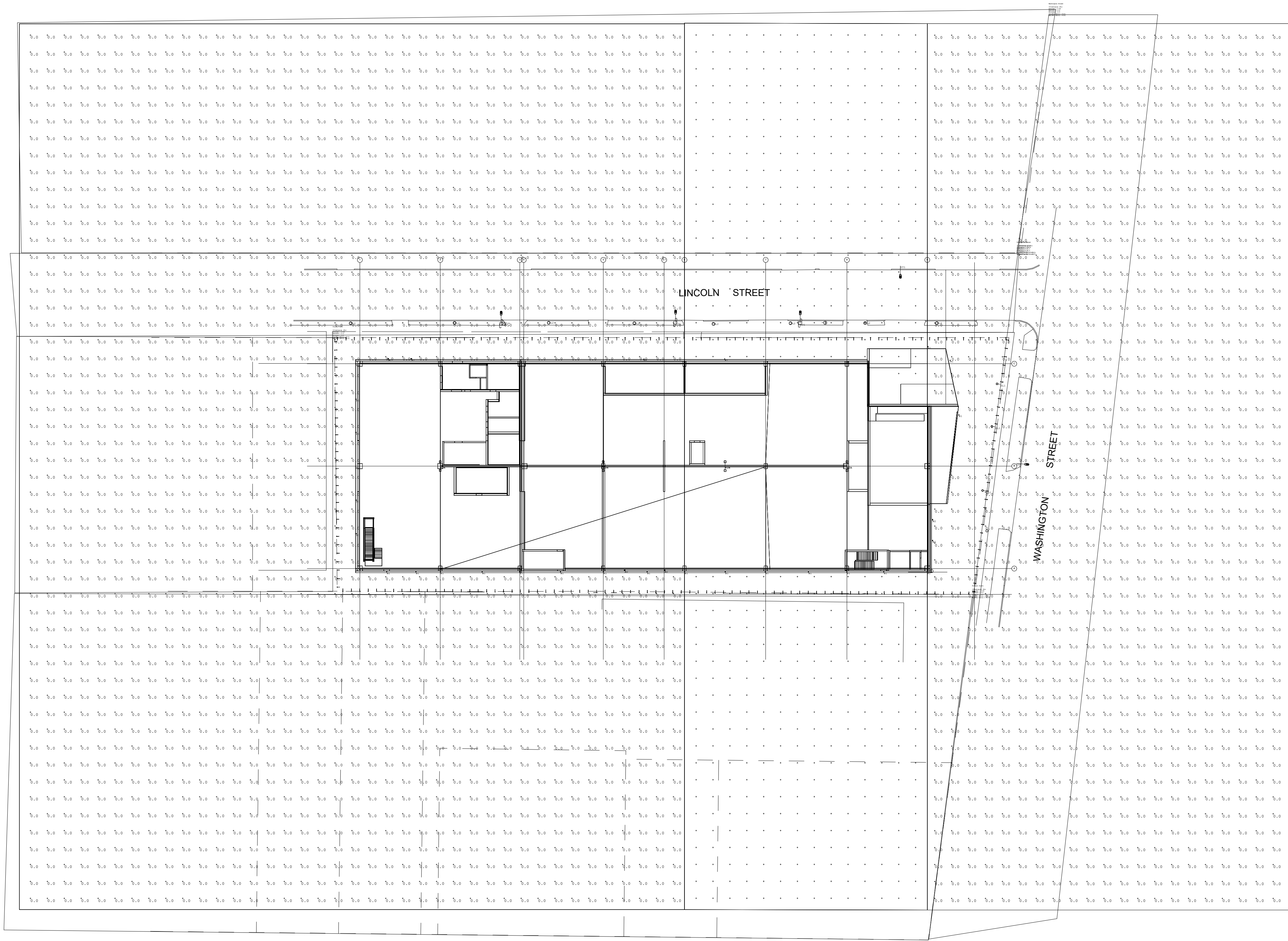
**1 GARAGE SITE LIGHTING ANALYSIS PLAN**  
1/32" = 1'-0"

**A-901**

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Washington & Lincoln Garage  
Hartford, CT



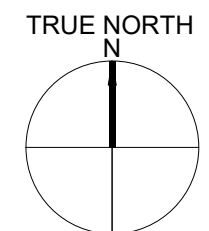
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○	3	SL1	37W LED/3000K-3470-E5-no	1.000
○	1	R3A	DSX1 LED P3 35K 80CRI LGOO BGS	1.000
○	1	R2B	DSX1 LED P3 35K 80CRI TFTM BGS	1.000
○	6	R2A	DSX1 LED P5 35K 80CRI TFTM BGS	1.000
○	5	ST1	ATBS P40 XXXXX R2 3R	1.000
○	6	R2	WQCR1 LED P2 35K 80CRI VW	1.000
○	27	W1	NS-LED-e66-WFL-12, AR-LED-TR-e66-WFL-12, AR-LED-RM-e66-WFL-12, DS-LED-e66-WFL-12	1.000

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
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groundcent_Top_1	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
groundwest_Top_1	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
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ObtrusiveLight_South_T11_Seg2	Obtrusive - I11	Fc	0.02	0.1	0.0	N.A.	N.A.
ObtrusiveLight_South_T11_Seg3	Obtrusive - I11	Fc	0.02	0.1	0.0	N.A.	N.A.
ObtrusiveLight_South_T11_Seg4	Obtrusive - I11	Fc	0.00	0.0	0.0	N.A.	N.A.
Lincoln Street	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
Project North	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
Project South	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
Project West	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
Washington Street	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.

1

**GARAGE ROOF LIGHTING ANALYSIS PLAN**

1/32" = 1'-0"



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REVISIONS		
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ISSUE DATE:	04/06/2023	
PROJECT NO.:	16-003325.00	
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SHEET TITLE:  
**SITE LIGHTING  
PHOTOMETRIC PLAN**

**A-902**

# Traffic Impact Study

## Connecticut Children's Medical Center Expansion Hartford, Connecticut

September 2022

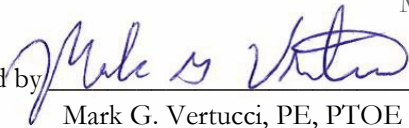
City of Hartford  
Land Use Applications

Office of the State Traffic Administration (OSTA)  
Administrative Decision Review



146 Hartford Road  
Manchester, CT 06040

Approved by



Mark G. Vertucci, PE, PTOE

License No. 23761

*Prepared for:*

Cannon Design of Connecticut, Inc.  
3535 Travis, Suite 260  
Dallas, Texas 75204

# Table of Contents

## Traffic Impact Study Connecticut Children's Medical Center Expansion Hartford, Connecticut

---

<b>Summary Sheet</b> .....	<b>iii</b>
<b>1 Introduction</b> .....	<b>1</b>
<b>2 Existing Condition</b> .....	<b>1</b>
2.1 Site of Development .....	1
2.2 Adjacent Roadway Network.....	2
2.3 Study Area Intersections .....	4
2.4 Traffic Volumes, Speeds and Counts .....	7
<b>3 Background Traffic Conditions</b> .....	<b>8</b>
3.1 Growth Rate .....	8
3.2 Other Developments .....	8
3.3 Planned Roadway Improvement Projects .....	8
<b>4 Proposed Conditions</b> .....	<b>9</b>
4.1 Development .....	9
4.2 Site Access and Circulation .....	9
4.3 Trip Generation .....	10
4.4 Trip Distribution .....	10
4.5 Combined Volumes .....	11
<b>5 Analyses</b> .....	<b>11</b>
5.1 Crash Analysis .....	11
5.2 Intersection Sight Distance Analysis .....	14
5.3 Intersection Capacity Analysis .....	15
5.4 Queue Analysis.....	17
<b>6 Conclusions &amp; Recommendations</b> .....	<b>18</b>



# Table of Contents

(continued)

## Traffic Impact Study Connecticut Children's Medical Center Hartford, Connecticut

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### Appendices

End of Report

#### *Appendix A - Tables*

1. Peak Hour Site Generated Traffic Volumes
2. Intersection Crash Data Summary
3. Unsignalized Intersection Level of Service Summary
4. Signalized Intersection Level of Service Summary
5. Weekday Morning Peak Hour Queue Length Summary
6. Weekday Afternoon Peak Hour Queue Length Summary

#### *Appendix B - Figures*

1. Site Location Figure
2. 2022 Existing Traffic Volumes
3. 2026 Background Traffic Volumes
- 4A. AM Site Generated Traffic Arrival/Departure Distribution
- 4B. PM Site Generated Traffic Arrival/Departure Distribution
5. Site Generated Traffic Volumes
6. 2026 Combined Traffic Volumes

#### *Appendix C*

Intersection Capacity Analysis Worksheets – Weekday Morning Peak Hour

#### *Appendix D*

Intersection Capacity Analysis Worksheets – Weekday Afternoon Peak Hour

#### *Appendix E*

Turning Movement Count (TMC) Data

#### *Appendix F*

Crash Data Records

## Summary Sheet

As an aid to reviewers, this Summary Sheet has been included to outline the various study parameters utilized in this report. Although a full explanation of the study methodologies is included in the text of the report, this summary can serve as a useful reference for reviewers.

**Applicant:**

Connecticut Children's Medical Center

**Site Acreage:**

3.43

**Development Size/Type:**

New 8-story hospital expansion consisting of 191,442 GSF

**Parking:**

950 spaces (proposed in new future parking garage)

**Applications:**

City of Hartford Land Use Applications

Office of the State Traffic Administration (OSTA) Administrative Decision Review Submission

**Build Year:**

2026

**Background Traffic Growth Factor:**

0.7%

**Traffic Counts:**

Fuss & O'Neill – March 2020 and May 2022 (Turning Movement Counts)

**Peak Hours Analyzed:**

Weekday Morning Peak Hour – 7:30 a.m. – 8:30 a.m.

Weekday Afternoon Peak Hour – 4:00 p.m. – 5:00 p.m.

**Expected Trip Generation:**

Weekday Morning Peak Hour – 292 Trips (196 Entering, 96 Exiting)

Weekday Afternoon Peak Hour – 281 Trips (98 Entering, 183 Exiting)

**Capacity Analysis:**

Technique – 2000 Highway Capacity Manual and Highway Capacity Manual 6<sup>th</sup> Edition

Execution – Synchro and SimTraffic Professional Software, Version 10.0

# 1 Introduction

Connecticut Children's Medical Center (CCMC) proposes to construct a new 8-story, 191,442 square foot hospital expansion to their existing 321,132 square foot facility on Washington Street in Hartford. Upon completion, the facility will provide a total of 512,574 square feet of building space. The proposed building expansion will include a dining area/kitchen, a lobby and conference space, fetal care/surgery areas, NICU, PICU, a pharmacy, and approximately 50,000 GSF of shell space. The project also includes approximately 55,000 square feet of renovation space within the existing hospital and a new pedestrian bridge will connect the building addition to a new 950 space parking garage proposed across the street on the west side of Washington Street under a separate project. The development build year is assumed to be 2026.

The development site is located on Washington Street, between Zweiback Street and Retreat Avenue as shown on the site location map, *Figure No. 1 of Appendix B*. Site access on Washington Street will be provided through a new drop off loop proposed at the building entrance with one entrance only drive and one exit only drive (opposite Lincoln Street) proposed on the east side of Washington Street. Future access to the parking garage proposed on the west side of Washington Street will be provided via an entrance drive on Lincoln Street and one exit drive on Washington Street opposite the drop off loop entrance drive. New pedestrian connections between the parking garage and building addition will be provided via a pedestrian overpass and an at grade crosswalk which will include pedestrian push button actuation and flashing beacons. The existing drop off loop on Zweiback Street will be maintained and utilized in the future for emergency department use only.

Fuss & O'Neill has been retained to study the impact of the proposed development expansion on traffic conditions throughout the adjacent roadway network. This report has been prepared to document the findings of the study and is being submitted to the City of Hartford in support of the project's land use applications. This report is also being submitted to the Office of the State Traffic Administration (OSTA) in support of an Administrative Decision Review.

## 2 Existing Condition

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### 2.1 Site of Development

The existing site is identified as 282 Washington Street by the City of Hartford and is located in the Multi-Use Mix District (MX-2). 282 Washington Street consists of approximately 3.43 acres. The existing site contains the 321,132 square foot CCMC facility. The site is bounded by Zweiback Street to the north, the Hartford Hospital Employee Garage to the south, Seymour Street to the east, and Washington Street to the west. Drop off loops for the existing hospital are provided on both Washington Street and Zweiback Street on the west and north side of the facility, respectively. Parking for the existing hospital is shared with the Hartford Hospital visitor and employee garages located directly north and south of the CCMC site, respectively. Additional off-site employee parking is available with shuttle service provided to and from the hospital.

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## 2.2 Adjacent Roadway Network

The adjacent roadway network consists of the following roadways which are all under City jurisdiction:

- Washington Street
- Jefferson Street
- Zwieback Street
- Lincoln Street
- Allen Place
- Vernon Street
- Retreat Avenue
- Seymour Street
- Maple Avenue
- Congress Street
- Main Street
- Wyllys Street
- Wethersfield Avenue

Washington Street runs primarily north/south and extends approximately one mile from its intersection with New Britain Avenue, Barnard Street, and Webster Street to its terminus at the intersection with Capitol Avenue. The roadway provides access to primarily commercial and medical land uses. In the vicinity of the site, Washington Street is classified by the Connecticut Department of Transportation (CTDOT) as an urban minor arterial that provides four 10-foot travel lanes, two in each direction, with off-peak hour restricted on-street parking available in place of the right travel lane in both directions. The roadway widens in the northbound and southbound direction as the roadway approaches Zwieback Street to provide an additional turn lane in each direction. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Washington Street.

Jefferson Street runs primarily east/west and extends approximately 3,500 feet from its intersection with Affleck Street to its terminus at the intersection with Maple Avenue, Main Street, Wyllys Street, and Congress Street. The roadway provides access to primarily medical and residential land uses. In the vicinity of the site east of Washington Street, Jefferson Street is classified by the CTDOT as an urban collector that provides three to four nine-foot travel lanes with on-street parking available on either the north or south side of the roadway. West of Washington Street, Jefferson Street reduces to one lane in each direction with parking provided on the north side of the road. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Jefferson Street.

Zwieback Street runs primarily east/west and extends approximately 500 feet from its intersection with Washington Street to its terminus at the intersection with Seymour Street. The roadway provides access to medical land uses including the Hartford Hospital Public Parking Garage and existing CCMC drop off/valet loop. Zwieback Street does not currently have a CTDOT classification. Zwieback Street provides primarily two 12-foot travel lanes, one in each direction. The speed limit is not posted. Sidewalks are provided on both sides of Zwieback Street.

Lincoln Street runs primarily east/west and extends approximately 1,700 feet from Washington Street to its terminus at the intersection with Affleck Street. The roadway is one-way westbound and provides access to mainly residential land uses. Lincoln Street is classified by the CTDOOT as an urban local road and carries one lane of travel in the westbound direction and on street parking on both sides of the roadway. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Lincoln Street.

Allen Place runs primarily east/west and extends approximately 2,700 feet from its intersection with Summit Street to its terminus at the intersection with Washington Street. The roadway provides access to mostly residential land uses and the Zion Hill Cemetery. Allen Place is classified by the CTDOOT as an urban local road that provides two travel lanes, one in each direction, and on-street parking on one side of the roadway. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Allen Place.

Vernon Street runs primarily east/west and extends approximately 1,000 feet from its intersection with Washington Street to its intersection with Broad Street. Vernon Street continues to the west of Broad Street for another approximately 1,500 feet to its terminus at Summit Street but is disconnected by a cul de sac west of Broad Street for traffic calming purposes. The roadway provides access to primarily residential land uses, the Trinity College Campus, and the Greater Hartford Academy of the Arts. In the vicinity of the site, Vernon Street is classified by the CTDOOT as an urban collector that provides two 11-foot travel lanes, one in each direction. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Vernon Street and on street parking is provided on the north side.

Retreat Avenue runs primarily northeast/southwest and extends approximately 2,000 feet from its intersection with Washington Street and Vernon Street to its terminus at the intersection with Maple Avenue. The roadway provides access to primarily medical land uses. In the vicinity of the site, Retreat Avenue is classified by the CTDOOT as an urban minor arterial that provides one 12-foot travel lane and eight foot wide on-street parking lanes in each direction. A center median, transitioning to left turn lanes at key intersections, is also provided. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Retreat Avenue.

Seymour Street runs primarily north/south and extends approximately 1,300 feet from its intersection with Park Street to its intersection at Zwieback Street adjacent to Hartford Hospital and the CCMC. The southern portion of Seymour Street originates on Retreat Avenue and continues approximately 600 feet north to a cul de sac that prohibits through vehicle movement north to Zwieback and Jefferson Streets. The roadway provides access to primarily medical land uses. In the vicinity of the site, just north of Zwieback Street, Seymour Street is classified by the CTDOOT as an urban local road that provides three 12-foot travel lanes, two in the northbound direction and one in the southbound direction. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Seymour Street however parking is prohibited.

Maple Avenue runs primarily northeast/southwest and extends approximately 2.25 miles from the Wethersfield Townline to its terminus at the intersection with Jefferson Street, Main Street, Wyllys Street, and Congress Street. The roadway provides access to primarily commercial land uses, residential land uses, schools, and the Goodwin Park Golf Course. In the vicinity of the site, Maple Avenue is

classified by the CTDOT as an urban minor arterial that provides two 12-foot travel lanes, one in each direction, and on street parking in both directions along the majority of its length. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Maple Avenue.

Congress Street runs primarily north/south and extends approximately 950 feet from its intersection with Maple Avenue, Jefferson Street, Main Street, and Wyllys Street to its terminus at the intersection with Morris Street. The roadway provides access to primarily residential land uses. In the vicinity of the site, Congress Street is classified by the CTDOT as an urban local road and is a one-way street that carries one lane of travel in the southbound direction. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Congress Street and parking is provided on one side of the roadway.

Main Street runs primarily north/south and extends approximately 3.3 miles from its intersection with Wyllys Street, Congress Street, Maple Avenue, and Jefferson Street to its terminus at the Windsor Townline. The roadway provides access to primarily commercial land uses, residential land uses, the Hartford City Hall, Dunkin' Donuts Park, cemeteries, and parks. In the vicinity of the site, Main Street is classified by the CTDOT as an urban principal arterial and primarily provides four nine to 11-foot travel lanes, two in each direction, along with on-street parking. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Main Street.

Wyllys Street runs primarily east/west and extends approximately 2,200 feet from its intersection with Main Street, Jefferson Street, Maple Avenue, and Congress Street to its terminus at the intersection with Charter Oak Avenue and Columbus Boulevard. The roadway provides access to primarily residential land uses and office space. In the vicinity of the site, Wyllys Street is classified by the CTDOT as an urban minor arterial and provides four 12-foot travel lanes, two in each direction. East of Lisbon Street, the roadway transitions to one travel lane, a parking lane, and a bike lane in each direction. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Wyllys Street.

Wethersfield Avenue runs primarily north/south and extends approximately 2 miles from the Wethersfield Townline to its intersection with Wyllys Street and Main Street. The roadway provides access to primarily commercial space. In the vicinity of the site, Wethersfield Avenue is classified by the CTDOT as an urban principal arterial and provides two 10-foot travel lanes, one in each direction, on-street parking in the southbound direction, a center two-way left turn lane, dedicated turning lanes at key intersections, and two bike lanes, one in each direction. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Wethersfield Avenue.

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## 2.3 Study Area Intersections

The following study area intersections were reviewed:

- Washington Street at Jefferson Street
- Washington Street at Zwieback Street
- Washington Street at Lincoln Street
- Washington Street at Allen Place and Hospital Garage Drive
- Washington Street at Vernon Street and Retreat Avenue
- Seymour Street at Jefferson Street

- Seymour Street at Retreat Avenue
- Maple Avenue at Retreat Avenue
- Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street
- Main Street at Wyllys Street and Wethersfield Avenue

Washington Street at Jefferson Street is a four-way signalized intersection. The intersection is part of a coordinated signal system along Washington Street. The intersection provides northbound and southbound approaches on Washington Street and eastbound and westbound approaches on Jefferson Street. Washington Street provides a combined through/left turn lane and a combined through/right turn lane in the northbound and southbound approaches. Jefferson Street provides a combined through/left/right turn lane in the eastbound approach and provides a combined through/left and a combined through/right turn lane in the westbound approach. Sidewalks are provided along both sides of each roadway and crosswalks are provided across each approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

Washington Street at Zwieback Street is a four-way signalized intersection. The intersection is part of a coordinated signal system along Washington Street. The intersection provides northbound and southbound approaches on Washington Street, an eastbound approach on the Dunkin' Donuts Driveway, and a westbound approach on Zwieback Street. Washington Street provides a dedicated left turn lane, a through lane, and a combined through/right turn lane in the northbound and southbound approaches. The Dunkin' Donuts Driveway provides a combined through/left/right turn lane in the eastbound approach. Zwieback Street provides a dedicated left turn lane and a dedicated right turn lane in the westbound approach. One crosswalk is provided across the southbound approach, allowing pedestrians to cross Washington Street. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Sidewalks and pedestrian ramps are provided on all four corners of the intersection. Bicycle facilities are not provided at this intersection.

Washington Street at Lincoln Street is an unsignalized t-intersection. The intersection provides northbound and southbound approaches on Washington Street and a one-way westbound lane on Lincoln Street leaving the intersection. In the vicinity of the study intersection, Washington Street is free flowing and carries two lanes of travel, one in each direction, with both approaches providing off-peak hour restricted on-street parking in the right travel lanes. One crosswalk is provided across the west leg, allowing pedestrians to cross Lincoln Street. Sidewalks are provided on both sides of the road on each leg of the intersection. Bicycle facilities are not provided at this unsignalized intersection.

Washington Street at Allen Place is a four-way signalized intersection. The intersection is part of a coordinated signal system along Washington Street. The intersection provides northbound and southbound approaches on Washington Street, an eastbound approach on Allen Place, and a westbound approach on the Hartford Hospital Employee Garage Driveway. Washington Street provides one combined through/left turn lane and one combined through/right turn lane in the northbound and southbound approaches with both approaches providing off-peak hour restricted on-street parking in the right travel lanes. Allen Place provides one combined through/left/right turn lane in the eastbound approach. The Hartford Hospital Employee Garage Driveway provides one dedicated left turn lane and one combined through/right turn lane in the westbound approach. A crosswalk is provided on the northern and western legs of the intersection, allowing pedestrians to cross Washington Street and Allen

Place. Sidewalks are provided on both sides of the road on each leg of the intersection. Push buttons for side street green are available on the northern corners of the intersection to allow pedestrians to cross Washington Street. Bicycle facilities are not provided at this intersection.

Washington Street at Vernon Street and Retreat Avenue is a signalized clustered intersection. The intersection is part of a coordinated signal system along Washington Street. The northern intersection provides northbound and southbound approaches on Washington Street, an eastbound approach on Vernon Street, and a westbound approach on Retreat Avenue. At the northern intersection, Washington Street provides a combined through/left turn lane and a through lane in the northbound approach. Washington Street also provides a combined through/left turn lane and a combined through/right turn lane in the southbound approach. Vernon Street provides a dedicated left turn lane and a combined through/right turn lane in the eastbound approach. Retreat Avenue provides a dedicated left turn lane, a combined through/left turn lane, and a dedicated right turn lane in the westbound approach. The southern intersection provides northbound and southbound approaches on Washington Street. At the southern intersection, Washington Street provides a through lane and a combined through/right turn lane in the northbound approach and provides two through lanes in the southbound approach. The eastern leg of the southern intersection is a one-way channelized slip lane to eastbound Retreat Avenue. Sidewalks are provided along both sides of each roadway and crosswalks are provided across each approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

Seymour Street at Jefferson Street is a four-way signalized intersection. The intersection provides a northbound approach on Seymour Street and eastbound and westbound approaches on Jefferson Street. North of the intersection, Seymour Street becomes a one-way road travelling northbound, away from the intersection. Seymour Street provides a combined through/left turn lane and one dedicated right turn lane in the northbound approach. Jefferson Street provides one combined through/left/right turn lane in the eastbound approach. Jefferson Street provides one dedicated left turn lane and one combined through/right turn lane in the westbound approach. Crosswalks are provided on the northbound, eastbound, and westbound approaches, allowing pedestrians to cross Seymour Street and Jefferson Street. Sidewalks and pedestrian ramps are provided on all four corners of the intersection. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

Seymour Street at Retreat Avenue is a four-way signalized intersection. The intersection provides a northbound approach on the Institute of Living Hartford Hospital (IOL) driveway, a southbound approach on Seymour Street, and eastbound and westbound approaches on Retreat Avenue. The IOL drive provides a combined through/left/right turn lane in the northbound approach. Seymour Street provides one combined through/left/right turn lane in the southbound approach. Retreat Avenue provides one dedicated left turn lane and one combined through/right turn lane in the eastbound and westbound approaches. Sidewalks are provided along both sides of each roadway and crosswalks are provided across each approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

Maple Avenue at Retreat Avenue is a signalized t-intersection. The intersection is part of a coordinated signal system along Maple Avenue/Main Street and Wyllys Street. The intersection provides northbound and southbound approaches on Maple Avenue and an eastbound approach on Retreat Avenue. Maple



Avenue provides a through lane and a combined through/left turn lane in the northbound approach. Maple Avenue provides a dedicated right turn lane and a through lane in the southbound approach. Retreat Avenue provides a dedicated left turn lane and a combined right/left turn lane in the eastbound approach. Sidewalks are provided along both sides of each roadway and crosswalks are provided across each approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street is a five-legged intersection. The intersection is part of a coordinated signal system along Maple Avenue/Main Street and Wyllys Street. The intersection provides a northbound approach on Maple Avenue, a southbound approach on Main Street, a southeastern leg on Congress Street, an eastbound approach on Jefferson Street, and a westbound approach on Wyllys Street. Maple Avenue provides a combined through/left turn lane, a through lane, and a right turn lane in the northbound approach. Main Street provides a combined through/left turn lane and a combined through/right turn lane in the southbound approach. Congress Street is a one-way road travelling in the southeast direction, away from the intersection. Jefferson Street and Wyllys Street each provide one combined through/left turn lane and one combined through/right turn lane in the eastbound and westbound approaches. Sidewalks are provided along both sides of each roadway and crosswalks are provided across each approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bicycle facilities are not provided at this intersection.

Main Street at Wyllys Street and Wethersfield Avenue is a four-way signalized intersection. This intersection is part of a coordinated signal system along Maple Avenue/Main Street and Wyllys Street. The intersection provides a northbound approach on Wethersfield Avenue, a southbound approach on Main Street, and eastbound and westbound approaches on Wyllys Street. Wethersfield Avenue provides a dedicated left turn lane and on combined through/right turn lane in the northbound approach. Main Street provides a dedicated left turn lane and a combined through/right turn lane in the southbound approach. Wyllys Street provides a combined through/left turn lane and one combined through/right turn lane in the eastbound and westbound approaches. Sidewalks are provided along both sides of each roadway and crosswalks are provided across each approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Bike lanes are provided on Wethersfield Avenue in both directions, south of the intersection, and bike sharrows are provided on Wyllys Street, east of the intersection.

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## 2.4 Traffic Volumes, Speeds and Counts

The greatest potential for traffic impact on the roadway network by the proposed development will occur during the weekday morning and afternoon peak hours, the periods when commuter and hospital related trips are at their highest levels. In order to determine the traffic impact of the proposed development on adjacent street traffic, representatives of Fuss & O'Neill, Inc. obtained weekday morning and afternoon peak hour manual turning movement counts on March 11, 2020 (prior to the COVID-19 pandemic) at the following intersections:

- Maple Avenue at Retreat Avenue
- Maple Avenue at Jefferson Street/Main Street/Wyllys Street/Congress Street
- Washington Street at Vernon Street and Retreat Avenue

New turning movement counts were conducted on May 12, 2022 at the remaining study area intersections:

- Washington Street at Jefferson Street
- Washington Street at Zwieback Street
- Washington Street at Lincoln Street
- Washington Street at Allen Place and Hospital Garage Drive
- Washington Street at Vernon Street and Retreat Avenue
- Seymour Street at Jefferson Street
- Seymour Street at Retreat Avenue

The traffic count data collected indicates that the weekday morning peak hour of traffic is 7:30 a.m. to 8:30 a.m. and the afternoon peak hour is 4:00 p.m. to 5:00 p.m. These peak hours were subsequently analyzed for impacts. The existing traffic volumes for these peak hours are shown in *Figure No. 2 of Appendix B*. Copies of the TMC traffic data have been included in *Appendix E* of this report.

## 3 Background Traffic Conditions

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### 3.1 Growth Rate

Upon consultation with the CTDOT the 2022 existing traffic volumes were projected to the 2026 design year using a 0.7 percent per year peak hour growth factor to account for normal traffic growth in the study area. These projected grown 2026 traffic volumes were utilized as the background traffic volumes which are defined as design year traffic without the proposed development expansion. These projected background traffic volumes are shown in *Figure No. 3 of Appendix B*.

### 3.2 Other Developments

Fuss & O'Neill contacted the Office of the State Traffic Administration (OSTA) and the City of Hartford Planning Department to identify any other pending or approved developments having site related traffic in the study area. Neither OSTA nor the City of Hartford identified any other development plans that would affect background traffic volumes in the vicinity of the study area.

### 3.3 Planned Roadway Improvement Projects

Fuss & O'Neill contacted the Connecticut Department of Transportation and the City of Hartford Engineering and Public Works offices to identify any roadway improvements scheduled within the study area. Two such improvements were identified by the CTDOT.

The Connecticut Department of Transportation stated that Project #0063-0718 is currently in the contract processing phase to upgrade traffic control signals at various locations in Hartford in order to

provide signal coordination along several roadway corridors. This traffic equipment upgrade includes controllers and video detection to improve traffic management.

The Connecticut Department of Transportation also stated that Project #0063-0717 is currently in the contract processing phase to upgrade traffic control central and field communications equipment to migrate from analog to IP over copper network. The purpose of this upgrade is to support ATMS communications to traffic signal controllers and other traffic management devices at over 200 locations in Hartford, including the ten study area intersections.

Upon completion, both projects will improve the safety and efficiency of vehicular and pedestrian traffic in the City of Hartford and throughout the project study area.

## 4 Proposed Conditions

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### 4.1 Development

The development site is located on Washington Street, between Zweiback Street and Retreat Avenue as shown on the site location map, *Figure No. 1 of Appendix B*. CCMC proposes to construct a new 8-story, 191,442 square foot hospital expansion to their existing 321,132 square foot facility on Washington Street in Hartford. Upon completion, the facility will provide a total of 512,574 square feet of building space. The proposed building will include a dining area/kitchen, a lobby and conference space, fetal care/surgery areas, NICU, PICU, a pharmacy, and approximately 50,000 GSF will be shell space. The project also includes approximately 55,000 square feet of renovation space within the existing hospital. A new pedestrian bridge will connect the building addition to a new 950 space parking garage proposed across the street on the west side of Washington Street under a separate project. The development build year is assumed to be 2026.

### 4.2 Site Access and Circulation

Site access on Washington Street will be provided through a new drop off loop proposed at the building entrance with one entrance only drive and one exit only drive (opposite Lincoln Street) proposed on the east side of Washington Street. The existing drop off loop, which provides a connection to Zweiback Street, will be discontinued in lieu of the proposed building expansion. Future access to a proposed parking garage across Washington Street on the 289 Washington Street parcel will be provided via an entrance only driveway on Lincoln Street and an exit only driveway on Washington Street opposite the proposed entrance to the drop off loop. The garage will be connected to the medical center via a pedestrian walk bridge extending over Washington Street to allow for pedestrians to access the medical center. An at grade pedestrian crosswalk with push button actuation and a rectangular rapid-flashing beacon are also proposed on Washington Street, directly under the pedestrian walk bridge, to allow commuters from the first floor of the parking garage to cross the roadway directly and access the medical center.

The new drop off loop on Washington Street will include valet service and be used primarily for routine medical visits. The exit drive from the drop off loop will be located opposite Lincoln Street and provide

one combined through/left turn lane and one dedicated right turn lane. From the drop off loop exit, visitors and valet drivers are able to cross directly onto Lincoln Street to access the parking garage entrance. Similarly, the exit drive to the parking garage will align with the entrance to the drop off loop allowing easy return access for patient pick-ups.

A second drop-off area is currently located on the south side of Zweiback Street and will continue to be maintained by CCMC with vehicle drop off/pick up spaces and valet service provided. This second drop off loop will be used primarily for emergency department services in the proposed condition.

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### 4.3 Trip Generation

The expected site generated traffic volumes were calculated using existing empirical data from the Institute of Transportation Engineers (ITE) publication Trip Generation, 11th edition, 2021. This publication is an industry-accepted resource for determining trip generation.

Trip generation for the weekday morning and afternoon peak hour was calculated using the ITE land use code 610 "Hospital." Trip generation for the hospital expansion was conservatively calculated for a 193,000 square foot facility, slightly larger than what is proposed. For a 193,000 square foot hospital expansion, a total of 292 vehicle trips (196 entering, 96 exiting) is anticipated during the morning peak hour and during the afternoon peak hour, a total of 281 vehicle trips (98 entering, 183 exiting) is anticipated. A summary of the peak hour trip generation information for the proposed facility expansion is provided in *Table 1 of Appendix A*.

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### 4.4 Trip Distribution

The distribution of traffic entering and exiting the proposed site was applied to the road network based on the existing regional traffic distributions and the layout of the adjacent roadway network. During the peak hours, the following arrival distributions of traffic are anticipated:

- 30% from the north on Washington Street
- 20% from the north on Main Street
- 30% from the south on Washington Street
- 10% from the south on Maple Avenue
- 10% from the east on Wyllys Street

It should be noted that a different distribution of traffic entering and exiting the proposed site was used in the immediate vicinity of the site driveways for the morning and afternoon peak hours. Field observations revealed approximately 20% of the site generated traffic entered the existing drop-off loop on Zweiback Street during the morning peak hour and approximately 60% of the site generated traffic entered the drop-off loop during the afternoon peak hour. These percentages were assumed to be the same for the proposed main drop-off loop on Washington Street.

A regional arrival/departure distribution for the new site generated traffic traveling to and from the project site is shown in *Figures No. 4A and No. 4B of Appendix B*.

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## 4.5 Combined Volumes

The site generated traffic was distributed to the roadway system based on the arrival/departure distributions with the results shown in *Figure No. 5* of *Appendix B*. These volumes were then added to the background volumes to yield the year 2026 peak hour Combined traffic volumes shown in *Figure No. 6* of *Appendix B*.

# 5 Analyses

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## 5.1 Crash Analysis

Crash data was gathered from CTDOT via the University of Connecticut Crash Repository for the following intersections:

- Washington Street at Jefferson Street
- Washington Street at Zwieback Street
- Washington Street at Lincoln Street
- Washington Street at Allen Place
- Washington Street at Vernon Street and Retreat Avenue
- Seymour Street at Jefferson Street
- Seymour Street at Retreat Avenue
- Maple Avenue at Retreat Avenue
- Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street
- Main Street at Wyllys Street and Wethersfield Avenue

The records were gathered for the most recent three years of available data, 2019 through 2021. A summary of the crash data per intersection is provided in *Table 2* of *Appendix A*. Copies of the crash data records have been provided in *Appendix F*.

The intersection of Washington Street at Jefferson Street experienced 47 crashes during the three-year study period, averaging approximately 16 crashes per year. The majority of these crashes (24) were angle crashes. Additionally, the intersection experienced nine front to rear collisions, six same direction sideswipes, two front to front collisions, two fixed object crashes, two pedestrian crashes, and two opposite direction sideswipes. Of the total crashes reported, 18 resulted in minor injuries while the remainder were property damage only collisions.

One of the pedestrian crashes at the intersection of Washington Street and Jefferson Street occurred on September 23, 2019. The motor vehicle was travelling westbound when the pedestrian was struck at the crosswalk, located on the eastern leg of Jefferson Street. This crash resulted in a possible injury. The other pedestrian crash at this intersection occurred on February 26, 2020. The motor vehicle was travelling southbound on Washington Street, south of Jefferson Street, when the pedestrian was struck attempting to cross from the east to the west side of Washington Street. This crash resulted in a suspected minor injury.

The intersection of Washington Street at Zwieback Street experienced 22 crashes during the three-year study period, averaging approximately seven crashes per year. The majority of these crashes (7) were angle crashes. Additionally, the intersection experienced five same direction sideswipes, three front to rear collisions, three opposite direction sideswipes, two pedestrian crashes, one front to front collision, and one fixed object crash. Of the total crashes reported, seven resulted in injuries while the remainder were property damage only collisions.

One of the pedestrian crashes in the vicinity of the intersection of Washington Street and Zwieback Street occurred on July 24, 2019. The motor vehicle was turning left from Madison Street onto Washington Street when the pedestrian was attempting to cross from the east to the west side of Washington Street. This crash resulted in possible injury. Another pedestrian crash in the vicinity of this intersection occurred on December 21, 2019. The motor vehicle was travelling northbound on the southern leg of the intersection when the pedestrian was struck attempting to cross Washington Street from the southeastern corner to the southwestern corner of the intersection. This crash resulted in a suspected serious injury.

The intersection of Washington Street at Lincoln Street experienced 12 crashes during the three-year study period, averaging four crashes per year. The majority of these crashes (5) were front to rear collisions. Additionally, the intersection experienced three angle crashes, two unidentified crashes, and two same direction sideswipes. Of the total crashes reported, three resulted in injuries while the remainder were property damage only collisions.

The intersection of Washington Street at Allen Place experienced 16 crashes during the three-year study period, averaging approximately five crashes per year. The majority of these crashes (5) were front to rear and (5) same direction sideswipes. Additionally, the intersection experienced three angle crashes, one front to front collision, one non-fixed object crash, and one opposite direction sideswipe. Of the total crashes reported, six resulted in minor injuries while the remainder were property damage only collisions.

The intersection of Washington Street at Vernon Street and Retreat Avenue experienced 31 crashes during the three-year study period, averaging approximately 10 crashes per year. The majority of these crashes (10) were angle crashes. Additionally, the intersection experienced seven front to rear collisions, seven same direction sideswipes, three unidentified crashes, two front to front collisions, one fixed object crash, and one crash involving a bicyclist. Of the total crashes reported, one resulted in a fatality and 12 resulted in minor injuries, while the remainder were property damage only collisions.

The crash that involved a bicyclist at the intersection of Washington Street at Vernon Street and Retreat Avenue occurred on September 20, 2019. The motor vehicle was travelling westbound on Retreat Avenue when the bicyclist was struck at the crosswalk, located on the eastern leg of the intersection. This crash resulted in a suspected minor injury. The fatal crash was an angle collision that occurred on May 17, 2020. Two motor vehicles were entering the intersection, travelling northbound and westbound, when the vehicle travelling northbound violated traffic control, ran a red light, and collided into the side of the vehicle travelling westbound.

The intersection of Seymour Street at Jefferson Street experienced 33 crashes during the three-year study period, averaging 11 crashes per year. The majority of these crashes were (12) same direction sideswipes. Additionally, the intersection experienced nine front to rear collisions, seven angle crashes, three front to front collisions, one fixed object crash, and one unidentified crash. Of the total crashes reported, seven resulted in minor injuries while the remainder were property damage only collisions.

The intersection of Seymour Street at Retreat Avenue experienced 11 crashes during the three-year study period, averaging approximately four crashes per year. The majority of these crashes were (4) angle crashes. Additionally, the intersection experienced two front to front collisions, two fixed object crashes, one front to rear collision, one pedestrian crash, and one same direction sideswipe. Of the total crashes reported, three resulted in minor injuries while the remainder were property damage only collisions.

The intersection of Maple Avenue at Retreat Avenue experienced 29 crashes during the three-year study period, averaging approximately 10 crashes per year. The majority of these crashes were (13) front to rear collisions. Additionally, the intersection experienced eight same direction sideswipes, five angle crashes, one fixed object crash, one non-motorized scooter crash, and one opposite direction sideswipe. Of the total crashes reported, one resulted in a fatality and three resulted in minor injuries, while the remainder were property damage only collisions.

The fatal non-motorized scooter crash at the intersection of Maple Avenue and Retreat Avenue occurred on September 5, 2021. The motor vehicle was travelling southbound past the intersection when the non-motorized scooter was struck while traveling against oncoming traffic.

The intersection of Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street experienced 31 crashes during the three-year study period, averaging approximately 10 crashes per year. The majority of these crashes were (10) front to rear collisions. Additionally, the intersection experienced nine same direction sideswipes, seven angle crashes, one fixed object crash, one pedestrian crash, one crash involving a bicyclist, one unidentified crash, and one opposite direction sideswipe. Of the total crashes reported, 10 resulted in minor injuries while the remainder were property damage only collisions.

The pedestrian crash at the intersection of Main Street and Jefferson Street/Wyllys Street/Maple Avenue/Congress Street occurred on February 19, 2020. The motor vehicle was travelling northbound attempting to turn left from Main Street onto Jefferson Street when the pedestrian was struck. This crash resulted in a possible injury. The crash involving a bicyclist at this intersection occurred on October 24, 2020. The motor vehicle was travelling northbound, attempting to make a right turn from Main Street onto Wyllys Street when the bicyclist was struck attempting to cross from the west to east side of Main Street. This crash resulted in a possible injury.

The intersection of Main Street at Wyllys Street and Wethersfield Avenue experienced 63 crashes during the three-year study period, averaging 21 crashes per year. The majority of these crashes were (16) front to rear collisions. Additionally, the intersection experienced 15 same direction sideswipes, 11 angle crashes, six unidentified crashes, four pedestrian crashes, three front to front collisions, three opposite direction sideswipes, two fixed object crashes, two non-fixed object crashes, and one rear to side crash.

Of the total crashes reported, 19 resulted in minor injuries while the remainder were property damage only collisions.

One of the pedestrian crashes at the intersection of Main Street, Wyllys Street, and Wethersfield Avenue occurred on March 25, 2019. The motor vehicle was backing onto the sidewalk on the southeastern corner of the intersection when the pedestrian was struck. This crash resulted in a possible injury. The second pedestrian crash at this intersection occurred on October 10, 2019. The motor vehicle was travelling northbound in the dedicated left turn lane at the intersection when two pedestrians were struck. This crash resulted in possible injuries. Two pedestrian crashes occurred at the crosswalk on the western leg of the intersection on September 5, 2020, and December 27, 2020. In both scenarios, the motor vehicles travelling northbound was attempting to make a left turn from Wethersfield Avenue onto Wyllys Street when the pedestrian was struck on the crosswalk. Both crashes resulted in minor injuries.

The proposed hospital expansion traffic is not expected to exacerbate existing crash patterns or negatively impact overall traffic safety within the study area. As previously noted, a new actuated pedestrian crosswalk with flashing beacons and a pedestrian overpass are proposed to connect the new hospital parking garage with the CCMC building. This will significantly improve pedestrian safety in the vicinity of the site for both hospital users and the general public. In addition, the substantial traffic control system improvements proposed by two State projects underway will improve the safety and efficiency of traffic operations at all signalized intersections within the study area.

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## 5.2 Intersection Sight Distance Analysis

Intersection sight distances were calculated at the proposed drop off loop exit on Washington Street in accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*. Intersection sight distance is measured from a point 15 feet back from the edge of travel-way at a height of 3.5 feet, the standard height of a driver's eye.

Washington Street has a posted speed limit of 30 per hour in both directions in the vicinity of the proposed expansion. A design speed of 35 miles per hour, 5 miles per hour above the posted speed limit, was utilized for analysis.

In accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*, 415 feet of intersection sight distance is required for a passenger car turning left onto a four-lane facility and 390 feet of intersection sight distance is required for a passenger car turning right from the proposed exit only site driveway onto Washington Street.

At the proposed exit only site driveway, the sight distance looking right (north) and left (south) is currently obstructed by parked CTtransit busses as well as restricted on-street parking along the site frontage. It is recommended that the on-street bus stop to the north of the proposed drop off loop exit be relocated into a bus pull off area to eliminate sight line obstructions from parked buses. In addition, it is recommended that the off peak hour restricted on-street parking along the site frontage (between the proposed drop off loop entry and exit lanes) be eliminated. Upon the relocation of the bus stop and the removal of the restricted on-street parking, over 1,000 feet of intersection sight distance will be provided



looking in both directions, left (south) and right (north). Therefore, sufficient sight distance exists to allow for safe egress of passenger cars attempting to turn left, right or proceed straight across Washington Street onto Lincoln Street.

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### 5.3 Intersection Capacity Analysis

Capacity analyses for both signalized and unsignalized intersections were conducted using Synchro Professional Software, version 10.0.

In discussing intersection capacity analyses results, two terms are used to describe the operating condition of the road or intersection. These two terms are volume to capacity ratio ( $v/c$ ) and level of service (LOS).

The  $v/c$  ratio is a ratio of the volume of traffic using an intersection to the total capacity of the intersection (the maximum number of vehicles that can utilize the intersection during an hour). The  $v/c$  ratio can be used to describe the percentage of capacity utilized by a single intersection movement, a combination of movements, an entire intersection approach, or the intersection as a whole.

LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections and 80 seconds per vehicle for signalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

LOS is generally used to describe the operation (based on delay time) of both signalized and unsignalized intersections, while  $v/c$  ratio is applied to signalized intersections only. These definitions for  $v/c$  ratio and LOS, as well as the methodology for conducting signalized and unsignalized intersection capacity analyses, are taken from the “2000 Highway Capacity Manual” and the “Highway Capacity Manual 6<sup>th</sup> Edition” published by the Transportation Research Board.

In discussing two way stop controlled unsignalized intersection capacity analyses, LOS is used to provide a description of the delay and operational characteristics of the turns from the minor street (stop sign controlled) to the major street, and turns from the major street to the minor street. Through vehicles are not delayed by the minor street and do not experience delay, therefore they are not rated with a level of service.

In discussed all-way stop controlled intersection capacity analysis, LOS provides a description of the delay for each approach as well as the overall intersection.

Using the above referenced methodologies, weekday morning and afternoon peak hour capacity analyses were conducted at the following signalized intersections:

- Washington Street at Jefferson Street
- Washington Street at Zwieback Street

- Washington Street at Allen Place and Hospital Garage Drive
- Washington Street at Vernon Street and Retreat Avenue
- Seymour Street at Jefferson Street
- Seymour Street at Retreat Avenue
- Maple Avenue at Retreat Avenue
- Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street
- Main Street at Wyllys Street and Wethersfield Avenue

Weekday morning and afternoon peak hour capacity analyses were also conducted at the following unsignalized intersections:

- Washington Street at Lincoln Street and the Proposed Drop Off Loop Exit Only Drive #2
- Washington Street at the proposed CCMC Parking Garage Exit Only Drive and the Drop Off Loop Enter Only Drive #1

*Tables No. 3 and 4 of Appendix A* present a summary of the levels of service at the unsignalized and signalized intersections, for both Background and Combined Conditions traffic volumes. Copies of the analysis worksheets can be found in *Appendices C and D*, for the weekday morning and afternoon peak hours respectively.

The determination of the traffic impact from the proposed development is made through a comparison of the Background Conditions LOS (without the proposed hospital expansion) versus the Combined Conditions LOS (with the proposed hospital expansion).

The capacity analysis at Washington Street and Jefferson Street revealed that the signalized intersection operates acceptably at an overall LOS C in the background and combined conditions during both the weekday morning and afternoon peak hours.

The capacity analysis at Washington Street and Zwieback Street revealed that the signalized intersection operates efficiently at LOS A in the background and combined conditions during the weekday morning peak hour and operates efficiently at LOS B in the background and combined conditions during the afternoon peak hour.

The capacity analysis at the unsignalized intersection of Washington Street and Lincoln Street and the proposed drop off loop exit only site drive #2 revealed that the northbound left turn movement onto Lincoln Street will continue to operate efficiently at LOS A and the westbound through/left turn movement from the proposed drop off loop exit will operate with some delay at LOS E in the background and combined conditions during both the weekday morning and afternoon peak hours. It should be noted that delays exiting the westbound approach from the drop off loop will occur primarily during the peak hours and any delayed vehicles will be queued at the end of the drop off loop and not impact traffic operations on Washington Street. Regular gaps in traffic on Washington Street are provided when the nearby traffic signals at Zwieback Street and Retreat Avenue change phase. These frequent gaps enable vehicles to safely exit from the drop off loop onto either Washington Street or Lincoln Street.

The capacity analysis at the unsignalized intersection of Washington Street and the proposed future CCMC Garage exit drive and the drop off loop enter only drive #1 revealed that the eastbound approach from the proposed garage exit will experience an acceptable LOS C operation and the southbound left turn into the proposed drop off loop entrance will experience an efficient LOS A operation in the combined condition during both the weekday morning and afternoon peak hours.

The capacity analysis at Washington Street at Allen Place and existing Hospital Garage Drive revealed that the signalized intersection operates efficiently at LOS A in the background and combined conditions during the weekday morning peak hour and operates efficiently at LOS B in the background and combined conditions during the afternoon peak hour.

The capacity analysis at Washington Street at Vernon Street and Retreat Avenue revealed that the signalized intersection operates with at LOS F with some vehicle delays under background and combined conditions during the morning peak hour. In the afternoon peak hour, the intersection experiences LOS E operations under both background and combined conditions. The additional traffic from the proposed development expansion will have little impact to the overall intersection delays and volume to capacity ratios at the intersection.

The capacity analysis at Seymour Street at Jefferson Street revealed that the signalized intersection operates acceptably at an overall LOS C in the background and combined conditions during both the weekday morning and afternoon peak hours.

The capacity analysis at Seymour Street at Retreat Avenue revealed that the signalized intersection operates acceptably at an overall LOS C in the background and combined conditions during both the weekday morning and afternoon peak hours.

The capacity analysis at Maple Avenue at Retreat Avenue revealed that the signalized intersection operates acceptably at an overall LOS C in the background and combined conditions during both the weekday morning and afternoon peak hours.

The capacity analysis at Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street revealed that the signalized intersection will continue to operate at an acceptable LOS C or LOS D operation under background and combined conditions during the weekday morning and afternoon peak hours, respectively.

The capacity analysis at Main Street at Wyllys Street and Wethersfield Avenue revealed that the signalized intersection will continue to operate at an acceptable LOS D under background and combined conditions during the weekday morning and afternoon peak hours, respectively.

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## 5.4 Queue Analysis

Background and Combined Condition 95<sup>th</sup> percentile (design) queue lengths were reviewed at each intersection in the study area. The 95<sup>th</sup> percentile (design) vehicle queue lengths represent the maximum queue lengths that can be expected at each of the critical approach lanes of the study area intersections. The queue lengths are provided in the Synchro capacity analysis worksheets, which are located in

*Appendix C and D. Tables 5 and 6 of Appendix A provide a summary of the queue lengths for the critical lanes at each intersection.*

The results of the queue analysis indicate that the proposed hospital expansion will have minimal increases in queue lengths (three vehicle lengths or less) on all study area intersection approach lanes during both peak hours. At the majority of the intersection approaches, sufficient lane storage lengths exist to accommodate both background and combined condition queues. The analysis did reveal some individual intersection approach queues within the study area that currently exceed their available lane storages in the existing condition peak hours however the projected queue increases at these locations as a result of the additional hospital traffic are negligible.

At the proposed drop off loop exit on Washington Street, queue lengths are projected to be approximately one vehicle length during the morning peak hour and up to two vehicle lengths in the afternoon peak hour. At the future parking garage exit on Washington Street, queue lengths are projected to be approximately one vehicle length during the morning peak hour and up to three vehicle lengths in the afternoon peak hour.

It should be noted that the proposed drop off loop exit will be located approximately 200 feet south of the signalized intersection of Washington Street at Zwieback Street and northbound queues from the signalized intersection may occasionally reach the exit only site driveway. However, blockages are anticipated to be infrequent and will primarily occur during the peak hours. The queues on Washington Street regularly clear when the adjacent traffic signal at Zweiback Street changes phase and gaps in traffic are subsequently provided to enable vehicles to turn out of the site. The recommendation to provide a dedicated bus pull off area and eliminate off peak hour on street parking on Washington Street adjacent to the site frontage will aid in clearing up the right northbound lane for vehicle travel and queueing. This additional travel lane storage capacity will serve to reduce the northbound queueing on Washington Street at the Zweiback Street signal. “Do Not Block the Box” pavement markings and signage should also be considered on Washington Street northbound to discourage vehicles from queueing across the intersection.

## 6 Conclusions & Recommendations

The purpose of preparing a Traffic Impact Study is to identify the impact of the proposed hospital expansion site generated traffic. The study efforts have indicated that the hospital expansion will generate up to 292 trips (196 entering, 96 exiting) during the weekday morning peak hour and up to 281 trips (98 entering, 183 exiting) during the weekday afternoon peak hour.

The capacity analysis revealed that none of the study area intersections will experience a decrease in intersection LOS as a result of the proposed hospital expansion traffic.

Upon review of the queue analysis, the proposed hospital expansion will have minimal increases in queue lengths (three vehicle lengths or less) on all study area intersection approach lanes during both peak hours. At the majority of the intersection approaches, sufficient lane storage lengths exist to accommodate both background and combined condition queues. The analysis did reveal some individual intersection approach queues within the study area that currently exceed their available lane

storages in the existing condition peak hours however the projected queue increases at these locations as a result of the additional hospital traffic are negligible.

In order to improve the safety and efficiency of vehicular and pedestrian traffic at the study area intersections in the future, CTDOT will be completing two traffic signal control upgrade projects in the City of Hartford to improve signal coordination and replace antiquated equipment along several roadway corridors. The traffic signal upgrades include new controllers, video detection to improve traffic management, and the ability to support ATMS communications to traffic signal controllers and other traffic management devices.

Review of the most recent three years of available crash data provided by the University of Connecticut Crash Data Repository indicated crash patterns that are not uncommon for urban intersections. The proposed hospital expansion traffic is not expected to exacerbate existing crash patterns or negatively impact overall traffic safety within the study area. The proposed improvements on Washington Street as part of this project along with the substantial traffic control system improvements proposed by two State projects underway will improve the safety of traffic operations within the study area in the future.

CCMC site access on Washington Street is proposed through a new drop off loop at the building entrance with one entrance only drive and one exit only drive (opposite Lincoln Street) proposed on the east side of Washington Street. Future access to a proposed 950 space parking garage across Washington Street on the 289 Washington Street parcel will be provided via an entrance only driveway on Lincoln Street and an exit only driveway on Washington Street opposite the proposed entrance to the drop off loop. The garage will be connected to the medical center via a pedestrian walk bridge extending over Washington Street to allow for pedestrians to access the medical center. An at grade pedestrian crosswalk with push button actuation and a rectangular rapid-flashing beacon are also proposed on Washington Street, directly under the pedestrian walk bridge, to allow commuters from the first floor of the parking garage to cross the roadway directly and access the medical center.

The new drop off loop on Washington Street will include valet service and be used primarily for routine medical visits. The exit drive from the drop off loop will be located opposite Lincoln Street and provide one combined through/left turn lane and one dedicated right turn lane. From the drop off loop exit, visitors and valet drivers are able to cross directly onto Lincoln Street to access the parking garage entrance. Similarly, the exit drive to the parking garage will align with the entrance to the drop off loop allowing easy return access for patient pick-ups.

A second drop-off area, currently located on the south side of Zweiback Street, will continue to be maintained by CCMC with vehicle drop off/pick up spaces and valet service provided. This second drop off loop will be used primarily for emergency department services in the proposed condition.

Sight lines and intersection safety were reviewed at the proposed drop off loop exit on Washington Street opposite Lincoln Street. Field measurements revealed that sufficient intersection sight distance exists for vehicles looking right (north) and left (south) to allow for safe egress from the drop off loop upon the relocation of the CTtransit bus stop to the north of the site driveway into a dedicated pull off area and removal of the off-peak hour restricted parking along the site frontage on the east side of Washington Street. These improvements will also free up the right northbound travel lane for use during

the peak hours and serve to reduce northbound queuing on Washington Street at the Zweiback Street traffic signal.

In summary, the following off-site improvements are recommended to safely accommodate the additional vehicular and pedestrian traffic generated by the hospital expansion:

1. Relocate the on-street CT transit bus stop on the east side of Washington Street into a dedicated bus pull off area between Zweiback Street and the proposed exit to the drop off loop.
2. Eliminate the restricted on-street parking on the east side of Washington Street along the site frontage and between the proposed drop off loop entrance and exit.
3. Consider “Do Not Block the Box” pavement markings and signage on Washington Street northbound at the intersection of Lincoln Street and the proposed drop off loop exit to discourage northbound traffic from queuing through the intersection during peak hours.
4. Provide a pedestrian bridge over Washington Street connecting the proposed parking garage and expanded CCMC facility.
5. Provide a new at grade crosswalk with push button actuation and flashing beacons on Washington Street on the south side of the Lincoln Street/drop off loop exit intersection.

Based on the results of the foregoing analysis and upon inclusion of the recommendations outlined above, it is the professional opinion of Fuss & O'Neill, Inc. that the proposed Connecticut Children's Medical Center expansion will not have a significant impact to traffic operations within the study area.

# Appendix A

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## Tables

**Table 1**

**Peak Hour Site Generated Traffic Volumes  
Connecticut Children's Medical Center Expansion  
Hartford, Connecticut**

<b>191,442 sq. ft. Hospital Expansion</b>	<b>Total Trips</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Morning Peak Hour</b>	292	196	96
<b>Afternoon Peak Hour</b>	281	98	183

Note: Trip generation based on Rate per Land use Code 610 (Hospital), as published in *Trip Generation*, 11<sup>th</sup> Edition, 2021. Trip generation rates above were conservatively calculated for 193,000 SF of building area.



**Table 2**  
**Intersection Crash Data Summary**  
**Connecticut Children's Medical Center Expansion**  
**Hartford, Connecticut**

Intersections/Road Segments	Crashes Per Year			
	2019	2020	2021	Average/Year
Washington Street at Jefferson Street	25*	16	6	16
Washington Street at Zwieback Street	5	14	3	7
Washington Street at Lincoln Street	9	2	1	4
Washington Street at Allen Place	5	11	0	5
Washington Street at Vernon Street and Retreat Avenue	17	9	5	10
Seymour Street at Jefferson Street	19	8	6	11
Seymour Street at Retreat Avenue	6	3	2	4
Maple Avenue at Retreat Avenue	13	8	8	10
Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street	14	12	5	10
Main Street at Wyllys Street and Wethersfield Avenue	27	26	10	21

\*Values indicated are number of crashes within 200 feet of each intersection during time period shown.  
 Data provided by the Connecticut Department of Transportation via the UConn Crash Data Repository.

**Table 3**

**Unsignalized Intersection Level Of Service Summary  
Connecticut Children's Medical Center Expansion  
Hartford, Connecticut**

<b>Two-Way Stop Controlled Intersections (Critical Movements)</b>	<b>2026 Weekday Morning Peak Hour</b>		<b>2026 Weekday Afternoon Peak Hour</b>	
	<b>Background</b>	<b>Combined</b>	<b>Background</b>	<b>Combined</b>
<b>Washington Street at Lincoln Street and Site Drive #2 (Drop off loop exit)</b>				
NB Left Turn	LOS A*	LOS A	LOS A	LOS A
WB Through/Left Turn	N/A	LOS E	N/A	LOS E
<b>Washington Street at CCMC Parking Garage Exit Only Drive and Site Drive #1 (Drop off loop entrance)</b>				
EB Approach	N/A	LOS C	N/A	LOS C
SB Left Turn	N/A	LOS A	N/A	LOS A

\*Values indicated are critical movement Level of Service (LOS)

**Table 4**

**Signalized Intersection Level of Service Summary**  
**Connecticut Children's Medical Center**  
**Hartford, Connecticut**

Signalized Intersections	2026 Weekday Morning Peak Hour		2026 Weekday Afternoon Peak Hour	
	Background	Combined	Background	Combined
Washington Street at Jefferson Street	0.39/LOS C*	0.46/LOS C	0.50/LOS C	0.57/LOS C
EB Approach	LOS D	LOS C	LOS D	LOS D
WB Approach	LOS D	LOS E	LOS E	LOS E
NB Approach	LOS C	LOS C	LOS A	LOS A
SB Approach	LOS A	LOS B	LOS B	LOS B
Washington Street at Zwieback Street	0.27/LOS A	0.30/LOS A	0.33/LOS B	0.37/LOS B
EB Approach	LOS D	LOS D	LOS D	LOS D
WB Approach	LOS C	LOS C	LOS D	LOS D
NB Approach	LOS A	LOS A	LOS A	LOS A
SB Approach	LOS A	LOS A	LOS A	LOS A
Washington Street at Allen Place and Hospital Garage Drive	0.33/LOS A	0.37/LOS A	0.35/LOS B	0.37/LOS B
EB Approach	LOS D	LOS D	LOS F	LOS F
WB Approach	LOS C	LOS C	LOS D	LOS D
NB Approach	LOS A	LOS A	LOS A	LOS A

Signalized Intersections	2026 Weekday Morning Peak Hour		2026 Weekday Afternoon Peak Hour	
	Background	Combined	Background	Combined
SB Approach	LOS A	LOS A	LOS A	LOS A
Washington Street at Vernon Street and Retreat Avenue	1.35/LOS F	1.40/LOS F	0.81/LOS E	0.88/LOS E
EB Approach	LOS F	LOS F	LOS D	LOS D
WB Approach	LOS F	LOS F	LOS D	LOS D
NB Approach	LOS F	LOS F	LOS F	LOS F
SB Approach	LOS F	LOS F	LOS E	LOS E
Seymour Street at Jefferson Street	0.42/LOS C	0.45/LOS C	0.53/LOS C	0.58/LOS C
EB Approach	LOS C	LOS D	LOS C	LOS C
WB Approach	LOS B	LOS C	LOS B	LOS B
NB Approach	LOS B	LOS B	LOS C	LOS C
Seymour Street at Retreat Avenue and IOL Drive	0.48/LOS C	0.50/LOS C	0.43/LOS C	0.43/LOS C
EB Approach	LOS C	LOS C	LOS C	LOS C
WB Approach	LOS C	LOS C	LOS C	LOS C
NB Approach	LOS C	LOS C	LOS C	LOS C
SB Approach	LOS C	LOS C	LOS C	LOS C
Maple Avenue at Retreat Avenue	0.39/LOS C	0.39/LOS C	0.51/LOS C	0.52/LOS C
EB Approach	LOS D	LOS D	LOS D	LOS D
NB Approach	LOS A	LOS A	LOS B	LOS B

Signalized Intersections	2026 Weekday Morning Peak Hour		2026 Weekday Afternoon Peak Hour	
	Background	Combined	Background	Combined
SB Approach	LOS D	LOS D	LOS C	LOS C
Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street	0.62/LOS C	0.64/LOS C	0.62/LOS D	0.65/LOS D
EB Approach	LOS D	LOS D	LOS E	LOS D
WB Approach	LOS C	LOS C	LOS D	LOS D
NB Approach	LOS C	LOS C	LOS B	LOS C
SB Approach	LOS D	LOS D	LOS C	LOS D
Main Street at Wyllys Street and Wethersfield Avenue	0.58/LOS D	0.60/LOS D	0.66/LOS D	0.68/LOS D
EB Approach	LOS D	LOS D	LOS D	LOS D
WB Approach	LOS C	LOS C	LOS C	LOS C
NB Approach	LOS C	LOS C	LOS D	LOS D
SB Approach	LOS D	LOS D	LOS D	LOS D

\*Values indicated are intersection v/c Ratio/LOS

**Table 5**

**Weekday Morning Peak Hour Queue Length Summary  
Connecticut Children's Medical Center  
Hartford, Connecticut**

<b>Intersection</b>	<b>Approach Lane</b>	<b>2026 Background Queue</b>	<b>2026 Combined Queue</b>	<b>Available Storage</b>
Washington Street at Jefferson Street	EB Through/Left/Right Turn	120 Feet	120 Feet	>1,000 Feet
	WB Through/Left/Right Turn	105 Feet	130 Feet	430 Feet
	NB Through/Left/Right Turn	110 Feet	100 Feet	365 Feet
	SB Through/Left/Right Turn	130 Feet	145 Feet	215 Feet
Washington Street at Zwieback Street	EB Through/Left/Right Turn	70 Feet	70 Feet	>70 Feet
	WB Through/Left Turn	50 Feet	50 Feet	175 Feet
	WB Right Turn	10 Feet	10 Feet	175 Feet
	NB Left Turn	20 Feet	25 Feet	55 Feet
	NB Through/Right Turn	90 Feet	125 Feet	565 Feet
	SB Left Turn	25 Feet	25 Feet	255 Feet
Washington Street at Lincoln Street and Site Drive #2	WB Through/Left Turn	N/A	30 Feet	>80 Feet
	NB Left Turn	5 Feet	10 Feet	360 Feet
Washington Street at CCMC Parking Garage and Site Drive #1	EB Left/Right Turn	N/A	25 Feet	>50 Feet
	SB Left Turn	N/A	0 Feet	270 Feet
Washington Street at Allen Place	EB Through/Left/Right Turn	105 Feet	105 Feet	>1,000 Feet
	WB Left Turn	25 Feet	25 Feet	50 Feet
	WB Through/Right Turn	40 Feet	40 Feet	>165 Feet
	NB Through/Left/Right Turn	25 Feet	30 Feet	270 Feet
	SB Through/Left Turn	25 Feet	35 Feet	565 Feet

<b>Intersection</b>	<b>Approach Lane</b>	<b>2026 Background Queue</b>	<b>2026 Combined Queue</b>	<b>Available Storage</b>
Washington Street at Vernon Street and Retreat Avenue	EB Left Turn	60 Feet	60 Feet	85 Feet
	EB Through/Right Turn	215 Feet	215 Feet	>1,000 Feet
	WB Left Turn	180 Feet	180 Feet	90 Feet
	WB Through/Right Turn	155 Feet	155 Feet	540 Feet
	WB Right Turn	30 Feet	40 Feet	90 Feet
	NB Through/Left/Right Turn	230 Feet	285 Feet	355 Feet
	SB Through/Left/Right Turn	215 Feet	245 Feet	270 Feet
Seymour Street at Jefferson Street	EB Through/Left/Right Turn	215 Feet	260 Feet	435 Feet
	WB Left Turn	145 Feet	145 Feet	355 Feet
	WB Through/Right Turn	120 Feet	155 Feet	120 Feet
	NB Through/Left Turn	45 Feet	45 Feet	275 Feet
	NB Right Turn	70 Feet	70 Feet	275 Feet
Seymour Street at Retreat Avenue	EB Left Turn	85 Feet	85 Feet	50 Feet
	EB Through/Right Turn	215 Feet	220 Feet	560 Feet
	WB Left Turn	125 Feet	130 Feet	50 Feet
	WB Through/Right Turn	360 Feet	420 Feet	650 Feet
	NB Through/Left/Right Turn	30 Feet	30 Feet	70 Feet
	SB Through/Left/Right Turn	110 Feet	110 Feet	400 Feet
Maple Avenue at Retreat Avenue	EB Left/Right Turn	150 Feet	155 Feet	610 Feet
	NB Through/Left Turn	170 Feet	175 Feet	800 Feet
	SB Through	280 Feet	280 Feet	155 Feet
	SB Left Turn	340 Feet	340 Feet	155 Feet
Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street	EB Through/Left/Right Turn	105 Feet	120 Feet	560 Feet
	WB Left Turn	555 Feet	560 Feet	195 Feet
	WB Through/Right Turn	400 Feet	475 Feet	195 Feet
	NB Through/Left Turn	150 Feet	160 Feet	145 Feet
	NB Right Turn	310 Feet	315 Feet	145 Feet
	SB Through/Left/Right Turn	135 Feet	145 Feet	525 Feet

<b>Intersection</b>	<b>Approach Lane</b>	<b>2026 Background Queue</b>	<b>2026 Combined Queue</b>	<b>Available Storage</b>
Main Street at Wyllys Street and Wethersfield Avenue	EB Through/Left/Right Turn	190 Feet	200 Feet	195 Feet
	WB Through/Left/Right Turn	260 Feet	280 Feet	355 Feet
	NB Left Turn	100 Feet	100 Feet	170 Feet
	NB Through/Right Turn	315 Feet	315 Feet	385 Feet
	SB Left Turn	50 Feet	50 Feet	365 Feet
	SB Through/Right Turn	200 Feet	200 Feet	365 Feet

NOTE: Values indicated represent 95<sup>th</sup> percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.



**Table 6**

**Weekday Afternoon Peak Hour Queue Length Summary  
Connecticut Children's Medical Center  
Hartford, Connecticut**

<b>Intersection</b>	<b>Approach Lane</b>	<b>2026 Background Queue</b>	<b>2026 Combined Queue</b>	<b>Available Storage</b>
Washington Street at Jefferson Street	EB Through/Left/Right Turn WB Through/Left/Right Turn NB Through/Left/Right Turn SB Through/Left/Right Turn	130 Feet 215 Feet 80 Feet 120 Feet	130 Feet 240 Feet 85 Feet 125 Feet	>1,000 Feet 430 Feet 365 Feet 215 Feet
Washington Street at Zwieback Street	EB Through/Left/Right Turn WB Through/Left Turn WB Right Turn NB Left Turn NB Through/Right Turn SB Left Turn SB Through/Right Turn	35 Feet 130 Feet 55 Feet 10 Feet 75 Feet 15 Feet 35 Feet	35 Feet 130 Feet 55 Feet 10 Feet 100 Feet 15 Feet 45 Feet	>70 Feet 175 Feet 175 Feet 55 Feet 565 Feet 255 Feet 365 Feet
Washington Street at Lincoln Street and Site Drive #2	WB Through/Left Turn NB Left Turn	N/A 5 Feet	50 Feet 5 Feet	>80 Feet 360 Feet
Washington Street at CCMC Parking Garage and Site Drive #1	EB Left/Right Turn SB Left Turn	N/A N/A	70 Feet 5 Feet	>50 Feet 270 Feet
Washington Street at Allen Place	EB Through/Left/Right Turn WB Left Turn WB Through/Right Turn NB Through/Left/Right Turn SB Through/Left Turn	145 Feet 75 Feet 75 Feet 95 Feet 5 Feet	145 Feet 75 Feet 75 Feet 95 Feet 25 Feet	>1,000 Feet 50 Feet >165 Feet 270 Feet 565 Feet

<b>Intersection</b>	<b>Approach Lane</b>	<b>2026 Background Queue</b>	<b>2026 Combined Queue</b>	<b>Available Storage</b>
Washington Street at Vernon Street and Retreat Avenue	EB Left Turn	110 Feet	120 Feet	85 Feet
	EB Through/Right Turn	405 Feet	440 Feet	>1,000 Feet
	WB Left Turn	135 Feet	135 Feet	90 Feet
	WB Through/Right Turn	310 Feet	315 Feet	540 Feet
	WB Right Turn	50 Feet	55 Feet	90 Feet
	NB Through/Left/Right Turn	150 Feet	140 Feet	355 Feet
	SB Through/Left/Right Turn	215 Feet	250 Feet	270 Feet
Seymour Street at Jefferson Street	EB Through/Left/Right Turn	220 Feet	275 Feet	435 Feet
	WB Left Turn	75 Feet	75 Feet	355 Feet
	WB Through/Right Turn	175 Feet	190 Feet	120 Feet
	NB Through/Left Turn	160 Feet	160 Feet	275 Feet
	NB Right Turn	235 Feet	235 Feet	275 Feet
Seymour Street at Retreat Avenue	EB Left Turn	55 Feet	55 Feet	50 Feet
	EB Through/Right Turn	245 Feet	260 Feet	560 Feet
	WB Left Turn	35 Feet	35 Feet	50 Feet
	WB Through/Right Turn	310 Feet	320 Feet	650 Feet
	NB Through/Left/Right Turn	90 Feet	90 Feet	70 Feet
	SB Through/Left/Right Turn	160 Feet	160 Feet	400 Feet
Maple Avenue at Retreat Avenue	EB Left/Right Turn	325 Feet	340 Feet	610 Feet
	NB Through/Left Turn	130 Feet	135 Feet	800 Feet
	SB Through	465 Feet	475 Feet	155 Feet
	SB Left Turn	75 Feet	80 Feet	155 Feet
Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street	EB Through/Left/Right Turn	275 Feet	335 Feet	560 Feet
	WB Left Turn	335 Feet	335 Feet	195 Feet
	WB Through/Right Turn	325 Feet	360 Feet	195 Feet
	NB Through/Left Turn	230 Feet	260 Feet	145 Feet
	NB Right Turn	265 Feet	265 Feet	145 Feet
	SB Through/Left/Right Turn	165 Feet	170 Feet	525 Feet

<b>Intersection</b>	<b>Approach Lane</b>	<b>2026 Background Queue</b>	<b>2026 Combined Queue</b>	<b>Available Storage</b>
Main Street at Wyllys Street and Wethersfield Avenue	EB Through/Left/Right Turn	315 Feet	355 Feet	195 Feet
	WB Through/Left/Right Turn	210 Feet	220 Feet	355 Feet
	NB Left Turn	120 Feet	120 Feet	170 Feet
	NB Through/Right Turn	370 Feet	370 Feet	385 Feet
	SB Left Turn	55 Feet	55 Feet	365 Feet
	SB Through/Right Turn	255 Feet	255 Feet	365 Feet

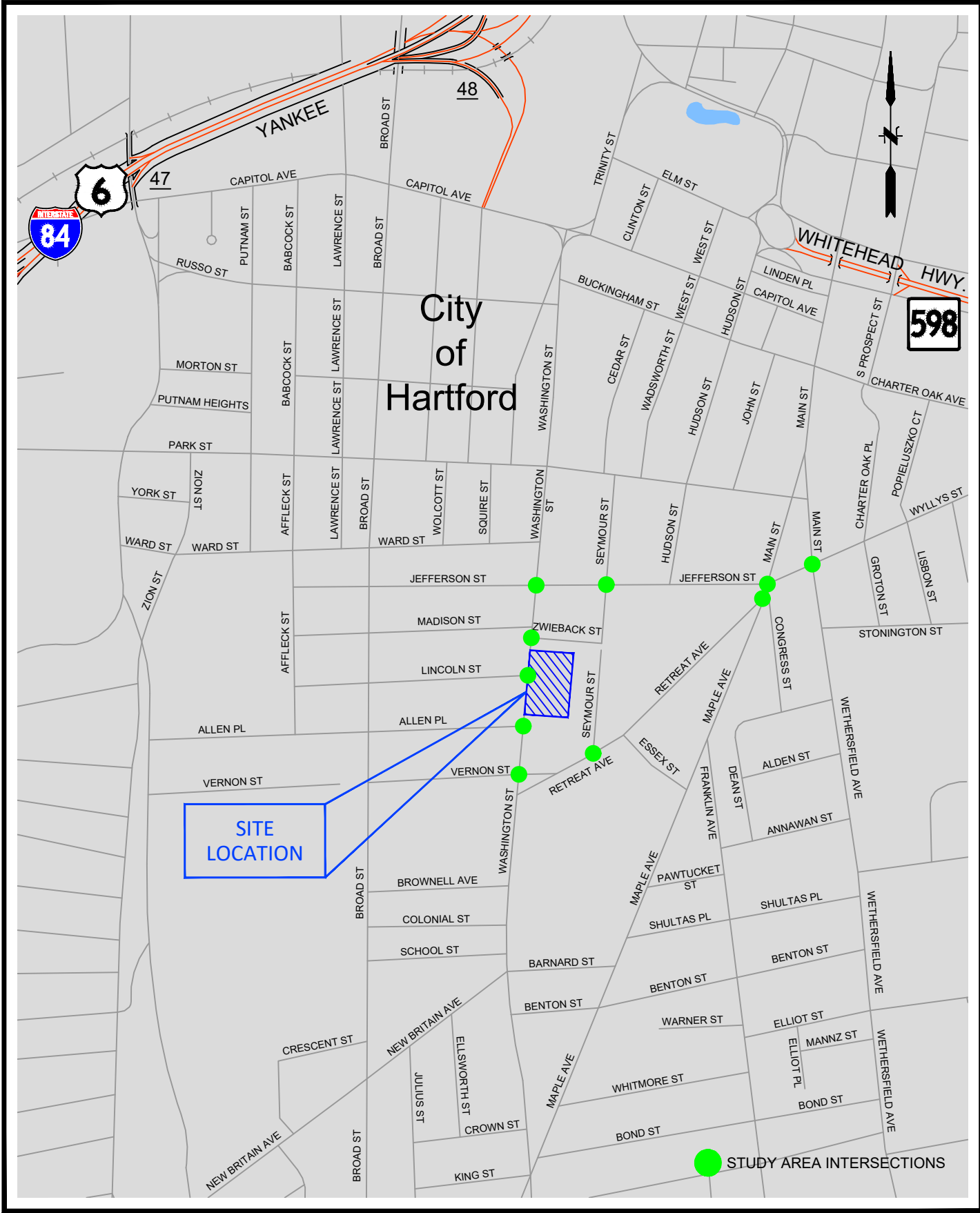
NOTE: Values indicated represent 95<sup>th</sup> percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

## **Appendix B**

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### Figures

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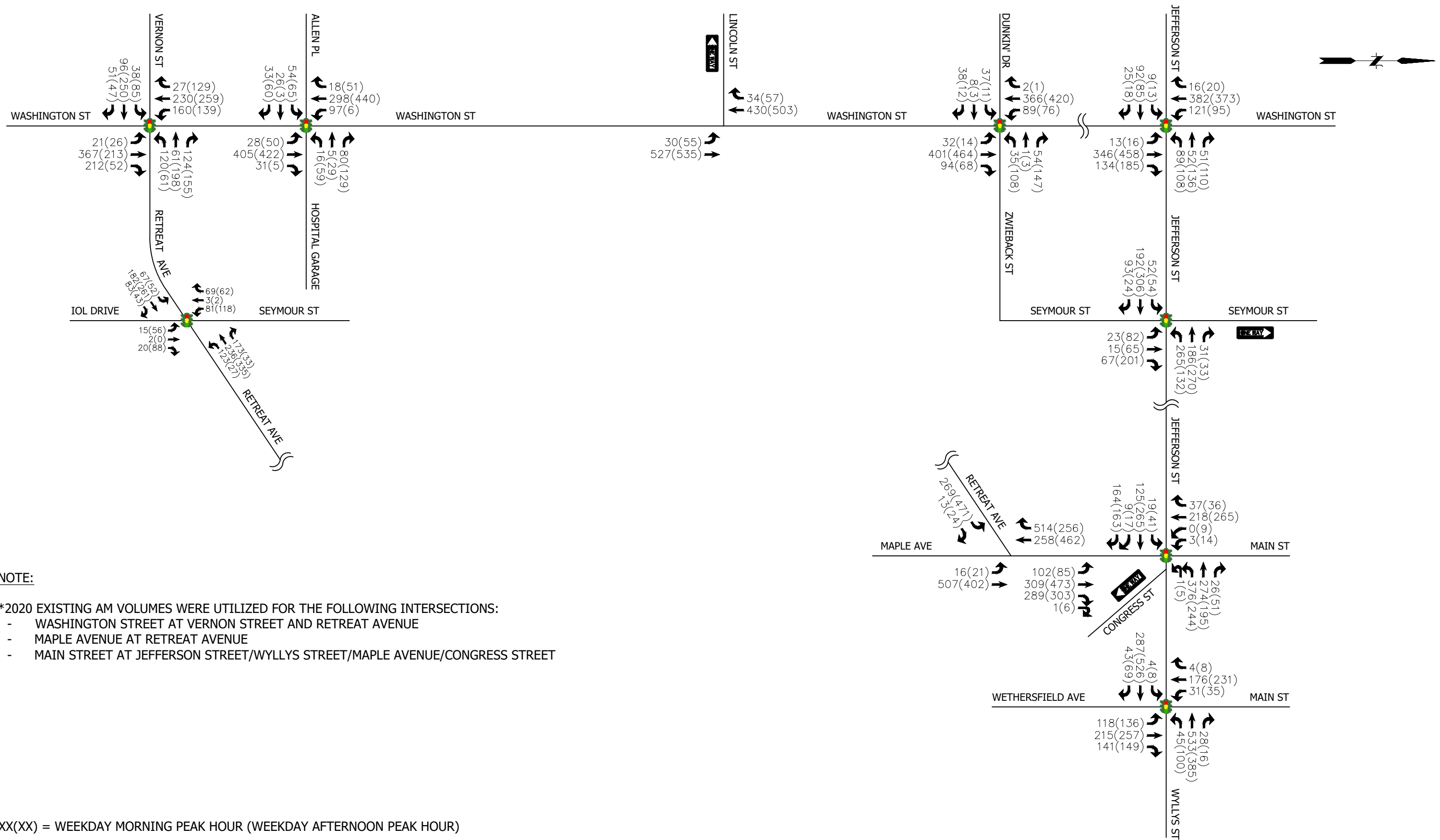
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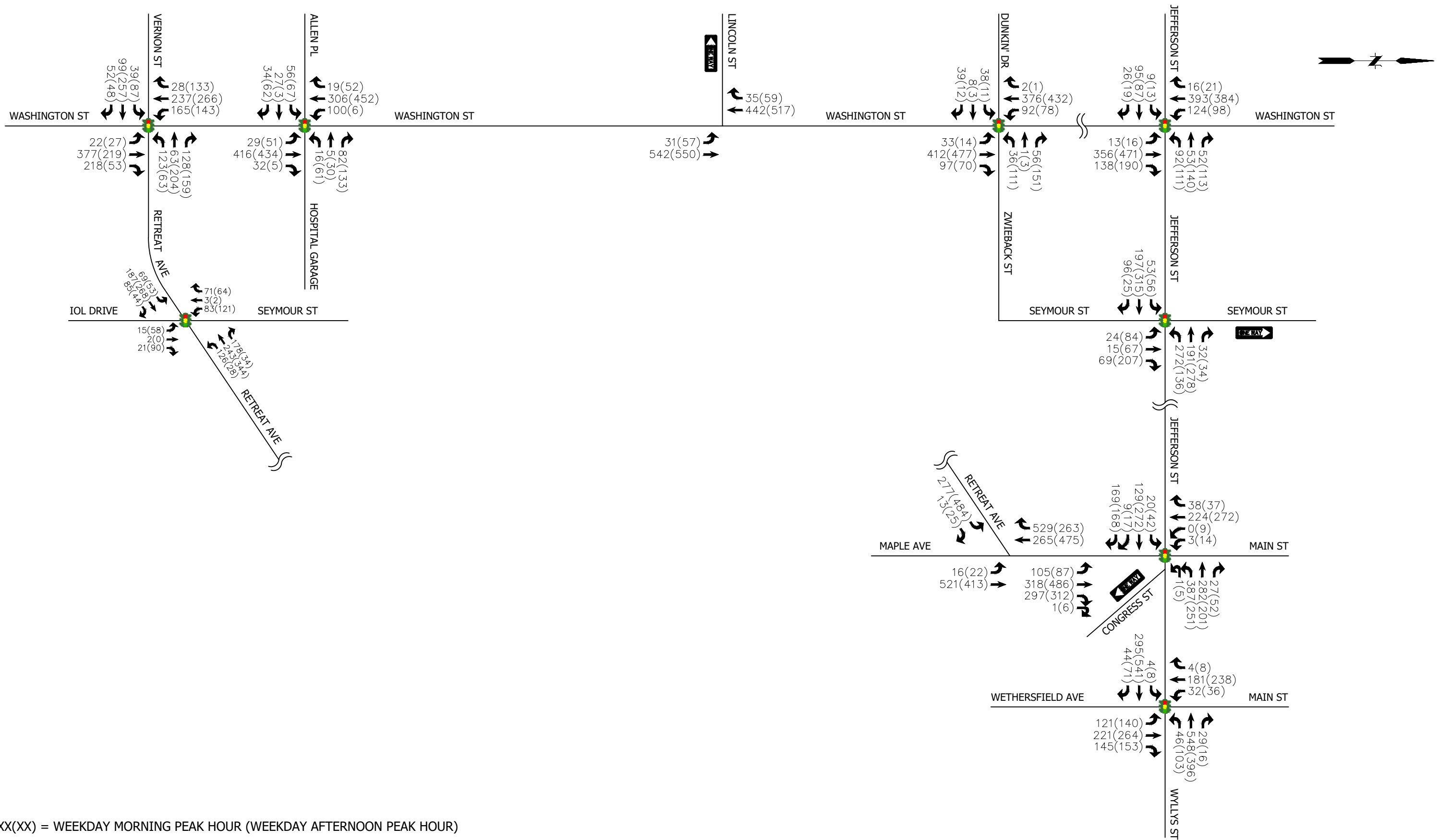


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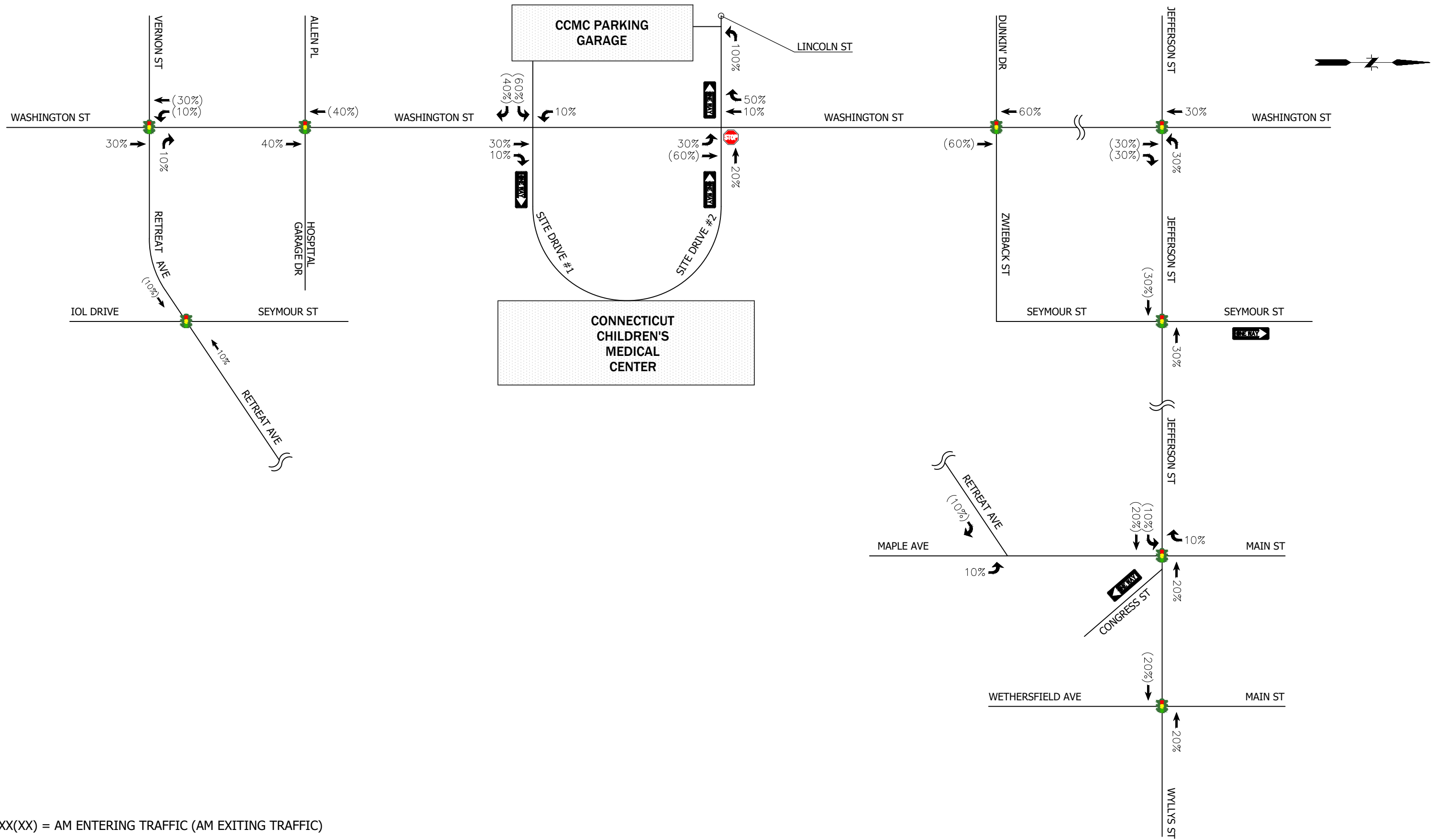
CANNONDESIGN  
 SITE LOCATION FIGURE  
 CONNECTICUT CHILDREN'S MEDICAL CENTER  
 HARTFORD CONNECTICUT

PROJ. No.: 20211326.A20
DATE: AUGUST 2022
<b>LOC-01</b>



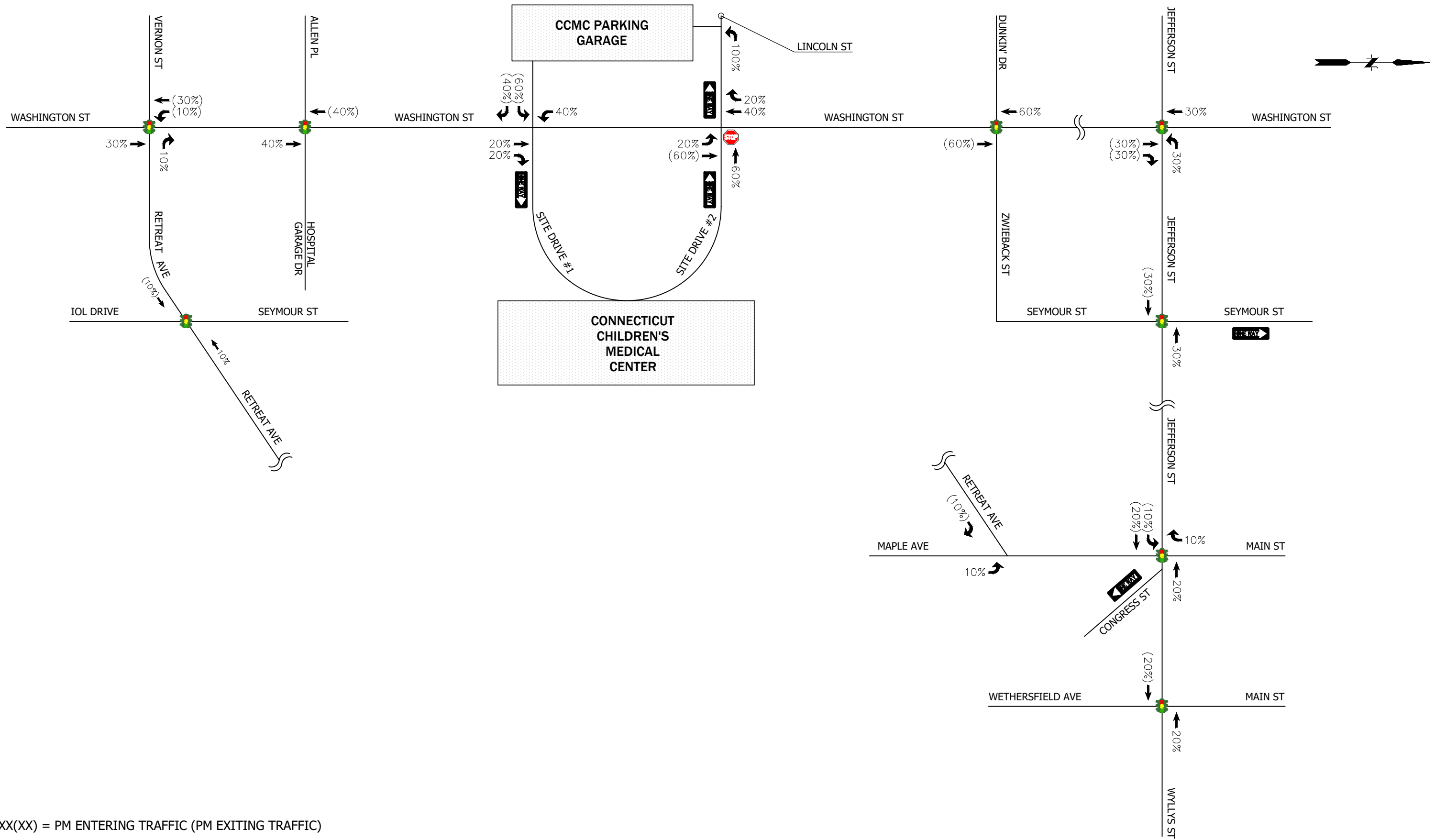


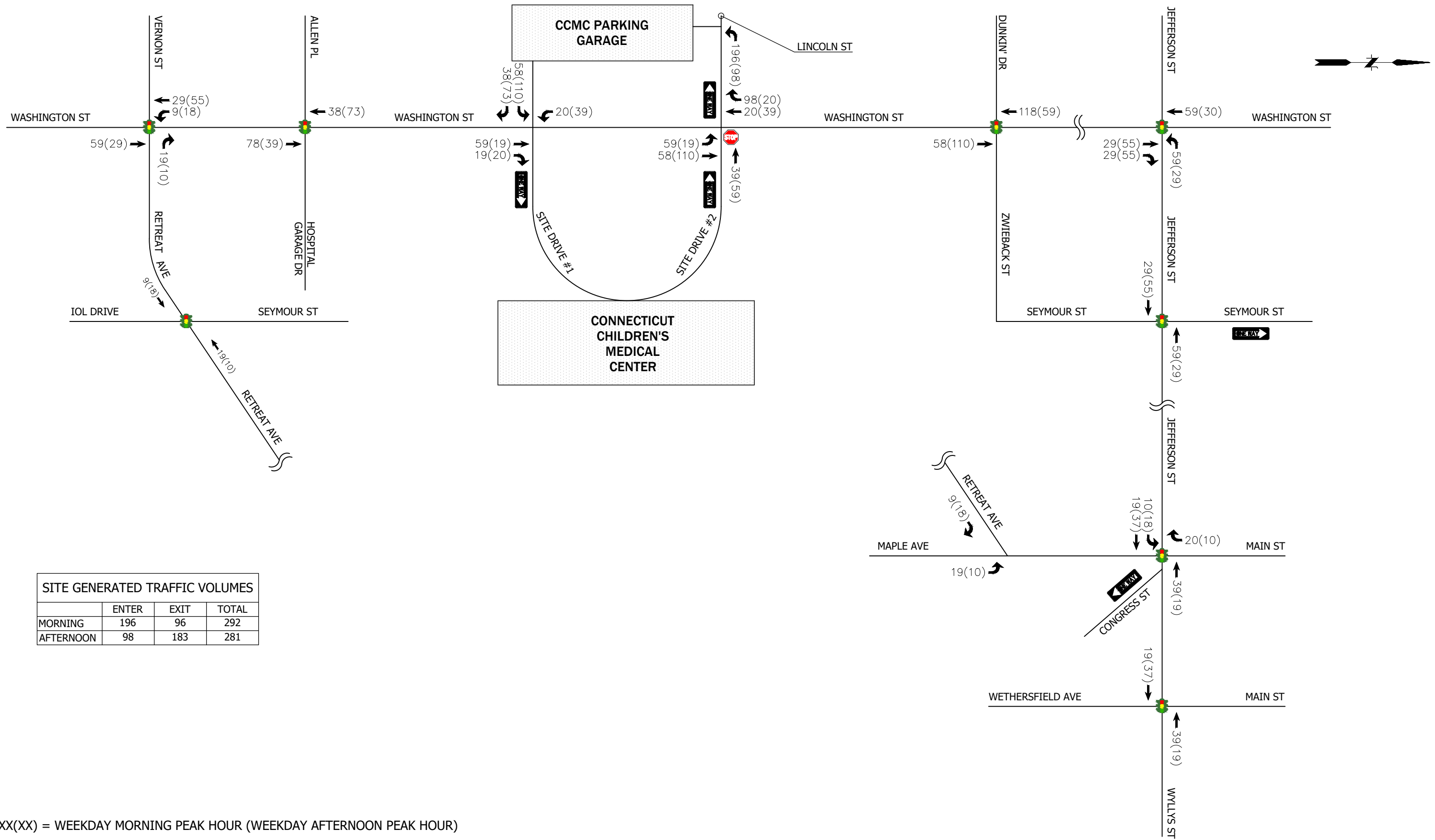
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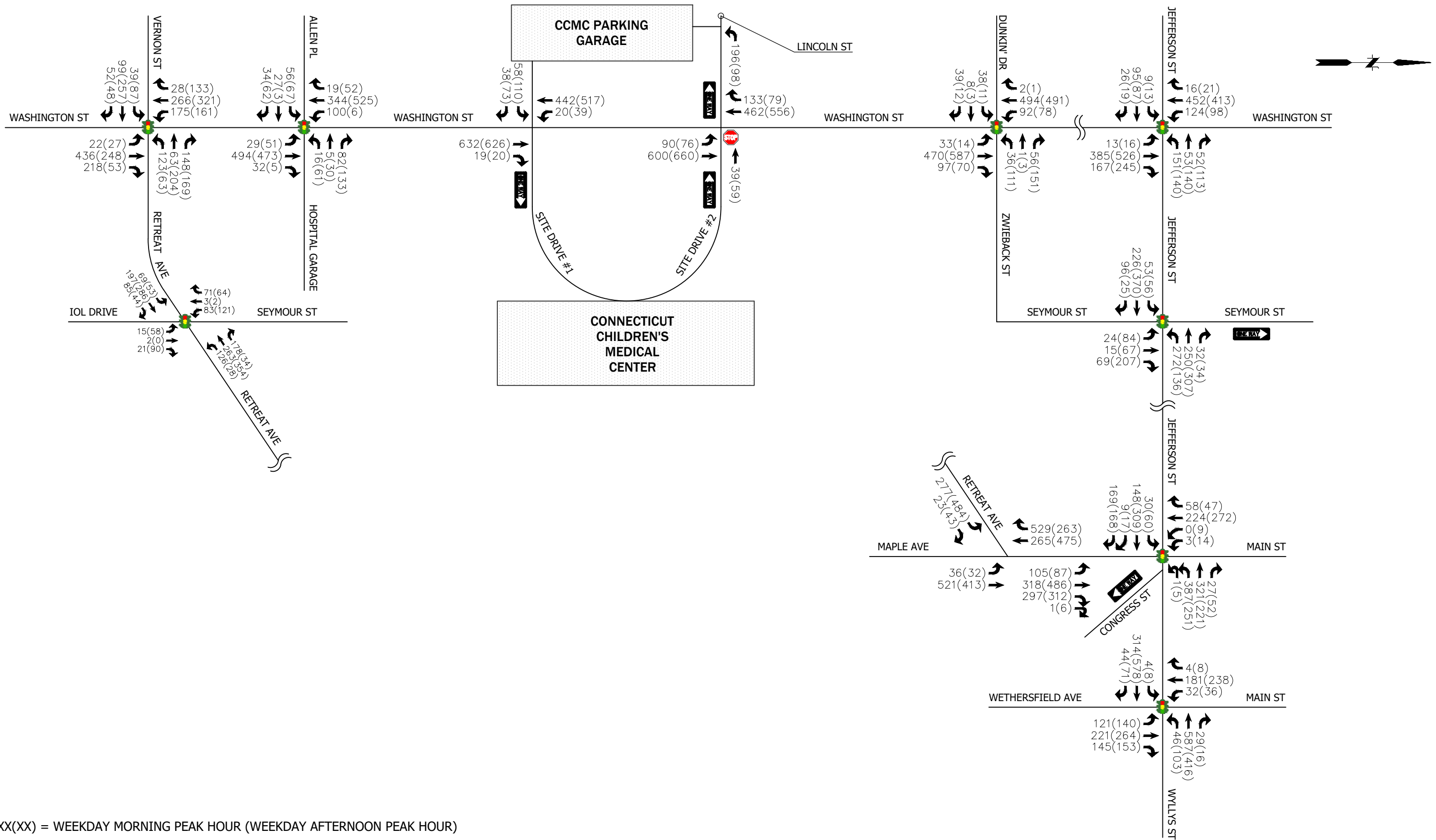


File Path: J:\DWG\2021\1326A20\CivilTraffic Figures\20211326A20\_TV\F01.dwg Layout: FIG. 4A - TRIP DISTRIBUTIONS Plotted: Tue, August 16, 2022 - 8:37 AM User: TALE









XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

## **Appendix C**

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Intersection Capacity Analysis Worksheets  
2026 Background Traffic Volumes  
Weekday Morning Peak Hour

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	9	95	26	92	53	52	13	356	138	124	393	16
Future Volume (vph)	9	95	26	92	53	52	13	356	138	124	393	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.973			0.960			0.959			0.996	
Fl <sub>t</sub> Protected		0.996			0.977			0.999			0.989	
Satd. Flow (prot)	0	1731	0	0	3180	0	0	3338	0	0	3427	0
Fl <sub>t</sub> Permitted		0.966			0.696			0.937			0.713	
Satd. Flow (perm)	0	1679	0	0	2265	0	0	3130	0	0	2471	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		12						65			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		567			531			459			319	
Travel Time (s)		12.9			12.1			10.4			7.3	
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%	6%	10%	7%	8%	4%	0%	4%	3%	6%	3%	5%
Adj. Flow (vph)	10	102	28	99	57	56	14	383	148	133	423	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	212	0	0	545	0	0	573	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0		
Minimum Split (s)	15.0	15.0		15.0	15.0		20.0	20.0		9.0		
Total Split (s)	23.0	23.0		23.0	23.0		36.0	36.0		14.0		
Total Split (%)	25.6%	25.6%		25.6%	25.6%		40.0%	40.0%		15.6%		
Maximum Green (s)	18.0	18.0		18.0	18.0		31.0	31.0		10.0		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		1.0		
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.0			5.0			5.0				
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		13.6			13.6			45.3			56.6	
Actuated g/C Ratio		0.15			0.15			0.50			0.63	
v/c Ratio		0.53			0.62			0.34			0.34	
Control Delay		39.0			55.6			20.0			8.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		39.0			55.6			20.0			8.6	
LOS		D			E			B			A	
Approach Delay		39.0			55.6			20.0			8.6	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr1	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	19%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	17
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Background Conditions  
Weekday Morning Peak Hour

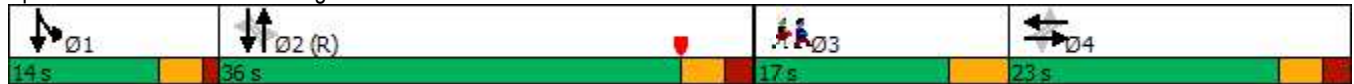


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			E			B			A	
Queue Length 50th (ft)		68			68			77			41	
Queue Length 95th (ft)		120			106			109			130	
Internal Link Dist (ft)		487			451			379			239	
Turn Bay Length (ft)												
Base Capacity (vph)		345			453			1607			1681	
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		0.41			0.47			0.34			0.34	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	45 (50%), Referenced to phase 2:NBSB, Start of Yellow
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	22.5
Intersection LOS:	C
Intersection Capacity Utilization	62.1%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1: Washington St & Jefferson St



---

Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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# HCM Signalized Intersection Capacity Analysis

2026 Background Conditions

## 1: Washington St & Jefferson St

Weekday Morning Peak Hour






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	9	95	26	92	53	52	13	356	138	124	393	16
Future Volume (vph)	9	95	26	92	53	52	13	356	138	124	393	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			4.0	
Lane Util. Factor		1.00			0.95			0.95			0.95	
Frt		0.97			0.96			0.96			1.00	
Flt Protected		1.00			0.98			1.00			0.99	
Satd. Flow (prot)		1732			3182			3338			3424	
Flt Permitted		0.97			0.70			0.94			0.71	
Satd. Flow (perm)		1680			2267			3130			2471	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	10	102	28	99	57	56	14	383	148	133	423	17
RTOR Reduction (vph)	0	10	0	0	0	0	0	34	0	0	2	0
Lane Group Flow (vph)	0	130	0	0	212	0	0	511	0	0	571	0
Heavy Vehicles (%)	0%	6%	10%	7%	8%	4%	0%	4%	3%	6%	3%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1	2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		13.6			13.6			42.9			53.2	
Effective Green, g (s)		13.6			13.6			42.9			53.2	
Actuated g/C Ratio		0.15			0.15			0.48			0.59	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		253			342			1491			1569	
v/s Ratio Prot											c0.04	
v/s Ratio Perm		0.08			c0.09			0.16			c0.17	
v/c Ratio		0.51			0.62			0.34			0.36	
Uniform Delay, d1		35.2			35.8			14.7			9.6	
Progression Factor		1.00			1.35			1.34			1.00	
Incremental Delay, d2		1.8			3.3			0.6			0.1	
Delay (s)		36.9			51.5			20.4			9.7	
Level of Service		D			D			C			A	
Approach Delay (s)		36.9			51.5			20.4			9.7	
Approach LOS		D			D			C			A	

### Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Background Conditions  
Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	8	39	36	1	56	33	412	97	92	376	2
Future Volume (vph)	38	8	39	36	1	56	33	412	97	92	376	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	55		0	250		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			175			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.938				0.850		0.971			0.999	
Flt Protected		0.978			0.953		0.950			0.950		
Satd. Flow (prot)	0	1743	0	0	1811	1599	1805	3389	0	1805	3468	0
Flt Permitted		0.850			0.717		0.506			0.405		
Satd. Flow (perm)	0	1515	0	0	1362	1599	961	3389	0	770	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				109		35			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		151			256			229			459	
Travel Time (s)		3.4			5.8			5.2			10.4	
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 (%)	0%	0%	0%	0%	0%	1%	0%	4%	1%	0%	4%	0%
Adj. Flow (vph)	42	9	43	40	1	62	37	458	108	102	418	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	41	62	37	566	0	102	420	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	5.0	5.0		5.0		
Minimum Split (s)	19.0	19.0		19.0	19.0	19.0	9.0	9.0		9.0		
Total Split (s)	20.0	20.0		20.0	20.0	20.0	36.0	36.0		15.0		
Total Split (%)	22.2%	22.2%		22.2%	22.2%	22.2%	40.0%	40.0%		16.7%		
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	32.0	32.0		11.0		
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)	1.0	1.0		1.0	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)		4.0			4.0	4.0	4.0	4.0		4.0		
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
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	None	C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.0			15.0	15.0	53.9	53.9		63.0	67.8	
Actuated g/C Ratio		0.17			0.17	0.17	0.60	0.60		0.70	0.75	
v/c Ratio		0.33			0.18	0.17	0.06	0.28		0.16	0.16	
Control Delay		23.7			34.6	2.8	7.0	5.2		4.3	3.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	19.0
Total Split (s)	19.0
Total Split (%)	21%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	14
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Background Conditions  
Weekday Morning Peak Hour

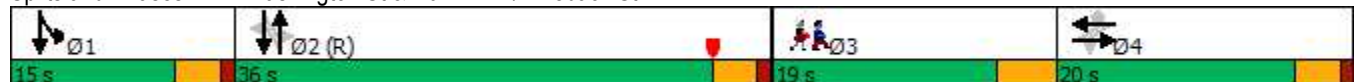


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		23.7			34.6	2.8	7.0	5.2		4.3	3.1	
LOS		C			C	A	A	A		A	A	
Approach Delay		23.7			15.4			5.3				3.3
Approach LOS		C			B			A				A
Queue Length 50th (ft)		26			20	0	4	28		14	36	
Queue Length 95th (ft)		71			50	10	18	91		25	46	
Internal Link Dist (ft)		71			176			149			379	
Turn Bay Length (ft)							55			250		
Base Capacity (vph)		303			242	373	575	2042		683	2560	
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		0.31			0.17	0.17	0.06	0.28		0.15	0.16	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	47 (52%), Referenced to phase 2:NBSB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.33
Intersection Signal Delay:	6.6
Intersection LOS:	A
Intersection Capacity Utilization:	49.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 2: Washington St & Dunkin' Dr/Zwieback St
























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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Background Conditions  
Weekday Morning Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	38	8	39	36	1	56	33	412	97	92	376	2	
Future Volume (vph)	38	8	39	36	1	56	33	412	97	92	376	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0		
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95		
Frt		0.94			1.00	0.85	1.00	0.97		1.00	1.00		
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1744			1812	1599	1805	3390		1805	3469		
Flt Permitted		0.85			0.72	1.00	0.51	1.00		0.40	1.00		
Satd. Flow (perm)		1514			1362	1599	962	3390		769	3469		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	42	9	43	40	1	62	37	458	108	102	418	2	
RTOR Reduction (vph)	0	36	0	0	0	54	0	16	0	0	0	0	
Lane Group Flow (vph)	0	58	0	0	41	8	37	550	0	102	420	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	4%	1%	0%	4%	0%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D,P+P	NA		
Protected Phases		4			4			2		1	1 2		
Permitted Phases	4			4		4	2			2			
Actuated Green, G (s)		12.0			12.0	12.0	49.9	49.9		59.0	63.0		
Effective Green, g (s)		12.0			12.0	12.0	49.9	49.9		59.0	63.0		
Actuated g/C Ratio		0.13			0.13	0.13	0.55	0.55		0.66	0.70		
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)		201			181	213	533	1879		608	2428		
v/s Ratio Prot								c0.16		0.02	c0.12		
v/s Ratio Perm		c0.04			0.03	0.01	0.04			0.09			
v/c Ratio		0.29			0.23	0.04	0.07	0.29		0.17	0.17		
Uniform Delay, d1		35.2			34.9	34.0	9.3	10.7		5.8	4.6		
Progression Factor		1.00			1.00	1.00	0.51	0.44		0.64	0.56		
Incremental Delay, d2		0.8			0.6	0.1	0.2	0.4		0.1	0.0		
Delay (s)		36.0			35.5	34.1	5.0	5.1		3.8	2.6		
Level of Service		D			D	C	A	A		A	A		
Approach Delay (s)		36.0			34.6			5.1			2.8		
Approach LOS		D			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			8.7									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.27										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			49.5%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

Lanes, Volumes, Timings  
3: Washington St & Lincoln St

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕↕	↕↕	
Traffic Volume (vph)	0	0	31	542	442	35
Future Volume (vph)	0	0	31	542	442	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Fr <sub>t</sub>					0.989	
Fl <sub>t</sub> Protected				0.997		
Satd. Flow (prot)	0	0	0	3463	3466	0
Fl <sub>t</sub> Permitted				0.997		
Satd. Flow (perm)	0	0	0	3463	3466	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1165			416	229	
Travel Time (s)	26.5			9.5	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	4%	3%	3%
Adj. Flow (vph)	0	0	36	623	508	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	659	548	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
3: Washington St & Lincoln St

2026 Background Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕↕	↕↕	
Traffic Volume (veh/h)	0	0	31	542	442	35
Future Volume (Veh/h)	0	0	31	542	442	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	36	623	508	40
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				416	229	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	912	274	548			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	694	178	462			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	358	812	1052			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>		
Volume Total	244	415	339	209		
Volume Left	36	0	0	0		
Volume Right	0	0	0	40		
cSH	1052	1700	1700	1700		
Volume to Capacity	0.03	0.24	0.20	0.12		
Queue Length 95th (ft)	3	0	0	0		
Control Delay (s)	1.5	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	0.6		0.0			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.3					
Intersection Capacity Utilization	35.9%			ICU Level of Service	A	
Analysis Period (min)	15					



Lanes, Volumes, Timings  
4: Washington St & Allen PI/Hospital Garage Dr

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	56	27	34	16	5	82	29	416	32	100	306	19
Future Volume (vph)	56	27	34	16	5	82	29	416	32	100	306	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.961			0.859			0.990			0.993	
Fl <sub>t</sub> Protected		0.977		0.950				0.997			0.988	
Satd. Flow (prot)	0	1737	0	1805	1632	0	0	3435	0	0	3416	0
Fl <sub>t</sub> Permitted		0.797		0.612				0.903			0.725	
Satd. Flow (perm)	0	1417	0	1163	1632	0	0	3111	0	0	2506	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			96			9			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1133			193			356			416	
Travel Time (s)		25.8			4.4			8.1			9.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	0%	6%	0%	0%	0%	4%	4%	0%	0%	5%	2%
Adj. Flow (vph)	66	32	40	19	6	96	34	489	38	118	360	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	138	0	19	102	0	0	561	0	0	500	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		3			3			2			1	1 2
Permitted Phases	3			3			2				2	
Detector Phase	3	3		3	3		2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0			4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		20.0	20.0			8.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0			14.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		40.0%	40.0%			15.6%	
Maximum Green (s)	35.0	35.0		35.0	35.0		31.0	31.0			10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0				
Total Lost Time (s)		5.0		5.0	5.0			5.0				
Lead/Lag							Lag	Lag			Lead	
Lead-Lag Optimize?							Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		0.2	0.2			0.2	
Recall Mode	None	None		None	None		C-Max	C-Max			None	
Walk Time (s)	16.0	16.0		16.0	16.0							
Flash Dont Walk (s)	1.0	1.0		1.0	1.0							
Pedestrian Calls (#/hr)	14	14		14	14							
Act Effct Green (s)		11.6		11.6	11.6			58.0			65.4	
Actuated g/C Ratio		0.13		0.13	0.13			0.64			0.73	
v/c Ratio		0.67		0.13	0.35			0.28			0.26	
Control Delay		45.1		34.3	11.6			2.3			2.4	
Queue Delay		0.0		0.0	0.0			0.0			0.0	
Total Delay		45.1		34.3	11.6			2.3			2.4	
LOS		D		C	B			A			A	
Approach Delay		45.1			15.2			2.3			2.4	

Lanes, Volumes, Timings  
 4: Washington St & Allen PI/Hospital Garage Dr

2026 Background Conditions  
 Weekday Morning Peak Hour

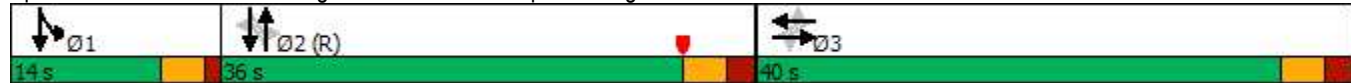


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			B			A			A	
Queue Length 50th (ft)		61		10	3			12			20	
Queue Length 95th (ft)		106		26	39			m25			25	
Internal Link Dist (ft)		1053			113			276			336	
Turn Bay Length (ft)												
Base Capacity (vph)		567		452	693			2007			2010	
Starvation Cap Reductn		0		0	0			0			0	
Spillback Cap Reductn		0		0	0			0			0	
Storage Cap Reductn		0		0	0			0			0	
Reduced v/c Ratio		0.24		0.04	0.15			0.28			0.25	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 45 (50%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay: 8.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 50.3%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Washington St & Allen PI/Hospital Garage Dr



HCM Signalized Intersection Capacity Analysis  
4: Washington St & Allen Pl/Hospital Garage Dr

2026 Background Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	56	27	34	16	5	82	29	416	32	100	306	19
Future Volume (vph)	56	27	34	16	5	82	29	416	32	100	306	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.96		1.00	0.86			0.99			0.99	
Flt Protected		0.98		0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1736		1805	1632			3434			3418	
Flt Permitted		0.80		0.61	1.00			0.90			0.72	
Satd. Flow (perm)		1417		1163	1632			3110			2507	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	66	32	40	19	6	96	34	489	38	118	360	22
RTOR Reduction (vph)	0	24	0	0	84	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	114	0	19	18	0	0	558	0	0	498	0
Heavy Vehicles (%)	2%	0%	6%	0%	0%	0%	4%	4%	0%	0%	5%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		3			3			2			1	1 2
Permitted Phases	3			3			2			2		
Actuated Green, G (s)		11.6		11.6	11.6			58.0			64.4	
Effective Green, g (s)		11.6		11.6	11.6			58.0			64.4	
Actuated g/C Ratio		0.13		0.13	0.13			0.64			0.72	
Clearance Time (s)		5.0		5.0	5.0			5.0				
Vehicle Extension (s)		2.0		2.0	2.0			0.2				
Lane Grp Cap (vph)		182		149	210			2004			1858	
v/s Ratio Prot					0.01						c0.02	
v/s Ratio Perm		c0.08		0.02				c0.18			0.17	
v/c Ratio		0.63		0.13	0.09			0.28			0.27	
Uniform Delay, d1		37.2		34.7	34.5			6.9			4.5	
Progression Factor		1.00		1.00	1.00			0.27			0.64	
Incremental Delay, d2		4.8		0.1	0.1			0.2			0.0	
Delay (s)		42.0		34.9	34.6			2.1			2.9	
Level of Service		D		C	C			A			A	
Approach Delay (s)		42.0			34.6			2.1			2.9	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			9.6			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)		14.0				
Intersection Capacity Utilization			50.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
5: Vernon St/Retreat Ave & Washington St

2026 Background Conditions  
Weekday Morning Peak Hour

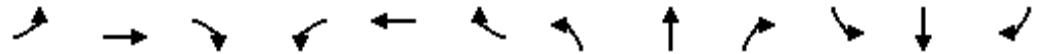


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	99	52	123	63	128	22	377	0	165	237	28
Future Volume (vph)	39	99	52	123	63	128	22	377	0	165	237	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Fr <sub>t</sub>		0.948				0.850						0.990
Fl <sub>t</sub> Protected	0.950			0.950	0.982			0.997				0.981
Satd. Flow (prot)	1770	1760	0	1453	1635	1538	0	3532	0	0	3360	0
Fl <sub>t</sub> Permitted	0.679			0.093	0.295			0.885				0.671
Satd. Flow (perm)	1265	1760	0	142	491	1538	0	3136	0	0	2298	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		23				170						7
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1103			186			140				356
Travel Time (s)		25.1			4.2			3.2				8.1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	3%	18%	3%	5%	0%	2%	8%	2%	6%	4%
Adj. Flow (vph)	46	116	61	145	74	151	26	444	0	194	279	33
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	46	177	0	103	116	151	0	470	0	0	506	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		5			4			2			1	1 2
Permitted Phases	5			4		4	2				2	
Detector Phase	5	5		4	4	4	2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	10.0	10.0			5.0	
Minimum Split (s)	11.0	11.0		12.0	12.0	12.0	15.0	15.0			9.0	
Total Split (s)	11.0	11.0		31.0	31.0	31.0	18.0	18.0			9.0	
Total Split (%)	12.2%	12.2%		34.4%	34.4%	34.4%	20.0%	20.0%			10.0%	
Maximum Green (s)	7.0	7.0		26.0	26.0	26.0	13.0	13.0			5.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0	2.0			1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0		5.0	5.0	5.0		5.0				
Lead/Lag				Lag	Lag	Lag	Lag	Lag			Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	0.2	0.2			0.2	
Recall Mode	None	None		None	None	None	C-Max	C-Max			Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	7.0	7.0		42.8	42.8	42.8		13.0			19.0	
Actuated g/C Ratio	0.08	0.08		0.48	0.48	0.48		0.14			0.21	
v/c Ratio	0.47	1.12		1.54	0.50	0.18		1.04			0.92	
Control Delay	56.1	143.5		324.9	30.4	3.4		92.3			56.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	56.1	143.5		324.9	30.4	3.4		92.3			56.4	
LOS	E	F		F	C	A		F			E	
Approach Delay		125.4			101.3			92.3			56.4	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	23%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	12
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
5: Vernon St/Retreat Ave & Washington St

2026 Background Conditions  
Weekday Morning Peak Hour

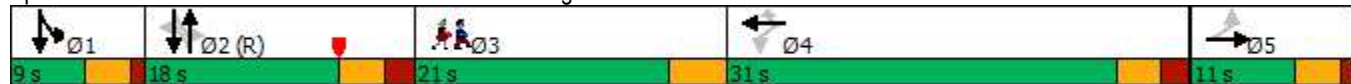


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	F			F			F			E		
Queue Length 50th (ft)	26	~104		~83	41	0	~153			101		
Queue Length 95th (ft)	#58	#216		#178	#154	28	#230			#217		
Internal Link Dist (ft)	1023			106			60			276		
Turn Bay Length (ft)												
Base Capacity (vph)	98	158		67	233	820	452			549		
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	0.47	1.12		1.54	0.50	0.18	1.04			0.92		

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 22 (24%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.54  
 Intersection Signal Delay: 87.6  
 Intersection LOS: F  
 Intersection Capacity Utilization 52.5%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 ~ 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: 5: Vernon St/Retreat Ave & Washington St



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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
5: Vernon St/Retreat Ave & Washington St

2026 Background Conditions  
Weekday Morning Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	39	99	52	123	63	128	22	377	0	165	237	28		
Future Volume (vph)	39	99	52	123	63	128	22	377	0	165	237	28		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	4.0	4.0		5.0	5.0	5.0		5.0			4.0			
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00		0.95			0.95			
Frt	1.00	0.95		1.00	1.00	0.85		1.00			0.99			
Flt Protected	0.95	1.00		0.95	0.98	1.00		1.00			0.98			
Satd. Flow (prot)	1770	1761		1453	1635	1538		3533			3362			
Flt Permitted	0.68	1.00		0.09	0.30	1.00		0.89			0.67			
Satd. Flow (perm)	1264	1761		143	491	1538		3137			2299			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85		
Adj. Flow (vph)	46	116	61	145	74	151	26	444	0	194	279	33		
RTOR Reduction (vph)	0	21	0	0	0	79	0	0	0	0	6	0		
Lane Group Flow (vph)	46	156	0	103	116	72	0	470	0	0	500	0		
Heavy Vehicles (%)	2%	2%	3%	18%	3%	5%	0%	2%	8%	2%	6%	4%		
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA			
Protected Phases		5			4			2			1	1 2		
Permitted Phases	5			4		4	2			2				
Actuated Green, G (s)	7.0	7.0		42.8	42.8	42.8		9.8			14.8			
Effective Green, g (s)	7.0	7.0		42.8	42.8	42.8		9.8			14.8			
Actuated g/C Ratio	0.08	0.08		0.48	0.48	0.48		0.11			0.16			
Clearance Time (s)	4.0	4.0		5.0	5.0	5.0		5.0			5.0			
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		0.2						
Lane Grp Cap (vph)	98	136		68	233	731		341			437			
v/s Ratio Prot		c0.09									c0.06			
v/s Ratio Perm	0.04			c0.72	0.24	0.05		c0.15			0.12			
v/c Ratio	0.47	1.15		1.51	0.50	0.10		1.38			1.14			
Uniform Delay, d1	39.7	41.5		23.6	16.2	13.0		40.1			37.6			
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			0.99			
Incremental Delay, d2	1.3	121.6		293.2	0.6	0.0		187.7			88.7			
Delay (s)	41.0	163.1		316.8	16.8	13.0		227.8			126.0			
Level of Service	D	F		F	B	B		F			F			
Approach Delay (s)		137.9			98.8			227.8			126.0			
Approach LOS		F			F			F			F			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			151.8									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.35											
Actuated Cycle Length (s)			90.0								22.0			
Intersection Capacity Utilization			52.5%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														



Lanes, Volumes, Timings  
6: Seymour St & Jefferson St

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗			↖	↗			
Traffic Volume (vph)	53	197	96	272	191	32	24	15	69	0	0	0
Future Volume (vph)	53	197	96	272	191	32	24	15	69	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.963			0.978				0.850			
Fl <sub>t</sub> Protected		0.992		0.950				0.970				
Satd. Flow (prot)	0	1730	0	1805	1732	0	0	1843	1615	0	0	0
Fl <sub>t</sub> Permitted		0.916		0.384				0.970				
Satd. Flow (perm)	0	1598	0	730	1732	0	0	1843	1615	0	0	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		531			1134			467				822
Travel Time (s)		12.1			25.8			10.6				18.7
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 (%)	6%	7%	0%	0%	7%	9%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	56	207	101	286	201	34	25	16	73	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	364	0	286	235	0	0	41	73	0	0	0
Turn Type	Perm	NA		D,P+P	NA		Perm	NA	Perm			
Protected Phases		2		1	1 2			4				
Permitted Phases	2			2			4		4			
Detector Phase	2	2		1	1 2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	5.0	5.0			
Minimum Split (s)	9.0	9.0		9.0			9.0	9.0	9.0			
Total Split (s)	35.0	35.0		14.0			24.0	24.0	24.0			
Total Split (%)	38.9%	38.9%		15.6%			26.7%	26.7%	26.7%			
Maximum Green (s)	31.0	31.0		10.0			20.0	20.0	20.0			
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0			
All-Red Time (s)	1.0	1.0		1.0			1.0	1.0	1.0			
Lost Time Adjust (s)		0.0		0.0				0.0	0.0			
Total Lost Time (s)		4.0		4.0				4.0	4.0			
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0			3.0	3.0	3.0			
Recall Mode	C-Max	C-Max		None			Max	Max	Max			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		31.1		41.0	45.0			33.6	33.6			
Actuated g/C Ratio		0.35		0.46	0.50			0.37	0.37			
v/c Ratio		0.66		0.63	0.27			0.06	0.12			
Control Delay		29.3		21.2	14.1			21.6	22.0			
Queue Delay		0.0		0.0	0.0			0.0	0.0			
Total Delay		29.3		21.2	14.1			21.6	22.0			
LOS		C		C	B			C	C			
Approach Delay		29.3			18.0			21.9				

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr1	
Fl1 Protected	
Satd. Flow (prot)	
Fl1 Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	19%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	11
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
6: Seymour St & Jefferson St

2026 Background Conditions  
Weekday Morning Peak Hour

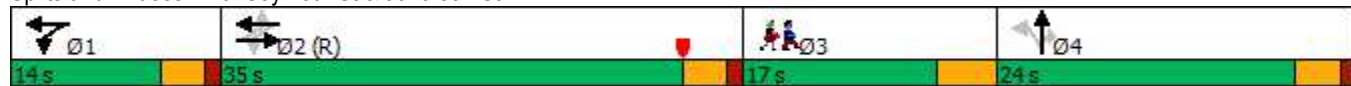


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C				B				C		
Queue Length 50th (ft)		186		92	74			14	25			
Queue Length 95th (ft)		214		147	121			46	71			
Internal Link Dist (ft)		451			1054			387			742	
Turn Bay Length (ft)												
Base Capacity (vph)		552		453	852			687	602			
Starvation Cap Reductn		0		0	0			0	0			
Spillback Cap Reductn		0		0	0			0	0			
Storage Cap Reductn		0		0	0			0	0			
Reduced v/c Ratio		0.66		0.63	0.28			0.06	0.12			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	32.5 (36%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	22.6
Intersection LOS:	C
Intersection Capacity Utilization:	48.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 6: Seymour St & Jefferson St




















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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
6: Seymour St & Jefferson St

2026 Background Conditions  
Weekday Morning Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	53	197	96	272	191	32	24	15	69	0	0	0	
Future Volume (vph)	53	197	96	272	191	32	24	15	69	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0				
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00				
Frt		0.96		1.00	0.98			1.00	0.85				
Flt Protected		0.99		0.95	1.00			0.97	1.00				
Satd. Flow (prot)		1730		1805	1732			1844	1615				
Flt Permitted		0.92		0.38	1.00			0.97	1.00				
Satd. Flow (perm)		1598		730	1732			1844	1615				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	56	207	101	286	201	34	25	16	73	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	364	0	286	235	0	0	41	73	0	0	0	
Heavy Vehicles (%)	6%	7%	0%	0%	7%	9%	0%	0%	0%	0%	0%	0%	
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm				
Protected Phases		2		1	1 2			4					
Permitted Phases	2			2			4		4				
Actuated Green, G (s)		27.9		37.8	41.8			33.6	33.6				
Effective Green, g (s)		27.9		37.8	41.8			33.6	33.6				
Actuated g/C Ratio		0.31		0.42	0.46			0.37	0.37				
Clearance Time (s)		4.0		4.0				4.0	4.0				
Vehicle Extension (s)		3.0		3.0				3.0	3.0				
Lane Grp Cap (vph)		495		424	804			688	602				
v/s Ratio Prot				c0.07	0.14								
v/s Ratio Perm		c0.23		0.21				0.02	c0.05				
v/c Ratio		0.74		0.67	0.29			0.06	0.12				
Uniform Delay, d1		27.8		19.3	14.9			18.1	18.5				
Progression Factor		0.91		1.00	1.00			1.00	1.00				
Incremental Delay, d2		8.9		4.2	0.2			0.2	0.4				
Delay (s)		34.3		23.5	15.1			18.2	18.9				
Level of Service		C		C	B			B	B				
Approach Delay (s)		34.3			19.7			18.7			0.0		
Approach LOS		C			B			B			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			24.9		HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					16.0			
Intersection Capacity Utilization			48.4%		ICU Level of Service					A			
Analysis Period (min)			15										
c	Critical Lane Group												

Lanes, Volumes, Timings  
7: IOL Dr/Seymour St & Retreat Ave

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	187	85	126	243	178	15	2	21	83	3	71
Future Volume (vph)	69	187	85	126	243	178	15	2	21	83	3	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			45			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
Frt		0.953			0.937			0.924			0.939	
Flt Protected	0.950			0.950				0.981			0.974	
Satd. Flow (prot)	1770	1717	0	1805	1665	0	0	1677	0	0	1721	0
Flt Permitted	0.260			0.446				0.880			0.820	
Satd. Flow (perm)	484	1717	0	847	1665	0	0	1504	0	0	1449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			41			26			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		456			1480			118			630	
Travel Time (s)		10.4			33.6			2.7			14.3	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	7%	2%	0%	12%	0%	4%	0%	2%	1%	0%	1%
Adj. Flow (vph)	84	228	104	154	296	217	18	2	26	101	4	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	332	0	154	513	0	0	46	0	0	192	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0		40.0	40.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	43.0	43.0		43.0	43.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.35	0.35		0.35	0.35	
v/c Ratio	0.40	0.44		0.42	0.69		0.08	0.08		0.36	0.36	
Control Delay	31.5	23.2		27.8	30.1		12.7	12.7		20.4	20.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	36
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
7: IOL Dr/Seymour St & Retreat Ave

2026 Background Conditions  
Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	31.5	23.2		27.8	30.1			12.7			20.4	
LOS	C	C		C	C			B			C	
Approach Delay		24.9			29.6			12.7			20.4	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	42	155		77	277			8			67	
Queue Length 95th (ft)	83	213		126	359			29			111	
Internal Link Dist (ft)		376			1400			38			550	
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	208	752		364	739			543			537	
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	0.40	0.44		0.42	0.69			0.08			0.36	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	35 (35%), Referenced to phase 1:EBWB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	26.2
Intersection LOS:	C
Intersection Capacity Utilization	62.0%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 7: IOL Dr/Seymour St & Retreat Ave





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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
7: IOL Dr/Seymour St & Retreat Ave

2026 Background Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	187	85	126	243	178	15	2	21	83	3	71
Future Volume (vph)	69	187	85	126	243	178	15	2	21	83	3	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.95		1.00	0.94			0.92			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1770	1717		1805	1664			1676			1721	
Flt Permitted	0.26	1.00		0.45	1.00			0.88			0.82	
Satd. Flow (perm)	485	1717		848	1664			1503			1448	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	84	228	104	154	296	217	18	2	26	101	4	87
RTOR Reduction (vph)	0	15	0	0	24	0	0	17	0	0	30	0
Lane Group Flow (vph)	84	317	0	154	489	0	0	29	0	0	162	0
Heavy Vehicles (%)	2%	7%	2%	0%	12%	0%	4%	0%	2%	1%	0%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	41.0	41.0		41.0	41.0			35.0			35.0	
Effective Green, g (s)	41.0	41.0		41.0	41.0			35.0			35.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.35			0.35	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			2.0			2.0	
Lane Grp Cap (vph)	198	703		347	682			526			506	
v/s Ratio Prot		0.18			c0.29							
v/s Ratio Perm	0.17			0.18				0.02			c0.11	
v/c Ratio	0.42	0.45		0.44	0.72			0.06			0.32	
Uniform Delay, d1	21.1	21.4		21.3	24.6			21.5			23.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	6.5	2.1		4.1	6.4			0.2			1.7	
Delay (s)	27.6	23.4		25.3	31.0			21.7			25.5	
Level of Service	C	C		C	C			C			C	
Approach Delay (s)		24.3			29.7			21.7			25.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c	Critical Lane Group		

Lanes, Volumes, Timings  
8: Maple Ave & Retreat Ave

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Lane Configurations								
Traffic Volume (vph)	277	13	16	521	265	529		
Future Volume (vph)	277	13	16	521	265	529		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00		
Fr <sub>t</sub>	0.993					0.850		
Fl <sub>t</sub> Protected	0.954			0.999				
Satd. Flow (prot)	3265	0	0	3377	1727	1538		
Fl <sub>t</sub> Permitted	0.954			0.945				
Satd. Flow (perm)	3265	0	0	3194	1727	1538		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)						563		
Link Speed (mph)	30			30	30			
Link Distance (ft)	1480			980	257			
Travel Time (s)	33.6			22.3	5.8			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Heavy Vehicles (%)	7%	6%	0%	7%	10%	5%		
Adj. Flow (vph)	295	14	17	554	282	563		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	309	0	0	571	282	563		
Turn Type	Prot		custom	NA	NA	Perm		
Protected Phases	4		5	2 5	6		2	3
Permitted Phases			2			6		
Detector Phase	4		5	2 5	6	6		
Switch Phase								
Minimum Initial (s)	7.0		5.0		15.0	15.0	15.0	1.0
Minimum Split (s)	11.5		9.1		19.2	19.2	19.2	33.0
Total Split (s)	19.5		12.1		42.2	42.2	42.2	33.0
Total Split (%)	18.3%		11.3%		39.5%	39.5%	40%	31%
Maximum Green (s)	15.0		8.0		38.0	38.0	38.0	29.0
Yellow Time (s)	3.2		3.1		3.2	3.2	3.2	4.0
All-Red Time (s)	1.3		1.0		1.0	1.0	1.0	0.0
Lost Time Adjust (s)	0.0				0.0	0.0		
Total Lost Time (s)	4.5				4.2	4.2		
Lead/Lag	Lag							Lead
Lead-Lag Optimize?	Yes							Yes
Vehicle Extension (s)	2.0		2.0		2.0	2.0	2.0	3.0
Recall Mode	None		None		C-Max	C-Max	C-Max	None
Walk Time (s)								7.0
Flash Dont Walk (s)								22.0
Pedestrian Calls (#/hr)								4
Act Effct Green (s)	13.7			73.6	65.0	65.0		
Actuated g/C Ratio	0.13			0.69	0.61	0.61		
v/c Ratio	0.74			0.26	0.27	0.49		
Control Delay	55.9			8.0	17.5	8.9		
Queue Delay	0.4			0.0	1.3	1.3		
Total Delay	56.3			8.0	18.8	10.2		
LOS	E			A	B	B		
Approach Delay	56.3			8.0	13.1			

Lanes, Volumes, Timings  
 8: Maple Ave & Retreat Ave

2026 Background Conditions  
 Weekday Morning Peak Hour

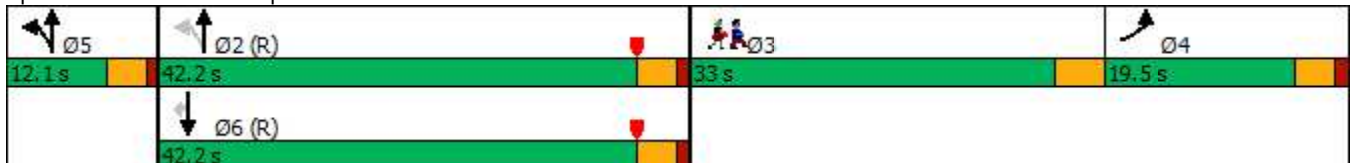


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Approach LOS	E			A	B			
Queue Length 50th (ft)	105			43	111	113		
Queue Length 95th (ft)	151			169	m280	339		
Internal Link Dist (ft)	1400			900	177			
Turn Bay Length (ft)								
Base Capacity (vph)	465			2223	1051	1156		
Starvation Cap Reductn	0			0	565	374		
Spillback Cap Reductn	19			73	0	0		
Storage Cap Reductn	0			0	0	0		
Reduced v/c Ratio	0.69			0.27	0.58	0.72		

Intersection Summary

Area Type: Other  
 Cycle Length: 106.8  
 Actuated Cycle Length: 106.8  
 Offset: 50.1 (47%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 19.1 Intersection LOS: B  
 Intersection Capacity Utilization 54.6% ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Maple Ave & Retreat Ave



HCM Signalized Intersection Capacity Analysis  
8: Maple Ave & Retreat Ave

2026 Background Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	TT			TT	T	T
Traffic Volume (vph)	277	13	16	521	265	529
Future Volume (vph)	277	13	16	521	265	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.2	4.2	4.2
Lane Util. Factor	0.97			0.95	1.00	1.00
Fr <sub>t</sub>	0.99			1.00	1.00	0.85
Fl <sub>t</sub> Protected	0.95			1.00	1.00	1.00
Satd. Flow (prot)	3267			3375	1727	1538
Fl <sub>t</sub> Permitted	0.95			0.94	1.00	1.00
Satd. Flow (perm)	3267			3194	1727	1538
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	295	14	17	554	282	563
RTOR Reduction (vph)	0	0	0	0	0	237
Lane Group Flow (vph)	309	0	0	571	282	326
Heavy Vehicles (%)	7%	6%	0%	7%	10%	5%
Turn Type	Prot		custom	NA	NA	Perm
Protected Phases	4		5	2.5	6	
Permitted Phases			2			6
Actuated Green, G (s)	13.7			70.5	61.8	61.8
Effective Green, g (s)	13.7			70.5	61.8	61.8
Actuated g/C Ratio	0.13			0.66	0.58	0.58
Clearance Time (s)	4.5				4.2	4.2
Vehicle Extension (s)	2.0				2.0	2.0
Lane Grp Cap (vph)	419			2123	999	889
v/s Ratio Prot	c0.09			c0.02	0.16	
v/s Ratio Perm				0.16		c0.21
v/c Ratio	0.74			0.27	0.28	0.37
Uniform Delay, d <sub>1</sub>	44.8			7.5	11.3	12.0
Progression Factor	1.00			1.00	1.25	4.04
Incremental Delay, d <sub>2</sub>	5.8			0.0	0.6	0.9
Delay (s)	50.6			7.5	14.8	49.5
Level of Service	D			A	B	D
Approach Delay (s)	50.6			7.5	37.9	
Approach LOS	D			A	D	

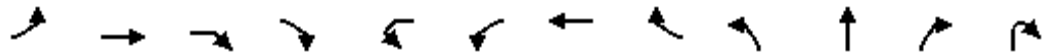
Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	106.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings

2026 Background Conditions

9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↔↔				↔	↔			↔↔	↔	
Traffic Volume (vph)	20	129	9	169	1	387	282	27	105	318	297	1
Future Volume (vph)	20	129	9	169	1	387	282	27	105	318	297	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Fr <sub>t</sub>		0.918					0.987				0.850	
Fl <sub>t</sub> Protected		0.997				0.950				0.988		
Satd. Flow (prot)	0	3239	0	0	0	1770	1839	0	0	3497	1583	0
Fl <sub>t</sub> Permitted		0.997				0.950				0.731		
Satd. Flow (perm)	0	3239	0	0	0	1770	1839	0	0	2587	1583	0
Right Turn on Red				Yes				No				No
Satd. Flow (RTOR)		182										
Link Speed (mph)		30					30			30		
Link Distance (ft)		1134					419			257		
Travel Time (s)		25.8					9.5			5.8		
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
Adj. Flow (vph)	22	139	10	182	1	416	303	29	113	342	319	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	353	0	0	0	417	332	0	0	455	320	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Detector Phase	4	4			8	8	8		5	2.5	2.5	
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0	7.0	7.0		5.0			
Minimum Split (s)	12.4	12.4			11.1	11.1	11.1		8.2			
Total Split (s)	20.4	20.4			25.1	25.1	25.1		8.2			
Total Split (%)	19.1%	19.1%			23.5%	23.5%	23.5%		7.7%			
Maximum Green (s)	15.0	15.0			21.0	21.0	21.0		5.0			
Yellow Time (s)	3.4	3.4			3.1	3.1	3.1		3.1			
All-Red Time (s)	2.0	2.0			1.0	1.0	1.0		0.1			
Lost Time Adjust (s)		0.0				0.0	0.0					
Total Lost Time (s)		5.4				4.1	4.1					
Lead/Lag	Lag	Lag										
Lead-Lag Optimize?	Yes	Yes										
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Recall Mode	None	None			None	None	None		None			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		10.6				32.6	32.6			32.7	37.8	
Actuated g/C Ratio		0.10				0.31	0.31			0.31	0.35	
v/c Ratio		0.73				0.77	0.59			0.52	0.57	
Control Delay		31.1				37.6	29.2			30.0	32.7	
Queue Delay		0.1				0.3	0.0			0.4	19.5	
Total Delay		31.2				37.9	29.2			30.3	52.2	
LOS		C				D	C			C	D	
Approach Delay		31.2					34.1			39.3		
Approach LOS		C					C			D		

Lanes, Volumes, Timings  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wylllys St

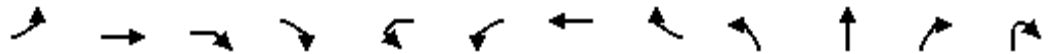
2026 Background Conditions  
 Weekday Morning Peak Hour



Lane Group	SBL2	SBT	SBR	Ø2	Ø3
Lane Configurations					
Traffic Volume (vph)	3	224	38		
Future Volume (vph)	3	224	38		
Ideal Flow (vphpl)	1900	1900	1900		
Lane Util. Factor	0.95	0.95	0.95		
Frt		0.978			
Flt Protected		0.999			
Satd. Flow (prot)	0	3458	0		
Flt Permitted		0.950			
Satd. Flow (perm)	0	3288	0		
Right Turn on Red			No		
Satd. Flow (RTOR)					
Link Speed (mph)		30			
Link Distance (ft)		614			
Travel Time (s)		14.0			
Peak Hour Factor	0.93	0.93	0.93		
Adj. Flow (vph)	3	241	41		
Shared Lane Traffic (%)					
Lane Group Flow (vph)	0	285	0		
Turn Type	Perm	NA			
Protected Phases		6		2	3
Permitted Phases	6				
Detector Phase	6	6			
Switch Phase					
Minimum Initial (s)	15.0	15.0		15.0	1.0
Minimum Split (s)	20.1	20.1		20.1	28.0
Total Split (s)	25.1	25.1		25.1	28.0
Total Split (%)	23.5%	23.5%		24%	26%
Maximum Green (s)	20.0	20.0		20.0	24.0
Yellow Time (s)	3.1	3.1		3.1	4.0
All-Red Time (s)	2.0	2.0		2.0	0.0
Lost Time Adjust (s)		0.0			
Total Lost Time (s)		5.1			
Lead/Lag					Lead
Lead-Lag Optimize?					Yes
Vehicle Extension (s)	2.0	2.0		2.0	3.0
Recall Mode	C-Max	C-Max		C-Max	None
Walk Time (s)					7.0
Flash Dont Walk (s)					17.0
Pedestrian Calls (#/hr)					19
Act Effct Green (s)		21.8			
Actuated g/C Ratio		0.20			
v/c Ratio		0.43			
Control Delay		39.8			
Queue Delay		0.3			
Total Delay		40.1			
LOS		D			
Approach Delay		40.1			
Approach LOS		D			

Lanes, Volumes, Timings  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Background Conditions  
 Weekday Morning Peak Hour

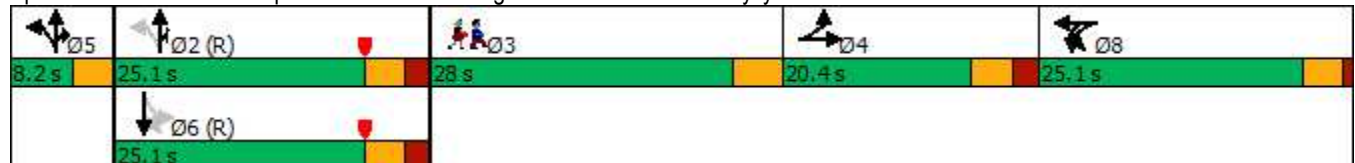


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Queue Length 50th (ft)		59				175	116			132	186	
Queue Length 95th (ft)		104				#554	#401			#151	#312	
Internal Link Dist (ft)		1054					339			177		
Turn Bay Length (ft)												
Base Capacity (vph)		611				541	562			883	559	
Starvation Cap Reductn		0				0	0			114	229	
Spillback Cap Reductn		9				10	0			0	0	
Storage Cap Reductn		0				0	0			0	0	
Reduced v/c Ratio		0.59				0.79	0.59			0.59	0.97	

Intersection Summary

Area Type: Other  
 Cycle Length: 106.8  
 Actuated Cycle Length: 106.8  
 Offset: 23.2 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 36.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 78.7%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St



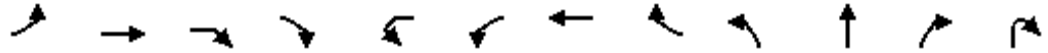




Lane Group	SBL2	SBT	SBR	Ø2	Ø3
Queue Length 50th (ft)		90			
Queue Length 95th (ft)		134			
Internal Link Dist (ft)		534			
Turn Bay Length (ft)					
Base Capacity (vph)		669			
Starvation Cap Reductn		0			
Spillback Cap Reductn		90			
Storage Cap Reductn		0			
Reduced v/c Ratio		0.49			
Intersection Summary					

HCM Signalized Intersection Capacity Analysis  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Background Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↕↕				↔	↔			↕↕	↔	
Traffic Volume (vph)	20	129	9	169	1	387	282	27	105	318	297	1
Future Volume (vph)	20	129	9	169	1	387	282	27	105	318	297	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4				4.1	4.1			5.1	5.1	
Lane Util. Factor		0.95				1.00	1.00			0.95	1.00	
Frt		0.92				1.00	0.99			1.00	0.85	
Flt Protected		1.00				0.95	1.00			0.99	1.00	
Satd. Flow (prot)		3240				1770	1838			3496	1583	
Flt Permitted		1.00				0.95	1.00			0.73	1.00	
Satd. Flow (perm)		3240				1770	1838			2588	1583	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	22	139	10	182	1	416	303	29	113	342	319	1
RTOR Reduction (vph)	0	164	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	189	0	0	0	417	332	0	0	455	320	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Actuated Green, G (s)		10.6				32.6	32.6			32.2	35.4	
Effective Green, g (s)		10.6				32.6	32.6			32.2	32.2	
Actuated g/C Ratio		0.10				0.31	0.31			0.30	0.30	
Clearance Time (s)		5.4				4.1	4.1					
Vehicle Extension (s)		2.0				2.0	2.0					
Lane Grp Cap (vph)		321				540	561			889	477	
v/s Ratio Prot		c0.06				c0.24	0.18			0.06	c0.20	
v/s Ratio Perm										0.09		
v/c Ratio		0.59				0.77	0.59			0.51	0.67	
Uniform Delay, d1		46.0				33.7	31.5			30.8	32.7	
Progression Factor		1.00				0.68	0.68			0.92	0.93	
Incremental Delay, d2		1.8				5.6	1.0			0.2	2.7	
Delay (s)		47.8				28.6	22.3			28.5	32.9	
Level of Service		D				C	C			C	C	
Approach Delay (s)		47.8					25.8			30.3		
Approach LOS		D					C			C		

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	106.8	Sum of lost time (s)	21.8
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wylllys St

2026 Background Conditions  
 Weekday Morning Peak Hour



Movement	SBL2	SBT	SBR
Lane Configurations		↕↕	
Traffic Volume (vph)	3	224	38
Future Volume (vph)	3	224	38
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.1	
Lane Util. Factor		0.95	
Frt		0.98	
Flt Protected		1.00	
Satd. Flow (prot)		3461	
Flt Permitted		0.95	
Satd. Flow (perm)		3289	
Peak-hour factor, PHF	0.93	0.93	0.93
Adj. Flow (vph)	3	241	41
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	285	0
Turn Type	Perm	NA	
Protected Phases		6	
Permitted Phases	6		
Actuated Green, G (s)		19.4	
Effective Green, g (s)		19.4	
Actuated g/C Ratio		0.18	
Clearance Time (s)		5.1	
Vehicle Extension (s)		2.0	
Lane Grp Cap (vph)		597	
v/s Ratio Prot			
v/s Ratio Perm		0.09	
v/c Ratio		0.48	
Uniform Delay, d1		39.2	
Progression Factor		1.00	
Incremental Delay, d2		2.7	
Delay (s)		41.9	
Level of Service		D	
Approach Delay (s)		41.9	
Approach LOS		D	
<b>Intersection Summary</b>			

Lanes, Volumes, Timings  
10: Wethersfield Ave/Main St & Wyllys St

2026 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	4	295	44	46	548	29	121	221	145	32	181	4
Future Volume (vph)	4	295	44	46	548	29	121	221	145	32	181	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.981			0.993			0.941			0.997	
Fl <sub>t</sub> Protected		0.999			0.996		0.950			0.950		
Satd. Flow (prot)	0	3384	0	0	3470	0	1719	1655	0	1570	1773	0
Fl <sub>t</sub> Permitted		0.946			0.918		0.438			0.532		
Satd. Flow (perm)	0	3205	0	0	3199	0	793	1655	0	879	1773	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		419			457			477			416	
Travel Time (s)		9.5			10.4			10.8			9.5	
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 (%)	6%	4%	8%	2%	3%	2%	5%	8%	8%	15%	7%	0%
Adj. Flow (vph)	4	314	47	49	583	31	129	235	154	34	193	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	365	0	0	663	0	129	389	0	34	197	0
Turn Type	Perm	NA		D,P+P	NA		D,P+P	NA		Perm	NA	
Protected Phases		4		3	3 4		1	1 2			2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		3	3 4		1	1 2		2	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0			5.0			10.0	10.0	
Minimum Split (s)	15.0	15.0		9.0			9.0			15.0	15.0	
Total Split (s)	23.0	23.0		15.0			19.0			25.8	25.8	
Total Split (%)	21.5%	21.5%		14.0%			17.8%			24.2%	24.2%	
Maximum Green (s)	18.0	18.0		11.0			15.0			20.8	20.8	
Yellow Time (s)	3.0	3.0		3.0			3.0			3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0			1.0			2.0	2.0	
Lost Time Adjust (s)		0.0					0.0			0.0	0.0	
Total Lost Time (s)		5.0					4.0			5.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0			3.0			3.0	3.0	
Recall Mode	Max	Max		Max			Max			C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		18.0			39.6		36.8	40.8		20.8	20.8	
Actuated g/C Ratio		0.17			0.37		0.34	0.38		0.19	0.19	
v/c Ratio		0.68			0.54		0.32	0.62		0.20	0.57	
Control Delay		49.7			28.9		24.6	31.8		39.6	46.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		49.7			28.9		24.6	31.8		39.6	46.4	
LOS		D			C		C	C		D	D	
Approach Delay		49.7			28.9			30.0			45.4	

Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	22%
Maximum Green (s)	19.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	34
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
 10: Wethersfield Ave/Main St & Wyllys St

2026 Background Conditions  
 Weekday Morning Peak Hour

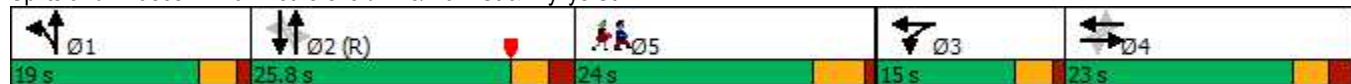


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			C				D
Queue Length 50th (ft)		140			200		58	212		20	123	
Queue Length 95th (ft)		190			261		101	315		50	199	
Internal Link Dist (ft)		339			377			397			336	
Turn Bay Length (ft)												
Base Capacity (vph)		540			1238		403	632		171	345	
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		0.68			0.54		0.32	0.62		0.20	0.57	

Intersection Summary

Area Type:	Other
Cycle Length:	106.8
Actuated Cycle Length:	106.8
Offset:	0 (0%), Referenced to phase 2:NBSB, Start of Yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	35.6
Intersection LOS:	D
Intersection Capacity Utilization	70.9%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 10: Wethersfield Ave/Main St & Wyllys St






















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Lane Group	Ø5
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 10: Wethersfield Ave/Main St & Wyllys St

2026 Background Conditions  
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	295	44	46	548	29	121	221	145	32	181	4
Future Volume (vph)	4	295	44	46	548	29	121	221	145	32	181	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.0		4.0	4.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.98			0.99		1.00	0.94		1.00	1.00	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3385			3472		1719	1655		1570	1773	
Flt Permitted		0.95			0.92		0.44	1.00		0.53	1.00	
Satd. Flow (perm)		3205			3198		792	1655		879	1773	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	4	314	47	49	583	31	129	235	154	34	193	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	365	0	0	663	0	129	389	0	34	197	0
Heavy Vehicles (%)	6%	4%	8%	2%	3%	2%	5%	8%	8%	15%	7%	0%
Turn Type	Perm	NA		D.P+P	NA		D.P+P	NA		Perm	NA	
Protected Phases		4		3	3		1	1		2	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		18.0			38.6		33.8	37.8		18.8	18.8	
Effective Green, g (s)		18.0			38.6		33.8	37.8		18.8	18.8	
Actuated g/C Ratio		0.17			0.36		0.32	0.35		0.18	0.18	
Clearance Time (s)		5.0					4.0			5.0	5.0	
Vehicle Extension (s)		3.0					3.0			3.0	3.0	
Lane Grp Cap (vph)		540			1208		380	585		154	312	
v/s Ratio Prot					c0.11		0.05	c0.24			0.11	
v/s Ratio Perm		c0.11			0.09		0.06			0.04		
v/c Ratio		0.68			0.55		0.34	0.66		0.22	0.63	
Uniform Delay, d1		41.7			27.2		27.2	29.1		37.7	40.8	
Progression Factor		1.05			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.5			1.8		2.4	5.9		3.3	9.4	
Delay (s)		49.3			29.0		29.6	35.0		41.0	50.1	
Level of Service		D			C		C	D		D	D	
Approach Delay (s)		49.3			29.0			33.7			48.8	
Approach LOS		D			C			C			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			37.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			106.8				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			70.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												



## Appendix C

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Intersection Capacity Analysis Worksheets  
2026 Combined Traffic Volumes  
Weekday Morning Peak Hour

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	9	95	26	151	53	52	13	385	167	124	452	16
Future Volume (vph)	9	95	26	151	53	52	13	385	167	124	452	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.973			0.969			0.956			0.996	
Fl <sub>t</sub> Protected		0.996			0.971			0.999			0.990	
Satd. Flow (prot)	0	1731	0	0	3186	0	0	3328	0	0	3433	0
Fl <sub>t</sub> Permitted		0.964			0.681			0.936			0.695	
Satd. Flow (perm)	0	1675	0	0	2235	0	0	3118	0	0	2410	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		12						78			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		567			531			459			319	
Travel Time (s)		12.9			12.1			10.4			7.3	
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%	6%	10%	7%	8%	4%	0%	4%	3%	6%	3%	5%
Adj. Flow (vph)	10	102	28	162	57	56	14	414	180	133	486	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	275	0	0	608	0	0	636	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D,P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0		
Minimum Split (s)	15.0	15.0		15.0	15.0		20.0	20.0		9.0		
Total Split (s)	23.0	23.0		23.0	23.0		36.0	36.0		14.0		
Total Split (%)	25.6%	25.6%		25.6%	25.6%		40.0%	40.0%		15.6%		
Maximum Green (s)	18.0	18.0		18.0	18.0		31.0	31.0		10.0		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		1.0		
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.0			5.0			5.0				
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.4			15.4			43.4			54.8	
Actuated g/C Ratio		0.17			0.17			0.48			0.61	
v/c Ratio		0.47			0.95dl			0.39			0.40	
Control Delay		35.6			59.6			19.4			9.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		35.6			59.6			19.4			9.8	
LOS		D			E			B			A	
Approach Delay		35.6			59.6			19.4			9.8	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	19%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	17
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Combined Conditions  
Weekday Morning Peak Hour

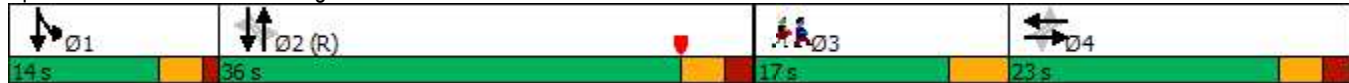


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			E			B			A	
Queue Length 50th (ft)		66			89			83			54	
Queue Length 95th (ft)		120			131			100			145	
Internal Link Dist (ft)		487			451			379			239	
Turn Bay Length (ft)												
Base Capacity (vph)		344			447			1544			1601	
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		0.41			0.62			0.39			0.40	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 45 (50%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 23.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 65.5%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: Washington St & Jefferson St



















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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 1: Washington St & Jefferson St

2026 Combined Conditions  
 Weekday Morning Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	9	95	26	151	53	52	13	385	167	124	452	16		
Future Volume (vph)	9	95	26	151	53	52	13	385	167	124	452	16		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		5.0			5.0			5.0			4.0			
Lane Util. Factor		1.00			0.95			0.95			0.95			
Frt		0.97			0.97			0.96			1.00			
Flt Protected		1.00			0.97			1.00			0.99			
Satd. Flow (prot)		1732			3189			3326			3432			
Flt Permitted		0.96			0.68			0.94			0.70			
Satd. Flow (perm)		1675			2235			3117			2411			
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93		
Adj. Flow (vph)	10	102	28	162	57	56	14	414	180	133	486	17		
RTOR Reduction (vph)	0	10	0	0	0	0	0	42	0	0	2	0		
Lane Group Flow (vph)	0	130	0	0	275	0	0	566	0	0	634	0		
Heavy Vehicles (%)	0%	6%	10%	7%	8%	4%	0%	4%	3%	6%	3%	5%		
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA			
Protected Phases		4			4			2		1	1 2			
Permitted Phases	4			4			2			2				
Actuated Green, G (s)		15.4			15.4			41.0			51.4			
Effective Green, g (s)		15.4			15.4			41.0			51.4			
Actuated g/C Ratio		0.17			0.17			0.46			0.57			
Clearance Time (s)		5.0			5.0			5.0						
Vehicle Extension (s)		3.0			3.0			3.0						
Lane Grp Cap (vph)		286			382			1419			1494			
v/s Ratio Prot											c0.05			
v/s Ratio Perm		0.08			c0.12			0.18			c0.19			
v/c Ratio		0.45			0.95dl			0.40			0.42			
Uniform Delay, d1		33.5			35.3			16.3			10.9			
Progression Factor		1.00			1.39			1.22			1.00			
Incremental Delay, d2		1.1			6.2			0.8			0.2			
Delay (s)		34.7			55.3			20.6			11.1			
Level of Service		C			E			C			B			
Approach Delay (s)		34.7			55.3			20.6			11.1			
Approach LOS		C			E			C			B			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			23.9									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.46											
Actuated Cycle Length (s)			90.0								18.0			
Intersection Capacity Utilization			65.5%										ICU Level of Service	C
Analysis Period (min)			15											
dl Defacto Left Lane. Recode with 1 though lane as a left lane.														
c Critical Lane Group														

Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕	↕↔	
Traffic Volume (vph)	38	8	39	36	1	56	33	470	97	92	494	2
Future Volume (vph)	38	8	39	36	1	56	33	470	97	92	494	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	55		0	250		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			175			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.938				0.850		0.974			0.999	
Flt Protected		0.978			0.953		0.950			0.950		
Satd. Flow (prot)	0	1743	0	0	1811	1599	1805	3398	0	1805	3468	0
Flt Permitted		0.850			0.717		0.446			0.367		
Satd. Flow (perm)	0	1515	0	0	1362	1599	847	3398	0	697	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				109		30			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		151			256			229			459	
Travel Time (s)		3.4			5.8			5.2			10.4	
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 (%)	0%	0%	0%	0%	0%	1%	0%	4%	1%	0%	4%	0%
Adj. Flow (vph)	42	9	43	40	1	62	37	522	108	102	549	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	41	62	37	630	0	102	551	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	5.0	5.0		5.0		
Minimum Split (s)	19.0	19.0		19.0	19.0	19.0	9.0	9.0		9.0		
Total Split (s)	20.0	20.0		20.0	20.0	20.0	36.0	36.0		15.0		
Total Split (%)	22.2%	22.2%		22.2%	22.2%	22.2%	40.0%	40.0%		16.7%		
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	32.0	32.0		11.0		
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)	1.0	1.0		1.0	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)		4.0			4.0	4.0	4.0	4.0		4.0		
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
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	None	C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.0			15.0	15.0	52.5	52.5		63.0	67.8	
Actuated g/C Ratio		0.17			0.17	0.17	0.58	0.58		0.70	0.75	
v/c Ratio		0.33			0.18	0.17	0.07	0.32		0.17	0.21	
Control Delay		23.7			34.6	2.8	9.5	7.2		4.1	3.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	19.0
Total Split (s)	19.0
Total Split (%)	21%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	14
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	



Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Combined Conditions  
Weekday Morning Peak Hour

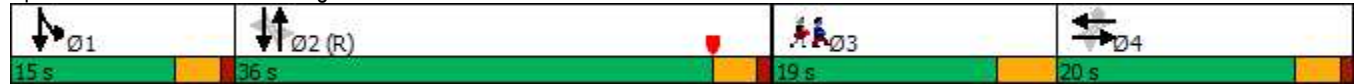


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		23.7			34.6	2.8	9.5	7.2		4.1	3.2	
LOS		C			C	A	A	A		A	A	
Approach Delay		23.7			15.4			7.3				3.3
Approach LOS		C			B			A				A
Queue Length 50th (ft)		26			20	0	4	36		13	50	
Queue Length 95th (ft)		71			50	10	23	127		m24	62	
Internal Link Dist (ft)		71			176			149				379
Turn Bay Length (ft)							55			250		
Base Capacity (vph)		303			242	373	494	1996		639	2588	
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		0.31			0.17	0.17	0.07	0.32		0.16	0.21	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 47 (52%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.33  
 Intersection Signal Delay: 7.2  
 Intersection LOS: A  
 Intersection Capacity Utilization 51.1%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Washington St & Dunkin' Dr/Zwieback St






















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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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
















HCM Signalized Intersection Capacity Analysis  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Combined Conditions  
Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	8	39	36	1	56	33	470	97	92	494	2
Future Volume (vph)	38	8	39	36	1	56	33	470	97	92	494	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.94			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1744			1812	1599	1805	3399		1805	3470	
Flt Permitted		0.85			0.72	1.00	0.45	1.00		0.37	1.00	
Satd. Flow (perm)		1514			1362	1599	847	3399		698	3470	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	9	43	40	1	62	37	522	108	102	549	2
RTOR Reduction (vph)	0	36	0	0	0	54	0	14	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	41	8	37	616	0	102	551	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	4%	1%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4		4	2			2		
Actuated Green, G (s)		12.0			12.0	12.0	48.5	48.5		59.0	63.0	
Effective Green, g (s)		12.0			12.0	12.0	48.5	48.5		59.0	63.0	
Actuated g/C Ratio		0.13			0.13	0.13	0.54	0.54		0.66	0.70	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		201			181	213	456	1831		586	2429	
v/s Ratio Prot								c0.18		0.02	c0.16	
v/s Ratio Perm		c0.04			0.03	0.01	0.04			0.09		
v/c Ratio		0.29			0.23	0.04	0.08	0.34		0.17	0.23	
Uniform Delay, d1		35.2			34.9	34.0	10.0	11.7		5.8	4.8	
Progression Factor		1.00			1.00	1.00	0.65	0.56		0.61	0.55	
Incremental Delay, d2		0.8			0.6	0.1	0.3	0.5		0.1	0.0	
Delay (s)		36.0			35.5	34.1	6.9	7.0		3.7	2.7	
Level of Service		D			D	C	A	A		A	A	
Approach Delay (s)		36.0			34.6			7.0			2.9	
Approach LOS		D			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			8.9								HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			90.0							16.0	Sum of lost time (s)	
Intersection Capacity Utilization			51.1%								ICU Level of Service	A
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
3: Washington St & Lincoln St/Site Drive #2

2026 Combined Conditions  
Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	39	0	90	600	0	0	462	133
Future Volume (vph)	0	0	0	0	39	0	90	600	0	0	462	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Fr <sub>t</sub>	0.966											
Fl <sub>t</sub> Protected	0.994											
Satd. Flow (prot)	0	0	0	0	1863	1863	0	3455	0	0	3386	0
Fl <sub>t</sub> Permitted	0.994											
Satd. Flow (perm)	0	0	0	0	1863	1863	0	3455	0	0	3386	0
Link Speed (mph)					30						30	
Link Distance (ft)	1165				174		121				229	
Travel Time (s)	26.5				4.0		2.8				5.2	
Peak Hour Factor	0.87	0.92	0.87	0.92	0.92	0.92	0.87	0.87	0.92	0.92	0.87	0.87
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	3%	4%	2%	2%	3%	3%
Adj. Flow (vph)	0	0	0	0	42	0	103	690	0	0	531	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	42	0	0	793	0	0	684	0
Sign Control	Stop				Stop		Free				Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized



















Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15
















HCM Unsignalized Intersection Capacity Analysis  
3: Washington St & Lincoln St/Site Drive #2

2026 Combined Conditions  
Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	39	0	90	600	0	0	462	133
Future Volume (Veh/h)	0	0	0	0	39	0	90	600	0	0	462	133
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.92	0.87	0.92	0.92	0.92	0.87	0.87	0.92	0.92	0.87	0.87
Hourly flow rate (vph)	0	0	0	0	42	0	103	690	0	0	531	153
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked	0.97	0.97	0.95	0.97	0.97	0.94	0.95	416			0.94	229
vC, conflicting volume	1180	1504	342	1162	1580	345	684				690	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	883	1217	197	864	1296	188	557				553	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	100	70	100	89				100	
cM capacity (veh/h)	167	155	775	220	139	776	951				956	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total	42	0	333	460	354	330						
Volume Left	0	0	103	0	0	0						
Volume Right	0	0	0	0	0	153						
cSH	139	1700	951	1700	1700	1700						
Volume to Capacity	0.30	0.00	0.11	0.27	0.21	0.19						
Queue Length 95th (ft)	30	0	9	0	0	0						
Control Delay (s)	41.7	0.0	3.7	0.0	0.0	0.0						
Lane LOS	E	A	A									
Approach Delay (s)	41.7	1.5		0.0								
Approach LOS	E											
Intersection Summary												
Average Delay	2.0											
Intersection Capacity Utilization	49.5%		ICU Level of Service				A					
Analysis Period (min)	15											

Lanes, Volumes, Timings  
 4: Washington St & CCMC Parking Garage/Site Drive #1

2026 Combined Conditions  
 Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	0	38	0	0	0	0	632	19	20	442	0
Future Volume (vph)	58	0	38	0	0	0	0	632	19	20	442	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Frt		0.947						0.996				
Flt Protected		0.971									0.998	
Satd. Flow (prot)	0	1713	0	0	0	0	0	3525	0	0	3532	0
Flt Permitted		0.971									0.998	
Satd. Flow (perm)	0	1713	0	0	0	0	0	3525	0	0	3532	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		191			178			295			121	
Travel Time (s)		4.3			4.0			6.7			2.8	
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
Adj. Flow (vph)	63	0	41	0	0	0	0	687	21	22	480	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	104	0	0	0	0	0	708	0	0	502	0
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type: Other
















Control Type: Unsignalized

Intersection Capacity Utilization 39.1% ICU Level of Service A

Analysis Period (min) 15

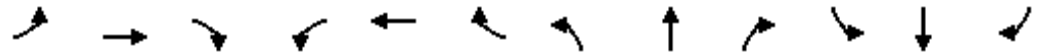
HCM Unsignalized Intersection Capacity Analysis  
 4: Washington St & CCMC Parking Garage/Site Drive #1

2026 Combined Conditions  
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	0	38	0	0	0	0	632	19	20	442	0
Future Volume (Veh/h)	58	0	38	0	0	0	0	632	19	20	442	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	63	0	41	0	0	0	0	687	21	22	480	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								295			350	
pX, platoon unblocked	0.94	0.94	0.98	0.94	0.94	0.93	0.98			0.93		
vC, conflicting volume	868	1232	240	1022	1222	354	480			708		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	657	1044	195	822	1033	164	439			543		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	100	95	100	100	100	100			98		
cM capacity (veh/h)	324	209	800	233	212	795	1099			953		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	104	458	250	182	320							
Volume Left	63	0	0	22	0							
Volume Right	41	0	21	0	0							
cSH	423	1700	1700	953	1700							
Volume to Capacity	0.25	0.27	0.15	0.02	0.19							
Queue Length 95th (ft)	24	0	0	2	0							
Control Delay (s)	16.3	0.0	0.0	1.3	0.0							
Lane LOS	C			A								
Approach Delay (s)	16.3	0.0		0.5								
Approach LOS	C											
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			39.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
5: Washington St & Allen PI/Hospital Garage Dr

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	56	27	34	16	5	82	29	494	32	100	344	19
Future Volume (vph)	56	27	34	16	5	82	29	494	32	100	344	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.961			0.859			0.991			0.994	
Fl <sub>t</sub> Protected		0.977		0.950				0.997			0.989	
Satd. Flow (prot)	0	1737	0	1805	1632	0	0	3437	0	0	3419	0
Fl <sub>t</sub> Permitted		0.797		0.612				0.905			0.713	
Satd. Flow (perm)	0	1417	0	1163	1632	0	0	3120	0	0	2465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			96			8			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1133			193			356			295	
Travel Time (s)		25.8			4.4			8.1			6.7	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	0%	6%	0%	0%	0%	4%	4%	0%	0%	5%	2%
Adj. Flow (vph)	66	32	40	19	6	96	34	581	38	118	405	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	138	0	19	102	0	0	653	0	0	545	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		3			3			2			1	1 2
Permitted Phases	3			3			2				2	
Detector Phase	3	3		3	3		2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0			4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		20.0	20.0			8.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0			14.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		40.0%	40.0%			15.6%	
Maximum Green (s)	35.0	35.0		35.0	35.0		31.0	31.0			10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0				
Total Lost Time (s)		5.0		5.0	5.0			5.0				
Lead/Lag							Lag	Lag			Lead	
Lead-Lag Optimize?							Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		0.2	0.2			0.2	
Recall Mode	None	None		None	None		C-Max	C-Max			None	
Walk Time (s)	16.0	16.0		16.0	16.0							
Flash Dont Walk (s)	1.0	1.0		1.0	1.0							
Pedestrian Calls (#/hr)	14	14		14	14							
Act Effct Green (s)		11.6		11.6	11.6			57.6			65.4	
Actuated g/C Ratio		0.13		0.13	0.13			0.64			0.73	
v/c Ratio		0.67		0.13	0.35			0.33			0.29	
Control Delay		45.1		34.3	11.6			2.8			2.6	
Queue Delay		0.0		0.0	0.0			0.2			0.0	
Total Delay		45.1		34.3	11.6			3.1			2.6	
LOS		D		C	B			A			A	
Approach Delay		45.1			15.2			3.1			2.6	



Lanes, Volumes, Timings  
 5: Washington St & Allen PI/Hospital Garage Dr

2026 Combined Conditions  
 Weekday Morning Peak Hour

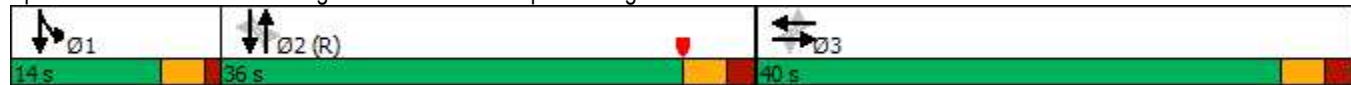


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			B			A			A	
Queue Length 50th (ft)		61		10	3			14			22	
Queue Length 95th (ft)		106		26	39			m28			35	
Internal Link Dist (ft)		1053			113			276			215	
Turn Bay Length (ft)												
Base Capacity (vph)		567		452	693			2000			1975	
Starvation Cap Reductn		0		0	0			655			0	
Spillback Cap Reductn		0		0	0			0			0	
Storage Cap Reductn		0		0	0			0			0	
Reduced v/c Ratio		0.24		0.04	0.15			0.49			0.28	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 45 (50%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay: 7.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 53.5%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Washington St & Allen PI/Hospital Garage Dr



HCM Signalized Intersection Capacity Analysis  
5: Washington St & Allen PI/Hospital Garage Dr

2026 Combined Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	56	27	34	16	5	82	29	494	32	100	344	19
Future Volume (vph)	56	27	34	16	5	82	29	494	32	100	344	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.96		1.00	0.86			0.99			0.99	
Flt Protected		0.98		0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1736		1805	1632			3440			3420	
Flt Permitted		0.80		0.61	1.00			0.91			0.71	
Satd. Flow (perm)		1417		1163	1632			3122			2465	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	66	32	40	19	6	96	34	581	38	118	405	22
RTOR Reduction (vph)	0	24	0	0	84	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	114	0	19	18	0	0	650	0	0	543	0
Heavy Vehicles (%)	2%	0%	6%	0%	0%	0%	4%	4%	0%	0%	5%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		3			3			2			1	1
Permitted Phases	3			3			2			2		
Actuated Green, G (s)		11.6		11.6	11.6			57.6			64.4	
Effective Green, g (s)		11.6		11.6	11.6			57.6			64.4	
Actuated g/C Ratio		0.13		0.13	0.13			0.64			0.72	
Clearance Time (s)		5.0		5.0	5.0			5.0				
Vehicle Extension (s)		2.0		2.0	2.0			0.2				
Lane Grp Cap (vph)		182		149	210			1998			1836	
v/s Ratio Prot					0.01						c0.02	
v/s Ratio Perm		c0.08		0.02				c0.21			0.19	
v/c Ratio		0.63		0.13	0.09			0.33			0.30	
Uniform Delay, d1		37.2		34.7	34.5			7.4			4.6	
Progression Factor		1.00		1.00	1.00			0.33			0.68	
Incremental Delay, d2		4.8		0.1	0.1			0.1			0.0	
Delay (s)		42.0		34.9	34.6			2.6			3.2	
Level of Service		D		C	C			A			A	
Approach Delay (s)		42.0			34.6			2.6			3.2	
Approach LOS		D			C			A			A	

Intersection Summary

HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
6: Vernon St/Retreat Ave & Washington St

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	99	52	123	63	148	22	436	0	175	266	28
Future Volume (vph)	39	99	52	123	63	148	22	436	0	175	266	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Fr't		0.948				0.850						0.991
Flt Protected	0.950			0.950	0.982			0.998				0.982
Satd. Flow (prot)	1770	1760	0	1453	1635	1538	0	3535	0	0	3365	0
Flt Permitted	0.679			0.093	0.295			0.827				0.683
Satd. Flow (perm)	1265	1760	0	142	491	1538	0	2930	0	0	2341	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		23				174						6
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1103			186			140				356
Travel Time (s)		25.1			4.2			3.2				8.1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	3%	18%	3%	5%	0%	2%	8%	2%	6%	4%
Adj. Flow (vph)	46	116	61	145	74	174	26	513	0	206	313	33
Shared Lane Traffic (%)				29%								
Lane Group Flow (vph)	46	177	0	103	116	174	0	539	0	0	552	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		5			4			2			1	1 2
Permitted Phases	5			4		4	2				2	
Detector Phase	5	5		4	4	4	2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	10.0	10.0			5.0	
Minimum Split (s)	11.0	11.0		12.0	12.0	12.0	15.0	15.0			9.0	
Total Split (s)	11.0	11.0		31.0	31.0	31.0	18.0	18.0			9.0	
Total Split (%)	12.2%	12.2%		34.4%	34.4%	34.4%	20.0%	20.0%			10.0%	
Maximum Green (s)	7.0	7.0		26.0	26.0	26.0	13.0	13.0			5.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0	2.0			1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0		5.0	5.0	5.0		5.0				
Lead/Lag				Lag	Lag	Lag	Lag	Lag			Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	0.2	0.2			0.2	
Recall Mode	None	None		None	None	None	C-Max	C-Max			Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	7.0	7.0		42.8	42.8	42.8		13.0				19.0
Actuated g/C Ratio	0.08	0.08		0.48	0.48	0.48		0.14				0.21
v/c Ratio	0.47	1.12		1.54	0.50	0.21		1.27				0.99
Control Delay	56.1	143.5		324.9	30.4	4.2		174.9				69.9
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0				0.0
Total Delay	56.1	143.5		324.9	30.4	4.2		174.9				69.9
LOS	E	F		F	C	A		F				E
Approach Delay		125.4			96.0			174.9				69.9

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr1	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	23%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	12
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
6: Vernon St/Retreat Ave & Washington St

2026 Combined Conditions  
Weekday Morning Peak Hour

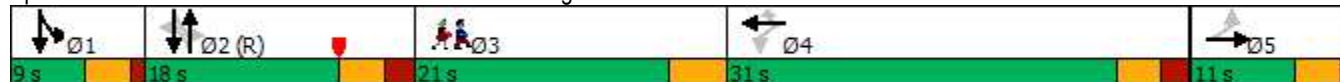


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			F			F			E	
Queue Length 50th (ft)	26	~104		~83	41	0		~205			108	
Queue Length 95th (ft)	#58	#216		#178	#154	39		#284			#247	
Internal Link Dist (ft)		1023			106			60			276	
Turn Bay Length (ft)												
Base Capacity (vph)	98	158		67	233	822		423			555	
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	0.47	1.12		1.54	0.50	0.21		1.27			0.99	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 22 (24%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.54  
 Intersection Signal Delay: 116.3  
 Intersection LOS: F  
 Intersection Capacity Utilization 55.2%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 ~ 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: 6: Vernon St/Retreat Ave & Washington St
























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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
6: Vernon St/Retreat Ave & Washington St

2026 Combined Conditions  
Weekday Morning Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	39	99	52	123	63	148	22	436	0	175	266	28	
Future Volume (vph)	39	99	52	123	63	148	22	436	0	175	266	28	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		5.0	5.0	5.0		5.0			4.0		
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00		0.95			0.95		
Frt	1.00	0.95		1.00	1.00	0.85		1.00			0.99		
Flt Protected	0.95	1.00		0.95	0.98	1.00		1.00			0.98		
Satd. Flow (prot)	1770	1761		1453	1635	1538		3534			3364		
Flt Permitted	0.68	1.00		0.09	0.30	1.00		0.83			0.68		
Satd. Flow (perm)	1264	1761		143	491	1538		2929			2341		
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	
Adj. Flow (vph)	46	116	61	145	74	174	26	513	0	206	313	33	
RTOR Reduction (vph)	0	21	0	0	0	91	0	0	0	0	5	0	
Lane Group Flow (vph)	46	156	0	103	116	83	0	539	0	0	547	0	
Heavy Vehicles (%)	2%	2%	3%	18%	3%	5%	0%	2%	8%	2%	6%	4%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA		
Protected Phases		5			4			2			1	1 2	
Permitted Phases	5			4		4	2			2			
Actuated Green, G (s)	7.0	7.0		42.8	42.8	42.8		9.8			14.8		
Effective Green, g (s)	7.0	7.0		42.8	42.8	42.8		9.8			14.8		
Actuated g/C Ratio	0.08	0.08		0.48	0.48	0.48		0.11			0.16		
Clearance Time (s)	4.0	4.0		5.0	5.0	5.0		5.0					
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		0.2					
Lane Grp Cap (vph)	98	136		68	233	731		318			441		
v/s Ratio Prot		c0.09									c0.07		
v/s Ratio Perm	0.04			c0.72	0.24	0.05		c0.18			0.13		
v/c Ratio	0.47	1.15		1.51	0.50	0.11		1.69			1.24		
Uniform Delay, d1	39.7	41.5		23.6	16.2	13.1		40.1			37.6		
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			0.95		
Incremental Delay, d2	1.3	121.6		293.2	0.6	0.0		326.0			126.0		
Delay (s)	41.0	163.1		316.8	16.8	13.1		366.1			161.6		
Level of Service	D	F		F	B	B		F			F		
Approach Delay (s)		137.9			93.8			366.1			161.6		
Approach LOS		F			F			F			F		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			207.5									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.40										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	22.0
Intersection Capacity Utilization			55.2%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

Lanes, Volumes, Timings  
7: Seymour St & Jefferson St

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	226	96	272	250	32	24	15	69	0	0	0
Future Volume (vph)	53	226	96	272	250	32	24	15	69	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.965			0.983				0.850			
Fl <sub>t</sub> Protected		0.993		0.950				0.970				
Satd. Flow (prot)	0	1733	0	1805	1742	0	0	1843	1615	0	0	0
Fl <sub>t</sub> Permitted		0.912		0.354				0.970				
Satd. Flow (perm)	0	1591	0	673	1742	0	0	1843	1615	0	0	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		531			1134			467				822
Travel Time (s)		12.1			25.8			10.6				18.7
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 (%)	6%	7%	0%	0%	7%	9%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	56	238	101	286	263	34	25	16	73	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	0	286	297	0	0	41	73	0	0	0
Turn Type	Perm	NA		D,P+P	NA		Perm	NA	Perm			
Protected Phases		2		1	1 2			4				
Permitted Phases	2			2			4		4			
Detector Phase	2	2		1	1 2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	5.0	5.0			
Minimum Split (s)	9.0	9.0		9.0			9.0	9.0	9.0			
Total Split (s)	35.0	35.0		14.0			24.0	24.0	24.0			
Total Split (%)	38.9%	38.9%		15.6%			26.7%	26.7%	26.7%			
Maximum Green (s)	31.0	31.0		10.0			20.0	20.0	20.0			
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0			
All-Red Time (s)	1.0	1.0		1.0			1.0	1.0	1.0			
Lost Time Adjust (s)		0.0		0.0				0.0	0.0			
Total Lost Time (s)		4.0		4.0				4.0	4.0			
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0			3.0	3.0	3.0			
Recall Mode	C-Max	C-Max		None			Max	Max	Max			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		31.0		41.0	45.0			33.6	33.6			
Actuated g/C Ratio		0.34		0.46	0.50			0.37	0.37			
v/c Ratio		0.72		0.66	0.34			0.06	0.12			
Control Delay		32.0		22.5	15.0			21.6	22.0			
Queue Delay		0.0		0.0	0.0			0.0	0.0			
Total Delay		32.0		22.5	15.0			21.6	22.0			
LOS		C		C	B			C	C			
Approach Delay		32.0			18.6			21.9				



Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr1	
Fl1 Protected	
Satd. Flow (prot)	
Fl1 Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	19%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	11
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
7: Seymour St & Jefferson St

2026 Combined Conditions  
Weekday Morning Peak Hour

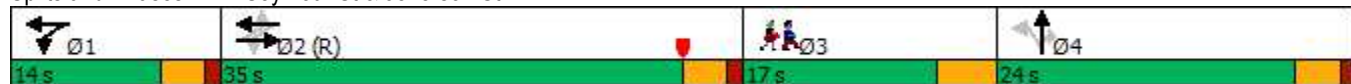


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C				B				C		
Queue Length 50th (ft)		148		92	97			14	25			
Queue Length 95th (ft)		261		147	154			46	71			
Internal Link Dist (ft)		451			1054			387			742	
Turn Bay Length (ft)												
Base Capacity (vph)		548		432	856			687	602			
Starvation Cap Reductn		0		0	0			0	0			
Spillback Cap Reductn		0		0	0			0	0			
Storage Cap Reductn		0		0	0			0	0			
Reduced v/c Ratio		0.72		0.66	0.35			0.06	0.12			

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	32.5 (36%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	23.8
Intersection LOS:	C
Intersection Capacity Utilization:	49.9%
ICU Level of Service:	A
Analysis Period (min):	15


















Splits and Phases: 7: Seymour St & Jefferson St



Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis  
7: Seymour St & Jefferson St

2026 Combined Conditions  
Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	226	96	272	250	32	24	15	69	0	0	0
Future Volume (vph)	53	226	96	272	250	32	24	15	69	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.97		1.00	0.98			1.00	0.85			
Flt Protected		0.99		0.95	1.00			0.97	1.00			
Satd. Flow (prot)		1734		1805	1741			1844	1615			
Flt Permitted		0.91		0.35	1.00			0.97	1.00			
Satd. Flow (perm)		1592		672	1741			1844	1615			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	238	101	286	263	34	25	16	73	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	395	0	286	297	0	0	41	73	0	0	0
Heavy Vehicles (%)	6%	7%	0%	0%	7%	9%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm			
Protected Phases		2		1	1 2			4				
Permitted Phases	2			2			4		4			
Actuated Green, G (s)		27.8		37.8	41.8			33.6	33.6			
Effective Green, g (s)		27.8		37.8	41.8			33.6	33.6			
Actuated g/C Ratio		0.31		0.42	0.46			0.37	0.37			
Clearance Time (s)		4.0		4.0				4.0	4.0			
Vehicle Extension (s)		3.0		3.0				3.0	3.0			
Lane Grp Cap (vph)		491		408	808			688	602			
v/s Ratio Prot				c0.08	0.17							
v/s Ratio Perm		c0.25		0.22				0.02	c0.05			
v/c Ratio		0.80		0.70	0.37			0.06	0.12			
Uniform Delay, d1		28.6		19.6	15.6			18.1	18.5			
Progression Factor		0.92		1.00	1.00			1.00	1.00			
Incremental Delay, d2		12.4		5.4	0.3			0.2	0.4			
Delay (s)		38.6		24.9	15.8			18.2	18.9			
Level of Service		D		C	B			B	B			
Approach Delay (s)		38.6			20.3			18.7			0.0	
Approach LOS		D			C			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			26.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			49.9%			ICU Level of Service			A			
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
8: IOL Dr/Seymour St & Retreat Ave

2026 Combined Conditions  
Weekday Morning Peak Hour

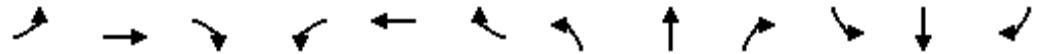


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	197	85	126	263	178	15	2	21	83	3	71
Future Volume (vph)	69	197	85	126	263	178	15	2	21	83	3	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			45			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
Frt		0.955			0.939			0.924			0.939	
Flt Protected	0.950			0.950				0.981			0.974	
Satd. Flow (prot)	1770	1720	0	1805	1665	0	0	1677	0	0	1721	0
Flt Permitted	0.236			0.433				0.880			0.820	
Satd. Flow (perm)	440	1720	0	823	1665	0	0	1504	0	0	1449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			37			26			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		456			1480			118			630	
Travel Time (s)		10.4			33.6			2.7			14.3	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	7%	2%	0%	12%	0%	4%	0%	2%	1%	0%	1%
Adj. Flow (vph)	84	240	104	154	321	217	18	2	26	101	4	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	344	0	154	538	0	0	46	0	0	192	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0		40.0	40.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	35.0	35.0		35.0	35.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	43.0	43.0		43.0	43.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.35	0.35		0.35	0.35	
v/c Ratio	0.44	0.46		0.44	0.73		0.08	0.08		0.36	0.36	
Control Delay	34.0	23.6		28.4	32.0		12.7	12.7		20.4	20.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	20%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	36
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
8: IOL Dr/Seymour St & Retreat Ave

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	34.0	23.6		28.4	32.0			12.7			20.4	
LOS	C	C		C	C			B			C	
Approach Delay		25.7			31.2			12.7			20.4	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	43	163		78	301			8			67	
Queue Length 95th (ft)	87	222		128	#418			29			111	
Internal Link Dist (ft)		376			1400			38			550	
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	189	753		354	736			543			537	
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	0.44	0.46		0.44	0.73			0.08			0.36	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 35 (35%), Referenced to phase 1:EBWB, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 27.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 63.1%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 8: IOL Dr/Seymour St & Retreat Ave



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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
8: IOL Dr/Seymour St & Retreat Ave

2026 Combined Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	197	85	126	263	178	15	2	21	83	3	71
Future Volume (vph)	69	197	85	126	263	178	15	2	21	83	3	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.95		1.00	0.94			0.92			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1770	1719		1805	1666			1676			1721	
Flt Permitted	0.24	1.00		0.43	1.00			0.88			0.82	
Satd. Flow (perm)	439	1719		823	1666			1503			1448	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	84	240	104	154	321	217	18	2	26	101	4	87
RTOR Reduction (vph)	0	14	0	0	22	0	0	17	0	0	30	0
Lane Group Flow (vph)	84	330	0	154	516	0	0	29	0	0	162	0
Heavy Vehicles (%)	2%	7%	2%	0%	12%	0%	4%	0%	2%	1%	0%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	41.0	41.0		41.0	41.0			35.0			35.0	
Effective Green, g (s)	41.0	41.0		41.0	41.0			35.0			35.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.35			0.35	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			2.0			2.0	
Lane Grp Cap (vph)	179	704		337	683			526			506	
v/s Ratio Prot		0.19			c0.31							
v/s Ratio Perm	0.19			0.19				0.02			c0.11	
v/c Ratio	0.47	0.47		0.46	0.76			0.06			0.32	
Uniform Delay, d1	21.6	21.5		21.4	25.2			21.5			23.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	8.6	2.2		4.4	7.6			0.2			1.7	
Delay (s)	30.1	23.8		25.8	32.8			21.7			25.5	
Level of Service	C	C		C	C			C			C	
Approach Delay (s)		25.0			31.3			21.7			25.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c	Critical Lane Group		

Lanes, Volumes, Timings  
9: Maple Ave & Retreat Ave

2026 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Lane Configurations								
Traffic Volume (vph)	277	23	36	521	265	529		
Future Volume (vph)	277	23	36	521	265	529		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00		
Fr <sub>t</sub>	0.989					0.850		
Fl <sub>t</sub> Protected	0.956			0.997				
Satd. Flow (prot)	3259	0	0	3378	1727	1538		
Fl <sub>t</sub> Permitted	0.956			0.920				
Satd. Flow (perm)	3259	0	0	3117	1727	1538		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)						563		
Link Speed (mph)	30			30	30			
Link Distance (ft)	1480			980	257			
Travel Time (s)	33.6			22.3	5.8			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Heavy Vehicles (%)	7%	6%	0%	7%	10%	5%		
Adj. Flow (vph)	295	24	38	554	282	563		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	319	0	0	592	282	563		
Turn Type	Prot		custom	NA	NA	Perm		
Protected Phases	4		5	2 5	6		2	3
Permitted Phases			2			6		
Detector Phase	4		5	2 5	6	6		
Switch Phase								
Minimum Initial (s)	7.0		5.0		15.0	15.0	15.0	1.0
Minimum Split (s)	11.5		9.1		19.2	19.2	19.2	33.0
Total Split (s)	19.5		12.1		42.2	42.2	42.2	33.0
Total Split (%)	18.3%		11.3%		39.5%	39.5%	40%	31%
Maximum Green (s)	15.0		8.0		38.0	38.0	38.0	29.0
Yellow Time (s)	3.2		3.1		3.2	3.2	3.2	4.0
All-Red Time (s)	1.3		1.0		1.0	1.0	1.0	0.0
Lost Time Adjust (s)	0.0				0.0	0.0		
Total Lost Time (s)	4.5				4.2	4.2		
Lead/Lag	Lag							Lead
Lead-Lag Optimize?	Yes							Yes
Vehicle Extension (s)	2.0		2.0		2.0	2.0	2.0	3.0
Recall Mode	None		None		C-Max	C-Max	C-Max	None
Walk Time (s)								7.0
Flash Dont Walk (s)								22.0
Pedestrian Calls (#/hr)								4
Act Effct Green (s)	13.9			73.4	64.4	64.4		
Actuated g/C Ratio	0.13			0.69	0.60	0.60		
v/c Ratio	0.75			0.27	0.27	0.49		
Control Delay	56.4			8.1	17.8	8.9		
Queue Delay	0.5			0.0	1.3	1.4		
Total Delay	56.9			8.1	19.0	10.3		
LOS	E			A	B	B		
Approach Delay	56.9			8.1	13.2			

Lanes, Volumes, Timings  
 9: Maple Ave & Retreat Ave

2026 Combined Conditions  
 Weekday Morning Peak Hour

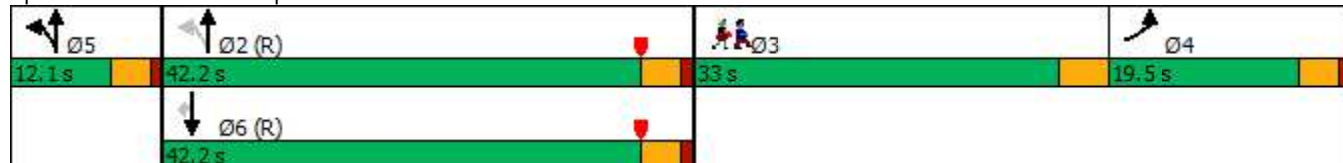


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Approach LOS	E			A	B			
Queue Length 50th (ft)	109			45	112	109		
Queue Length 95th (ft)	156			176	m279	341		
Internal Link Dist (ft)	1400			900	177			
Turn Bay Length (ft)								
Base Capacity (vph)	466			2169	1041	1150		
Starvation Cap Reductn	0			0	551	379		
Spillback Cap Reductn	20			85	0	0		
Storage Cap Reductn	0			0	0	0		
Reduced v/c Ratio	0.72			0.28	0.58	0.73		

Intersection Summary

Area Type: Other  
 Cycle Length: 106.8  
 Actuated Cycle Length: 106.8  
 Offset: 50.1 (47%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 19.4 Intersection LOS: B  
 Intersection Capacity Utilization 55.2% ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Maple Ave & Retreat Ave



HCM Signalized Intersection Capacity Analysis  
 9: Maple Ave & Retreat Ave

2026 Combined Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	TT			TT	T	T
Traffic Volume (vph)	277	23	36	521	265	529
Future Volume (vph)	277	23	36	521	265	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.2	4.2	4.2
Lane Util. Factor	0.97			0.95	1.00	1.00
Fr <sub>t</sub>	0.99			1.00	1.00	0.85
Fl <sub>t</sub> Protected	0.96			1.00	1.00	1.00
Satd. Flow (prot)	3258			3377	1727	1538
Fl <sub>t</sub> Permitted	0.96			0.92	1.00	1.00
Satd. Flow (perm)	3258			3118	1727	1538
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	295	24	38	554	282	563
RTOR Reduction (vph)	0	0	0	0	0	240
Lane Group Flow (vph)	319	0	0	592	282	323
Heavy Vehicles (%)	7%	6%	0%	7%	10%	5%
Turn Type	Prot		custom	NA	NA	Perm
Protected Phases	4		5	2.5	6	
Permitted Phases			2			6
Actuated Green, G (s)	13.9			70.3	61.2	61.2
Effective Green, g (s)	13.9			70.3	61.2	61.2
Actuated g/C Ratio	0.13			0.66	0.57	0.57
Clearance Time (s)	4.5				4.2	4.2
Vehicle Extension (s)	2.0				2.0	2.0
Lane Grp Cap (vph)	424			2074	989	881
v/s Ratio Prot	c0.10			c0.02	0.16	
v/s Ratio Perm				0.16		c0.21
v/c Ratio	0.75			0.29	0.29	0.37
Uniform Delay, d <sub>1</sub>	44.8			7.7	11.6	12.3
Progression Factor	1.00			1.00	1.25	4.05
Incremental Delay, d <sub>2</sub>	6.6			0.0	0.5	0.9
Delay (s)	51.4			7.7	15.1	50.8
Level of Service	D			A	B	D
Approach Delay (s)	51.4			7.7	38.9	
Approach LOS	D			A	D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	106.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Combined Conditions  
 Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↕↕				↔	↔			↕↕	↔	
Traffic Volume (vph)	30	148	9	169	1	387	321	27	105	318	297	1
Future Volume (vph)	30	148	9	169	1	387	321	27	105	318	297	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Fr <sub>t</sub>		0.925					0.988				0.850	
Fl <sub>t</sub> Protected		0.996				0.950				0.988		
Satd. Flow (prot)	0	3261	0	0	0	1770	1840	0	0	3497	1583	0
Fl <sub>t</sub> Permitted		0.996				0.950				0.711		
Satd. Flow (perm)	0	3261	0	0	0	1770	1840	0	0	2516	1583	0
Right Turn on Red				Yes				No				No
Satd. Flow (RTOR)		178										
Link Speed (mph)		30					30			30		
Link Distance (ft)		1134					419			257		
Travel Time (s)		25.8					9.5			5.8		
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
Adj. Flow (vph)	32	159	10	182	1	416	345	29	113	342	319	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	383	0	0	0	417	374	0	0	455	320	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Detector Phase	4	4			8	8	8		5	2.5	2.5	
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0	7.0	7.0		5.0			
Minimum Split (s)	12.4	12.4			11.1	11.1	11.1		8.2			
Total Split (s)	20.4	20.4			25.1	25.1	25.1		8.2			
Total Split (%)	19.1%	19.1%			23.5%	23.5%	23.5%		7.7%			
Maximum Green (s)	15.0	15.0			21.0	21.0	21.0		5.0			
Yellow Time (s)	3.4	3.4			3.1	3.1	3.1		3.1			
All-Red Time (s)	2.0	2.0			1.0	1.0	1.0		0.1			
Lost Time Adjust (s)		0.0					0.0	0.0				
Total Lost Time (s)		5.4					4.1	4.1				
Lead/Lag	Lag	Lag										
Lead-Lag Optimize?	Yes	Yes										
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Recall Mode	None	None			None	None	None		None			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		11.3				32.5	32.5			32.1	37.2	
Actuated g/C Ratio		0.11				0.30	0.30			0.30	0.35	
v/c Ratio		0.76				0.77	0.67			0.53	0.58	
Control Delay		34.6				37.0	31.4			31.0	33.5	
Queue Delay		0.1				0.4	0.0			0.3	17.3	
Total Delay		34.7				37.4	31.4			31.3	50.8	
LOS		C				D	C			C	D	
Approach Delay		34.7					34.6			39.3		
Approach LOS		C					C			D		

Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wylllys St

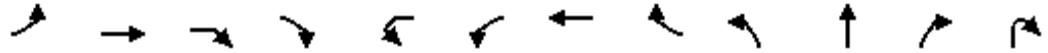
2026 Combined Conditions  
 Weekday Morning Peak Hour



Lane Group	SBL2	SBT	SBR	Ø2	Ø3
Lane Configurations		↕↕			
Traffic Volume (vph)	3	224	58		
Future Volume (vph)	3	224	58		
Ideal Flow (vphpl)	1900	1900	1900		
Lane Util. Factor	0.95	0.95	0.95		
Fr <sub>t</sub>		0.970			
Fl <sub>t</sub> Protected					
Satd. Flow (prot)	0	3433	0		
Fl <sub>t</sub> Permitted		0.950			
Satd. Flow (perm)	0	3261	0		
Right Turn on Red			No		
Satd. Flow (RTOR)					
Link Speed (mph)		30			
Link Distance (ft)		614			
Travel Time (s)		14.0			
Peak Hour Factor	0.93	0.93	0.93		
Adj. Flow (vph)	3	241	62		
Shared Lane Traffic (%)					
Lane Group Flow (vph)	0	306	0		
Turn Type	Perm	NA			
Protected Phases		6		2	3
Permitted Phases	6				
Detector Phase	6	6			
Switch Phase					
Minimum Initial (s)	15.0	15.0		15.0	1.0
Minimum Split (s)	20.1	20.1		20.1	28.0
Total Split (s)	25.1	25.1		25.1	28.0
Total Split (%)	23.5%	23.5%		24%	26%
Maximum Green (s)	20.0	20.0		20.0	24.0
Yellow Time (s)	3.1	3.1		3.1	4.0
All-Red Time (s)	2.0	2.0		2.0	0.0
Lost Time Adjust (s)		0.0			
Total Lost Time (s)		5.1			
Lead/Lag					Lead
Lead-Lag Optimize?					Yes
Vehicle Extension (s)	2.0	2.0		2.0	3.0
Recall Mode	C-Max	C-Max		C-Max	None
Walk Time (s)					7.0
Flash Dont Walk (s)					17.0
Pedestrian Calls (#/hr)					19
Act Effct Green (s)		21.2			
Actuated g/C Ratio		0.20			
v/c Ratio		0.47			
Control Delay		41.0			
Queue Delay		0.4			
Total Delay		41.5			
LOS		D			
Approach Delay		41.5			
Approach LOS		D			

Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Combined Conditions  
 Weekday Morning Peak Hour

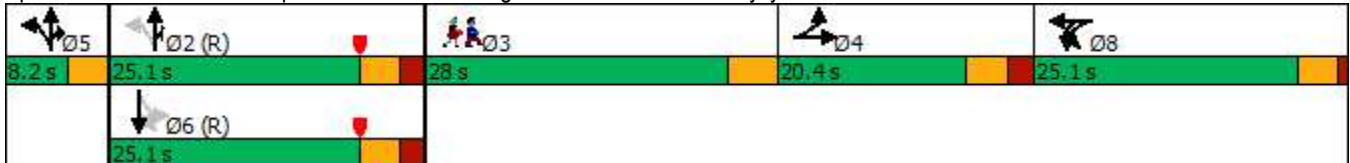


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Queue Length 50th (ft)		71				155	139			134	189	
Queue Length 95th (ft)		120				#558	#474			#161	#315	
Internal Link Dist (ft)		1054					339			177		
Turn Bay Length (ft)												
Base Capacity (vph)		611				539	560			856	551	
Starvation Cap Reductn		0				0	0			86	217	
Spillback Cap Reductn		9				11	0			0	0	
Storage Cap Reductn		0				0	0			0	0	
Reduced v/c Ratio		0.64				0.79	0.67			0.59	0.96	

Intersection Summary

Area Type: Other  
 Cycle Length: 106.8  
 Actuated Cycle Length: 106.8  
 Offset: 23.2 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 37.2  
 Intersection LOS: D  
 Intersection Capacity Utilization 79.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St



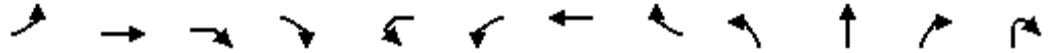


Lane Group	SBL2	SBT	SBR	Ø2	Ø3
Queue Length 50th (ft)		99			
Queue Length 95th (ft)		144			
Internal Link Dist (ft)		534			
Turn Bay Length (ft)					
Base Capacity (vph)		646			
Starvation Cap Reductn		0			
Spillback Cap Reductn		90			
Storage Cap Reductn		0			
Reduced v/c Ratio		0.55			
Intersection Summary					



HCM Signalized Intersection Capacity Analysis  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Combined Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↕↕				↕	↕			↕↕	↕	
Traffic Volume (vph)	30	148	9	169	1	387	321	27	105	318	297	1
Future Volume (vph)	30	148	9	169	1	387	321	27	105	318	297	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4				4.1	4.1			5.1	5.1	
Lane Util. Factor		0.95				1.00	1.00			0.95	1.00	
Frt		0.92				1.00	0.99			1.00	0.85	
Flt Protected		1.00				0.95	1.00			0.99	1.00	
Satd. Flow (prot)		3259				1770	1841			3496	1583	
Flt Permitted		1.00				0.95	1.00			0.71	1.00	
Satd. Flow (perm)		3259				1770	1841			2517	1583	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	32	159	10	182	1	416	345	29	113	342	319	1
RTOR Reduction (vph)	0	159	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	0	417	374	0	0	455	320	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Actuated Green, G (s)		11.3				32.5	32.5			31.6	34.8	
Effective Green, g (s)		11.3				32.5	32.5			31.6	31.6	
Actuated g/C Ratio		0.11				0.30	0.30			0.30	0.30	
Clearance Time (s)		5.4				4.1	4.1					
Vehicle Extension (s)		2.0				2.0	2.0					
Lane Grp Cap (vph)		344				538	560			862	468	
v/s Ratio Prot		c0.07				c0.24	0.20			0.06	c0.20	
v/s Ratio Perm										0.09		
v/c Ratio		0.65				0.78	0.67			0.53	0.68	
Uniform Delay, d1		45.9				33.8	32.4			31.4	33.2	
Progression Factor		1.00				0.65	0.65			0.93	0.94	
Incremental Delay, d2		3.3				5.6	2.1			0.3	3.0	
Delay (s)		49.2				27.6	23.2			29.4	34.1	
Level of Service		D				C	C			C	C	
Approach Delay (s)		49.2					25.5			31.4		
Approach LOS		D					C			C		

Intersection Summary		
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.64	C
Actuated Cycle Length (s)	106.8	Sum of lost time (s)
Intersection Capacity Utilization	79.5%	21.8
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wylllys St

2026 Combined Conditions  
 Weekday Morning Peak Hour



Movement	SBL2	SBT	SBR
Lane Configurations		↕↕	
Traffic Volume (vph)	3	224	58
Future Volume (vph)	3	224	58
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.1	
Lane Util. Factor		0.95	
Frt		0.97	
Flt Protected		1.00	
Satd. Flow (prot)		3430	
Flt Permitted		0.95	
Satd. Flow (perm)		3260	
Peak-hour factor, PHF	0.93	0.93	0.93
Adj. Flow (vph)	3	241	62
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	306	0
Turn Type	Perm	NA	
Protected Phases		6	
Permitted Phases	6		
Actuated Green, G (s)		18.8	
Effective Green, g (s)		18.8	
Actuated g/C Ratio		0.18	
Clearance Time (s)		5.1	
Vehicle Extension (s)		2.0	
Lane Grp Cap (vph)		573	
v/s Ratio Prot			
v/s Ratio Perm		0.09	
v/c Ratio		0.53	
Uniform Delay, d1		40.0	
Progression Factor		1.00	
Incremental Delay, d2		3.5	
Delay (s)		43.6	
Level of Service		D	
Approach Delay (s)		43.6	
Approach LOS		D	
<b>Intersection Summary</b>			

Lanes, Volumes, Timings  
11: Wethersfield Ave/Main St & Wyllys St

2026 Combined Conditions  
Weekday Morning Peak Hour

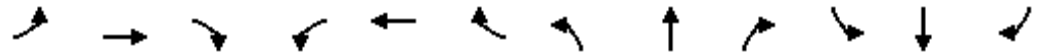


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	4	314	44	46	587	29	121	221	145	32	181	4
Future Volume (vph)	4	314	44	46	587	29	121	221	145	32	181	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.982			0.993			0.941			0.997	
Fl <sub>t</sub> Protected		0.999			0.997		0.950			0.950		
Satd. Flow (prot)	0	3389	0	0	3474	0	1719	1655	0	1570	1773	0
Fl <sub>t</sub> Permitted		0.946			0.918		0.438			0.532		
Satd. Flow (perm)	0	3209	0	0	3198	0	793	1655	0	879	1773	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		419			457			477			416	
Travel Time (s)		9.5			10.4			10.8			9.5	
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 (%)	6%	4%	8%	2%	3%	2%	5%	8%	8%	15%	7%	0%
Adj. Flow (vph)	4	334	47	49	624	31	129	235	154	34	193	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	385	0	0	704	0	129	389	0	34	197	0
Turn Type	Perm	NA		D,P+P	NA		D,P+P	NA		Perm	NA	
Protected Phases		4		3	3 4		1	1 2			2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		3	3 4		1	1 2		2	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0			5.0			10.0	10.0	
Minimum Split (s)	15.0	15.0		9.0			9.0			15.0	15.0	
Total Split (s)	23.0	23.0		15.0			19.0			25.8	25.8	
Total Split (%)	21.5%	21.5%		14.0%			17.8%			24.2%	24.2%	
Maximum Green (s)	18.0	18.0		11.0			15.0			20.8	20.8	
Yellow Time (s)	3.0	3.0		3.0			3.0			3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0			1.0			2.0	2.0	
Lost Time Adjust (s)		0.0					0.0			0.0	0.0	
Total Lost Time (s)		5.0					4.0			5.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0			3.0			3.0	3.0	
Recall Mode	Max	Max		Max			Max			C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		18.0			39.6		36.8	40.8		20.8	20.8	
Actuated g/C Ratio		0.17			0.37		0.34	0.38		0.19	0.19	
v/c Ratio		0.71			0.57		0.32	0.62		0.20	0.57	
Control Delay		50.6			29.6		24.6	31.8		39.6	46.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		50.6			29.6		24.6	31.8		39.6	46.4	
LOS		D			C		C	C		D	D	
Approach Delay		50.6			29.6			30.0			45.4	

Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	22%
Maximum Green (s)	19.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	34
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
 11: Wethersfield Ave/Main St & Wyllys St

2026 Combined Conditions  
 Weekday Morning Peak Hour

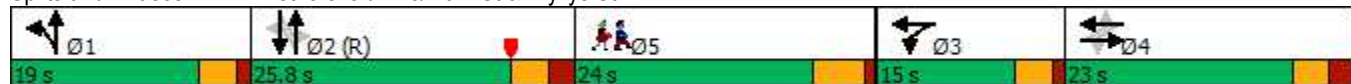


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			C				D
Queue Length 50th (ft)		147			215		58	212		20		123
Queue Length 95th (ft)		200			279		101	315		50		199
Internal Link Dist (ft)		339			377			397				336
Turn Bay Length (ft)												
Base Capacity (vph)		540			1238		403	632		171		345
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		0.71			0.57		0.32	0.62		0.20		0.57

Intersection Summary

Area Type:	Other
Cycle Length:	106.8
Actuated Cycle Length:	106.8
Offset:	0 (0%), Referenced to phase 2:NBSB, Start of Yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	36.1
Intersection LOS:	D
Intersection Capacity Utilization	72.5%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 11: Wethersfield Ave/Main St & Wyllys St






















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Lane Group	Ø5
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 11: Wethersfield Ave/Main St & Wyllys St

2026 Combined Conditions  
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	314	44	46	587	29	121	221	145	32	181	4
Future Volume (vph)	4	314	44	46	587	29	121	221	145	32	181	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.0		4.0	4.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.98			0.99		1.00	0.94		1.00	1.00	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3389			3473		1719	1655		1570	1773	
Flt Permitted		0.95			0.92		0.44	1.00		0.53	1.00	
Satd. Flow (perm)		3208			3200		792	1655		879	1773	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	4	334	47	49	624	31	129	235	154	34	193	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	385	0	0	704	0	129	389	0	34	197	0
Heavy Vehicles (%)	6%	4%	8%	2%	3%	2%	5%	8%	8%	15%	7%	0%
Turn Type	Perm	NA		D.P+P	NA		D.P+P	NA		Perm	NA	
Protected Phases		4		3	3		1	1		2		2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		18.0			38.6		33.8	37.8		18.8	18.8	
Effective Green, g (s)		18.0			38.6		33.8	37.8		18.8	18.8	
Actuated g/C Ratio		0.17			0.36		0.32	0.35		0.18	0.18	
Clearance Time (s)		5.0					4.0			5.0	5.0	
Vehicle Extension (s)		3.0					3.0			3.0	3.0	
Lane Grp Cap (vph)		540			1209		380	585		154	312	
v/s Ratio Prot					c0.11		0.05	c0.24			0.11	
v/s Ratio Perm		c0.12			0.10		0.06			0.04		
v/c Ratio		0.71			0.58		0.34	0.66		0.22	0.63	
Uniform Delay, d1		42.0			27.6		27.2	29.1		37.7	40.8	
Progression Factor		1.04			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.4			2.1		2.4	5.9		3.3	9.4	
Delay (s)		50.2			29.6		29.6	35.0		41.0	50.1	
Level of Service		D			C		C	D		D	D	
Approach Delay (s)		50.2			29.6			33.7			48.8	
Approach LOS		D			C			C			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			37.5				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			106.8				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			72.5%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

## Appendix D

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### Intersection Capacity Analysis Worksheets 2026 Background Traffic Volumes Weekday Afternoon Peak Hour



Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	13	87	19	111	140	113	16	471	190	98	384	21
Future Volume (vph)	13	87	19	111	140	113	16	471	190	98	384	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.978			0.953			0.958			0.994	
Fl <sub>t</sub> Protected		0.995			0.985			0.999			0.990	
Satd. Flow (prot)	0	1771	0	0	3355	0	0	3389	0	0	3492	0
Fl <sub>t</sub> Permitted		0.930			0.767			0.937			0.680	
Satd. Flow (perm)	0	1656	0	0	2613	0	0	3178	0	0	2398	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		8						70			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		567			531			459			319	
Travel Time (s)		12.9			12.1			10.4			7.3	
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 (%)	0%	6%	0%	2%	1%	0%	0%	2%	2%	5%	1%	0%
Adj. Flow (vph)	14	95	21	121	152	123	17	512	207	107	417	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	130	0	0	396	0	0	736	0	0	547	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0		
Minimum Split (s)	15.0	15.0		15.0	15.0		20.0	20.0		9.0		
Total Split (s)	23.0	23.0		23.0	23.0		46.0	46.0		14.0		
Total Split (%)	23.0%	23.0%		23.0%	23.0%		46.0%	46.0%		14.0%		
Maximum Green (s)	18.0	18.0		18.0	18.0		41.0	41.0		10.0		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		1.0		
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.0			5.0			5.0				
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		18.4			18.4			50.6			61.8	
Actuated g/C Ratio		0.18			0.18			0.51			0.62	
v/c Ratio		0.42			0.82			0.45			0.34	
Control Delay		38.3			60.6			7.4			8.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		38.3			60.6			7.4			8.9	
LOS		D			E			A			A	
Approach Delay		38.3			60.6			7.4			8.9	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	17%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	16
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			E			A			A	
Queue Length 50th (ft)		66			140			83			57	
Queue Length 95th (ft)		128			#215			80			120	
Internal Link Dist (ft)		487			451			379			239	
Turn Bay Length (ft)												
Base Capacity (vph)		319			493			1642			1608	
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		0.41			0.80			0.45			0.34	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 55 (55%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 21.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 62.2%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Washington St & Jefferson St



















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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 1: Washington St & Jefferson St

2026 Background Conditions  
 Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	87	19	111	140	113	16	471	190	98	384	21
Future Volume (vph)	13	87	19	111	140	113	16	471	190	98	384	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			4.0	
Lane Util. Factor		1.00			0.95			0.95			0.95	
Frt		0.98			0.95			0.96			0.99	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1771			3357			3388			3492	
Flt Permitted		0.93			0.77			0.94			0.68	
Satd. Flow (perm)		1656			2613			3177			2399	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	95	21	121	152	123	17	512	207	107	417	23
RTOR Reduction (vph)	0	7	0	0	0	0	0	36	0	0	3	0
Lane Group Flow (vph)	0	123	0	0	396	0	0	700	0	0	544	0
Heavy Vehicles (%)	0%	6%	0%	2%	1%	0%	0%	2%	2%	5%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		18.4			18.4			48.2			58.4	
Effective Green, g (s)		18.4			18.4			48.2			58.4	
Actuated g/C Ratio		0.18			0.18			0.48			0.58	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		304			480			1531			1512	
v/s Ratio Prot											c0.04	
v/s Ratio Perm		0.07			c0.15			c0.22			0.17	
v/c Ratio		0.41			0.82			0.46			0.36	
Uniform Delay, d1		36.0			39.3			17.2			11.0	
Progression Factor		1.00			1.17			0.41			1.00	
Incremental Delay, d2		0.9			10.6			1.0			0.1	
Delay (s)		36.9			56.4			8.0			11.1	
Level of Service		D			E			A			B	
Approach Delay (s)		36.9			56.4			8.0			11.1	
Approach LOS		D			E			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			21.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			62.2%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕		↖	↕	
Traffic Volume (vph)	11	3	12	111	3	151	14	477	70	78	432	1
Future Volume (vph)	11	3	12	111	3	151	14	477	70	78	432	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	55		0	250		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			175			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.937				0.850		0.981				
Flt Protected		0.979			0.954		0.950			0.950		
Satd. Flow (prot)	0	1743	0	0	1813	1615	1805	3451	0	1805	3574	0
Flt Permitted		0.881			0.711		0.487			0.387		
Satd. Flow (perm)	0	1568	0	0	1351	1615	925	3451	0	735	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				161		20				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		151			256			229				459
Travel Time (s)		3.4			5.8			5.2				10.4
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%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Adj. Flow (vph)	12	3	13	118	3	161	15	507	74	83	460	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	121	161	15	581	0	83	461	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	12	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	12	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	5.0	5.0		5.0		
Minimum Split (s)	19.0	19.0		19.0	19.0	19.0	9.0	9.0		9.0		
Total Split (s)	20.0	20.0		20.0	20.0	20.0	46.0	46.0		15.0		
Total Split (%)	20.0%	20.0%		20.0%	20.0%	20.0%	46.0%	46.0%		15.0%		
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	42.0	42.0		11.0		
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)	1.0	1.0		1.0	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)		4.0			4.0	4.0	4.0	4.0		4.0		
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
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	None	C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.4			15.4	15.4	55.5	55.5		65.0	69.0	
Actuated g/C Ratio		0.15			0.15	0.15	0.56	0.56		0.65	0.69	
v/c Ratio		0.11			0.58	0.42	0.03	0.30		0.14	0.19	
Control Delay		25.4			51.5	9.7	8.5	7.2		4.2	3.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	19.0
Total Split (s)	19.0
Total Split (%)	19%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	23
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
 2: Washington St & Dunkin' Dr/Zwieback St

2026 Background Conditions  
 Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		25.4			51.5	9.7	8.5	7.2		4.2	3.8	
LOS		C			D	A	A	A		A	A	
Approach Delay		25.4			27.6			7.3			3.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		8			73	0	2	46		7	19	
Queue Length 95th (ft)		33			132	55	m10	76		m14	m36	
Internal Link Dist (ft)		71			176			149			379	
Turn Bay Length (ft)							55			250		
Base Capacity (vph)		261			216	393	512	1922		606	2432	
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		0.11			0.56	0.41	0.03	0.30		0.14	0.19	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 51 (51%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 10.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 50.4%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Washington St & Dunkin' Dr/Zwieback St


























Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Background Conditions  
Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	3	12	111	3	151	14	477	70	78	432	1
Future Volume (vph)	11	3	12	111	3	151	14	477	70	78	432	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.94			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1744			1812	1615	1805	3451		1805	3573	
Flt Permitted		0.88			0.71	1.00	0.49	1.00		0.39	1.00	
Satd. Flow (perm)		1569			1351	1615	925	3451		736	3573	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	12	3	13	118	3	161	15	507	74	83	460	1
RTOR Reduction (vph)	0	11	0	0	0	136	0	9	0	0	0	0
Lane Group Flow (vph)	0	17	0	0	121	25	15	572	0	83	461	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4		4	2			2		
Actuated Green, G (s)		15.4			15.4	15.4	53.1	53.1		62.6	66.6	
Effective Green, g (s)		15.4			15.4	15.4	53.1	53.1		62.6	66.6	
Actuated g/C Ratio		0.15			0.15	0.15	0.53	0.53		0.63	0.67	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		241			208	248	491	1832		562	2379	
v/s Ratio Prot								c0.17		0.01	c0.13	
v/s Ratio Perm		0.01			c0.09	0.02	0.02			0.08		
v/c Ratio		0.07			0.58	0.10	0.03	0.31		0.15	0.19	
Uniform Delay, d1		36.2			39.3	36.3	11.2	13.2		7.5	6.4	
Progression Factor		1.00			1.00	1.00	0.55	0.50		0.50	0.51	
Incremental Delay, d2		0.1			4.1	0.2	0.1	0.4		0.1	0.0	
Delay (s)		36.3			43.4	36.5	6.2	7.0		3.9	3.3	
Level of Service		D			D	D	A	A		A	A	
Approach Delay (s)		36.3			39.5			7.0			3.4	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.5									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			100.0								16.0	
Intersection Capacity Utilization			50.4%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
3: Washington St & Lincoln St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕↕	↕↕	
Traffic Volume (vph)	0	0	57	550	517	59
Future Volume (vph)	0	0	57	550	517	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Fr <sub>t</sub>					0.985	
Fl <sub>t</sub> Protected				0.995		
Satd. Flow (prot)	0	0	0	3497	3524	0
Fl <sub>t</sub> Permitted				0.995		
Satd. Flow (perm)	0	0	0	3497	3524	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1165			416	229	
Travel Time (s)	26.5			9.5	5.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	3%	1%	0%
Adj. Flow (vph)	0	0	59	573	539	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	632	600	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
3: Washington St & Lincoln St

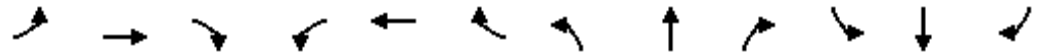
2026 Background Conditions  
Weekday Afternoon Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕↕	↕↕	
Traffic Volume (veh/h)	0	0	57	550	517	59
Future Volume (Veh/h)	0	0	57	550	517	59
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	0	59	573	539	61
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				416	229	
pX, platoon unblocked	0.97	0.95	0.95			
vC, conflicting volume	974	300	600			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	763	170	485			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	316	811	1039			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>		
Volume Total	250	382	359	241		
Volume Left	59	0	0	0		
Volume Right	0	0	0	61		
cSH	1039	1700	1700	1700		
Volume to Capacity	0.06	0.22	0.21	0.14		
Queue Length 95th (ft)	5	0	0	0		
Control Delay (s)	2.5	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	1.0		0.0			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.5					
Intersection Capacity Utilization	39.7%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings  
4: Washington St & Allen PI/Hospital Garage Dr

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	67	3	62	61	30	133	51	434	5	6	452	52
Future Volume (vph)	67	3	62	61	30	133	51	434	5	6	452	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.936			0.878			0.999			0.985	
Fl <sub>t</sub> Protected		0.975		0.950				0.995			0.999	
Satd. Flow (prot)	0	1734	0	1805	1668	0	0	3495	0	0	3521	0
Fl <sub>t</sub> Permitted		0.493		0.602				0.845			0.952	
Satd. Flow (perm)	0	877	0	1144	1668	0	0	2968	0	0	3355	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			141			1				18
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1133			193			356				416
Travel Time (s)		25.8			4.4			8.1				9.5
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%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Adj. Flow (vph)	71	3	66	65	32	141	54	462	5	6	481	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	65	173	0	0	521	0	0	542	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		3			3			2			1	1 2
Permitted Phases	3			3			2				2	
Detector Phase	3	3		3	3		2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0			4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		20.0	20.0			8.0	
Total Split (s)	40.0	40.0		40.0	40.0		46.0	46.0			14.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		46.0%	46.0%			14.0%	
Maximum Green (s)	35.0	35.0		35.0	35.0		41.0	41.0			10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0				
Total Lost Time (s)		5.0		5.0	5.0			5.0				
Lead/Lag							Lag	Lag			Lead	
Lead-Lag Optimize?							Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		0.2	0.2			0.2	
Recall Mode	None	None		None	None		C-Max	C-Max			None	
Walk Time (s)	16.0	16.0		16.0	16.0							
Flash Dont Walk (s)	1.0	1.0		1.0	1.0							
Pedestrian Calls (#/hr)	23	23		23	23							
Act Effct Green (s)		12.5		12.5	12.5			66.8			74.5	
Actuated g/C Ratio		0.12		0.12	0.12			0.67			0.74	
v/c Ratio		0.92		0.45	0.52			0.26			0.22	
Control Delay		82.7		49.0	15.9			5.5			1.6	
Queue Delay		0.0		0.0	0.0			0.0			0.0	
Total Delay		82.7		49.0	15.9			5.5			1.6	
LOS		F		D	B			A			A	
Approach Delay		82.7			24.9			5.5			1.6	

Lanes, Volumes, Timings  
 4: Washington St & Allen PI/Hospital Garage Dr

2026 Background Conditions  
 Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			C			A			A	
Queue Length 50th (ft)		60		40	19			49			23	
Queue Length 95th (ft)		#144		77	75			97			6	
Internal Link Dist (ft)		1053			113			276			336	
Turn Bay Length (ft)												
Base Capacity (vph)		338		400	675			1983			2614	
Starvation Cap Reductn		0		0	0			0			0	
Spillback Cap Reductn		0		0	0			0			0	
Storage Cap Reductn		0		0	0			0			0	
Reduced v/c Ratio		0.41		0.16	0.26			0.26			0.21	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 55 (55%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 14.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.2%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Washington St & Allen PI/Hospital Garage Dr



HCM Signalized Intersection Capacity Analysis  
4: Washington St & Allen PI/Hospital Garage Dr

2026 Background Conditions  
Weekday Afternoon Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	67	3	62	61	30	133	51	434	5	6	452	52
Future Volume (vph)	67	3	62	61	30	133	51	434	5	6	452	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.94		1.00	0.88			1.00			0.98	
Flt Protected		0.98		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1735		1805	1668			3493			3522	
Flt Permitted		0.49		0.60	1.00			0.85			0.95	
Satd. Flow (perm)		877		1145	1668			2967			3354	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	71	3	66	65	32	141	54	462	5	6	481	55
RTOR Reduction (vph)	0	43	0	0	123	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	97	0	65	50	0	0	521	0	0	537	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		3			3			2			1	1
Permitted Phases	3			3			2			2		
Actuated Green, G (s)		12.5		12.5	12.5			66.8			73.5	
Effective Green, g (s)		12.5		12.5	12.5			66.8			73.5	
Actuated g/C Ratio		0.12		0.12	0.12			0.67			0.74	
Clearance Time (s)		5.0		5.0	5.0			5.0				
Vehicle Extension (s)		2.0		2.0	2.0			0.2				
Lane Grp Cap (vph)		109		143	208			1981			2476	
v/s Ratio Prot					0.03						c0.01	
v/s Ratio Perm		c0.11		0.06				c0.18			0.14	
v/c Ratio		0.89		0.45	0.24			0.26			0.22	
Uniform Delay, d1		43.1		40.6	39.5			6.7			4.2	
Progression Factor		1.00		1.00	1.00			0.68			0.45	
Incremental Delay, d2		52.4		0.8	0.2			0.3			0.0	
Delay (s)		95.5		41.4	39.7			4.8			1.9	
Level of Service		F		D	D			A			A	
Approach Delay (s)		95.5			40.2			4.8			1.9	
Approach LOS		F			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			18.4			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)		14.0				
Intersection Capacity Utilization			61.2%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
5: Vernon St/Retreat Ave & Washington St

2026 Background Conditions  
Weekday Afternoon Peak Hour



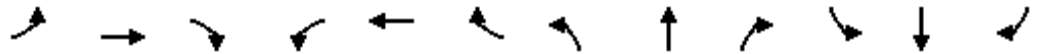
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	257	48	63	204	159	27	219	0	143	266	133
Future Volume (vph)	87	257	48	63	204	159	27	219	0	143	266	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Fr <sub>t</sub>		0.976				0.850						0.963
Fl <sub>t</sub> Protected	0.950			0.950	0.998			0.995				0.987
Satd. Flow (prot)	1787	1809	0	1633	1764	1524	0	3518	0	0	3378	0
Fl <sub>t</sub> Permitted	0.609			0.137	0.564			0.817				0.698
Satd. Flow (perm)	1146	1809	0	236	997	1524	0	2888	0	0	2389	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		8				173						40
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1103			186			140				356
Travel Time (s)		25.1			4.2			3.2				8.1
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 (%)	1%	3%	0%	5%	2%	6%	3%	2%	5%	5%	0%	1%
Adj. Flow (vph)	95	279	52	68	222	173	29	238	0	155	289	145
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	95	331	0	61	229	173	0	267	0	0	589	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		5			4			2			1	1 2
Permitted Phases	5			4		4	2				2	
Detector Phase	5	5		4	4	4	2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	10.0	10.0			5.0	
Minimum Split (s)	11.0	11.0		12.0	12.0	12.0	15.0	15.0			9.0	
Total Split (s)	21.0	21.0		29.0	29.0	29.0	17.0	17.0			12.0	
Total Split (%)	21.0%	21.0%		29.0%	29.0%	29.0%	17.0%	17.0%			12.0%	
Maximum Green (s)	17.0	17.0		24.0	24.0	24.0	12.0	12.0			8.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0	2.0			1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0		5.0	5.0	5.0		5.0				
Lead/Lag				Lag	Lag	Lag	Lag	Lag			Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	0.2	0.2			0.2	
Recall Mode	None	None		None	None	None	C-Max	C-Max			Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.5	22.5		29.1	29.1	29.1		12.0				23.0
Actuated g/C Ratio	0.22	0.22		0.29	0.29	0.29		0.12				0.23
v/c Ratio	0.37	0.80		0.90	0.79	0.31		0.77				0.87
Control Delay	39.7	53.8		123.8	55.4	6.4		58.8				42.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0				0.0
Total Delay	39.7	53.8		123.8	55.4	6.4		58.8				42.4
LOS	D	D		F	E	A		E				D
Approach Delay		50.7			46.1			58.8				42.4



Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	21.0
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	19
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
5: Vernon St/Retreat Ave & Washington St

2026 Background Conditions  
Weekday Afternoon Peak Hour

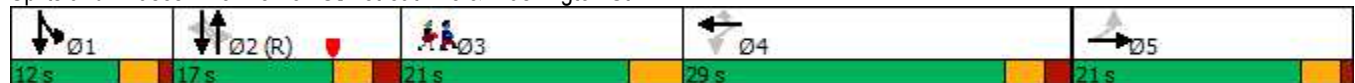


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			D			E			D	
Queue Length 50th (ft)	48	184		35	130	0		88				123
Queue Length 95th (ft)	108	#404		#134	#309	52		#148				#216
Internal Link Dist (ft)		1023			106			60			276	
Turn Bay Length (ft)												
Base Capacity (vph)	257	412		68	290	566		346				679
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	0.37	0.80		0.90	0.79	0.31		0.77				0.87

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 24 (24%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 47.9      Intersection LOS: D  
 Intersection Capacity Utilization 66.3%      ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Vernon St/Retreat Ave & Washington St
























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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
5: Vernon St/Retreat Ave & Washington St

2026 Background Conditions  
Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	257	48	63	204	159	27	219	0	143	266	133
Future Volume (vph)	87	257	48	63	204	159	27	219	0	143	266	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		5.0	5.0	5.0		5.0			4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00		0.95			0.95	
Frt	1.00	0.98		1.00	1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.99	
Satd. Flow (prot)	1787	1809		1633	1765	1524		3516			3379	
Flt Permitted	0.61	1.00		0.14	0.56	1.00		0.82			0.70	
Satd. Flow (perm)	1146	1809		236	997	1524		2889			2389	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	279	52	68	222	173	29	238	0	155	289	145
RTOR Reduction (vph)	0	6	0	0	0	123	0	0	0	0	32	0
Lane Group Flow (vph)	95	325	0	61	229	50	0	267	0	0	557	0
Heavy Vehicles (%)	1%	3%	0%	5%	2%	6%	3%	2%	5%	5%	0%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		5			4			2			1	1 2
Permitted Phases	5			4		4	2			2		
Actuated Green, G (s)	22.5	22.5		29.1	29.1	29.1		9.6			19.6	
Effective Green, g (s)	22.5	22.5		29.1	29.1	29.1		9.6			19.6	
Actuated g/C Ratio	0.22	0.22		0.29	0.29	0.29		0.10			0.20	
Clearance Time (s)	4.0	4.0		5.0	5.0	5.0		5.0			5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		0.2				
Lane Grp Cap (vph)	257	407		68	290	443		277			567	
v/s Ratio Prot		c0.18									c0.10	
v/s Ratio Perm	0.08			c0.26	0.23	0.03		0.09			c0.09	
v/c Ratio	0.37	0.80		0.90	0.79	0.11		0.96			0.98	
Uniform Delay, d1	32.8	36.6		34.0	32.6	26.0		45.0			40.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			0.84	
Incremental Delay, d2	0.3	9.8		72.3	12.4	0.0		45.6			33.4	
Delay (s)	33.1	46.4		106.3	45.0	26.0		90.6			66.8	
Level of Service	C	D		F	D	C		F			E	
Approach Delay (s)		43.4			46.0			90.6			66.8	
Approach LOS		D			D			F			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			59.2									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			100.0								22.0	Sum of lost time (s)
Intersection Capacity Utilization			66.3%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
6: Seymour St & Jefferson St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕			
Traffic Volume (vph)	56	315	25	136	278	34	84	67	207	0	0	0
Future Volume (vph)	56	315	25	136	278	34	84	67	207	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.992			0.984				0.850			
Fl <sub>t</sub> Protected		0.993		0.950				0.973				
Satd. Flow (prot)	0	1806	0	1805	1831	0	0	1849	1615	0	0	0
Fl <sub>t</sub> Permitted		0.903		0.385				0.973				
Satd. Flow (perm)	0	1643	0	732	1831	0	0	1849	1615	0	0	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		531			1134			467				822
Travel Time (s)		12.1			25.8			10.6				18.7
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 (%)	3%	4%	0%	0%	2%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	62	346	27	149	305	37	92	74	227	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	435	0	149	342	0	0	166	227	0	0	0
Turn Type	Perm	NA		D,P+P	NA		Perm	NA	Perm			
Protected Phases		2		1	1 2			4				
Permitted Phases	2			2			4		4			
Detector Phase	2	2		1	1 2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	5.0	5.0			
Minimum Split (s)	9.0	9.0		9.0			9.0	9.0	9.0			
Total Split (s)	45.0	45.0		14.0			24.0	24.0	24.0			
Total Split (%)	45.0%	45.0%		14.0%			24.0%	24.0%	24.0%			
Maximum Green (s)	41.0	41.0		10.0			20.0	20.0	20.0			
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0			
All-Red Time (s)	1.0	1.0		1.0			1.0	1.0	1.0			
Lost Time Adjust (s)		0.0		0.0				0.0	0.0			
Total Lost Time (s)		4.0		4.0				4.0	4.0			
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0			3.0	3.0	3.0			
Recall Mode	C-Max	C-Max		None			Max	Max	Max			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.0		51.0	55.0			30.2	30.2			
Actuated g/C Ratio		0.41		0.51	0.55			0.30	0.30			
v/c Ratio		0.65		0.31	0.34			0.30	0.47			
Control Delay		24.6		13.0	13.6			31.5	35.2			
Queue Delay		0.0		0.0	0.0			0.0	0.0			
Total Delay		24.6		13.0	13.6			31.5	35.2			
LOS		C		B	B			C	D			
Approach Delay		24.6			13.5			33.6				

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	17%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	17
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
6: Seymour St & Jefferson St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			B			C				
Queue Length 50th (ft)		182		44	114			72	105			
Queue Length 95th (ft)		221		76	173			158	#235			
Internal Link Dist (ft)		451			1054			387			742	
Turn Bay Length (ft)												
Base Capacity (vph)		673		480	1007			558	487			
Starvation Cap Reductn		0		0	0			0	0			
Spillback Cap Reductn		0		0	0			0	0			
Storage Cap Reductn		0		0	0			0	0			
Reduced v/c Ratio		0.65		0.31	0.34			0.30	0.47			

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 45 (45%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 23.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 56.1%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Seymour St & Jefferson St



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















Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
6: Seymour St & Jefferson St

2026 Background Conditions  
Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	315	25	136	278	34	84	67	207	0	0	0
Future Volume (vph)	56	315	25	136	278	34	84	67	207	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	0.98			1.00	0.85			
Flt Protected		0.99		0.95	1.00			0.97	1.00			
Satd. Flow (prot)		1806		1805	1831			1849	1615			
Flt Permitted		0.90		0.39	1.00			0.97	1.00			
Satd. Flow (perm)		1642		732	1831			1849	1615			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	62	346	27	149	305	37	92	74	227	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	435	0	149	342	0	0	166	227	0	0	0
Heavy Vehicles (%)	3%	4%	0%	0%	2%	3%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm			
Protected Phases		2		1	1 2			4				
Permitted Phases	2			2			4		4			
Actuated Green, G (s)		38.6		48.6	52.6			30.2	30.2			
Effective Green, g (s)		38.6		48.6	52.6			30.2	30.2			
Actuated g/C Ratio		0.39		0.49	0.53			0.30	0.30			
Clearance Time (s)		4.0		4.0				4.0	4.0			
Vehicle Extension (s)		3.0		3.0				3.0	3.0			
Lane Grp Cap (vph)		633		463	963			558	487			
v/s Ratio Prot				0.03	c0.19							
v/s Ratio Perm		c0.26		0.12				0.09	c0.14			
v/c Ratio		0.69		0.32	0.36			0.30	0.47			
Uniform Delay, d1		25.7		15.8	13.8			26.8	28.4			
Progression Factor		0.83		1.00	1.00			1.00	1.00			
Incremental Delay, d2		5.6		0.4	0.2			1.4	3.2			
Delay (s)		26.8		16.2	14.0			28.1	31.5			
Level of Service		C		B	B			C	C			
Approach Delay (s)		26.8			14.7			30.1			0.0	
Approach LOS		C			B			C			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			23.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			56.1%			ICU Level of Service			B			
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
7: IOL Dr/Seymour St & Retreat Ave

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	268	44	28	344	34	58	0	90	121	2	64
Future Volume (vph)	53	268	44	28	344	34	58	0	90	121	2	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			45			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
Frt		0.979			0.987			0.918				0.954
Flt Protected	0.950			0.950				0.981				0.969
Satd. Flow (prot)	1805	1784	0	1805	1794	0	0	1711	0	0	1756	0
Flt Permitted	0.389			0.459				0.828				0.701
Satd. Flow (perm)	739	1784	0	872	1794	0	0	1444	0	0	1271	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			5			80				27
Link Speed (mph)		30			30			30				30
Link Distance (ft)		456			1480			118				630
Travel Time (s)		10.4			33.6			2.7				14.3
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%	5%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	56	285	47	30	366	36	62	0	96	129	2	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	332	0	30	402	0	0	158	0	0	199	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2				2
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2		2
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0		10.0
Minimum Split (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0		15.0
Total Split (s)	45.0	45.0		45.0	45.0		40.0	40.0		40.0		40.0
Total Split (%)	42.9%	42.9%		42.9%	42.9%		38.1%	38.1%		38.1%		38.1%
Maximum Green (s)	40.0	40.0		40.0	40.0		35.0	35.0		35.0		35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0				0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0				5.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	0.2	0.2		0.2	0.2		2.0	2.0		2.0		2.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max		Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	48.0	48.0		48.0	48.0			35.0				35.0
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.33				0.33
v/c Ratio	0.17	0.40		0.08	0.49			0.30				0.45
Control Delay	22.4	22.7		20.9	24.6			14.6				27.5
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	34
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
7: IOL Dr/Seymour St & Retreat Ave

2026 Background Conditions  
Weekday Afternoon Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.4	22.7		20.9	24.6			14.6			27.5	
LOS	C	C		C	C			B			C	
Approach Delay		22.6			24.3			14.6			27.5	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	25	162		13	210			37			89	
Queue Length 95th (ft)	56	247		34	310			88			159	
Internal Link Dist (ft)		376			1400			38			550	
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	337	820		398	822			534			441	
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	0.17	0.40		0.08	0.49			0.30			0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	40 (38%), Referenced to phase 1:EBWB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	23.0
Intersection LOS:	C
Intersection Capacity Utilization:	62.6%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 7: IOL Dr/Seymour St & Retreat Ave



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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
7: IOL Dr/Seymour St & Retreat Ave

2026 Background Conditions  
Weekday Afternoon Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	268	44	28	344	34	58	0	90	121	2	64
Future Volume (vph)	53	268	44	28	344	34	58	0	90	121	2	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.92			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1805	1783		1805	1793			1711			1755	
Flt Permitted	0.39	1.00		0.46	1.00			0.83			0.70	
Satd. Flow (perm)	739	1783		872	1793			1445			1270	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	285	47	30	366	36	62	0	96	129	2	68
RTOR Reduction (vph)	0	5	0	0	3	0	0	53	0	0	18	0
Lane Group Flow (vph)	56	327	0	30	399	0	0	105	0	0	181	0
Heavy Vehicles (%)	0%	5%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	46.0	46.0		46.0	46.0			35.0			35.0	
Effective Green, g (s)	46.0	46.0		46.0	46.0			35.0			35.0	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.33			0.33	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			2.0			2.0	
Lane Grp Cap (vph)	323	781		382	785			481			423	
v/s Ratio Prot		0.18			c0.22							
v/s Ratio Perm	0.08			0.03				0.07			c0.14	
v/c Ratio	0.17	0.42		0.08	0.51			0.22			0.43	
Uniform Delay, d1	17.9	20.3		17.2	21.3			25.2			27.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.2	1.6		0.4	2.3			1.0			3.1	
Delay (s)	19.1	21.9		17.6	23.7			26.2			30.4	
Level of Service	B	C		B	C			C			C	
Approach Delay (s)		21.5			23.3			26.2			30.4	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.43	
Actuated Cycle Length (s)	105.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	62.6%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

Lanes, Volumes, Timings  
8: Maple Ave & Retreat Ave

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Lane Configurations								
Traffic Volume (vph)	484	25	22	413	475	263		
Future Volume (vph)	484	25	22	413	475	263		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00		
Fr <sub>t</sub>	0.993					0.850		
Fl <sub>t</sub> Protected	0.955			0.997				
Satd. Flow (prot)	3389	0	0	3462	1845	1524		
Fl <sub>t</sub> Permitted	0.955			0.922				
Satd. Flow (perm)	3389	0	0	3202	1845	1524		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)						271		
Link Speed (mph)	30			30	30			
Link Distance (ft)	1480			980	257			
Travel Time (s)	33.6			22.3	5.8			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Heavy Vehicles (%)	3%	6%	3%	4%	3%	6%		
Adj. Flow (vph)	499	26	23	426	490	271		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	525	0	0	449	490	271		
Turn Type	Prot		custom	NA	NA	Perm		
Protected Phases	4		5	2 5	6		2	3
Permitted Phases			2			6		
Detector Phase	4		5	2 5	6	6		
Switch Phase								
Minimum Initial (s)	7.0		5.0		15.0	15.0	15.0	1.0
Minimum Split (s)	11.5		9.1		19.2	19.2	19.2	33.0
Total Split (s)	20.5		9.1		49.2	49.2	49.2	33.0
Total Split (%)	18.3%		8.1%		44.0%	44.0%	44%	30%
Maximum Green (s)	16.0		5.0		45.0	45.0	45.0	29.0
Yellow Time (s)	3.2		3.1		3.2	3.2	3.2	4.0
All-Red Time (s)	1.3		1.0		1.0	1.0	1.0	0.0
Lost Time Adjust (s)	0.0				0.0	0.0		
Total Lost Time (s)	4.5				4.2	4.2		
Lead/Lag	Lag						Lead	
Lead-Lag Optimize?	Yes						Yes	
Vehicle Extension (s)	2.0		2.0		2.0	2.0	2.0	3.0
Recall Mode	None		None		C-Max	C-Max	C-Max	None
Walk Time (s)								7.0
Flash Dont Walk (s)								22.0
Pedestrian Calls (#/hr)								12
Act Effct Green (s)	21.6			64.1	57.0	57.0		
Actuated g/C Ratio	0.19			0.57	0.51	0.51		
v/c Ratio	0.80			0.24	0.52	0.30		
Control Delay	54.6			12.9	25.7	7.5		
Queue Delay	0.6			0.0	4.2	1.1		
Total Delay	55.2			12.9	29.9	8.6		
LOS	E			B	C	A		
Approach Delay	55.2			12.9	22.3			

Lanes, Volumes, Timings  
8: Maple Ave & Retreat Ave

2026 Background Conditions  
Weekday Afternoon Peak Hour

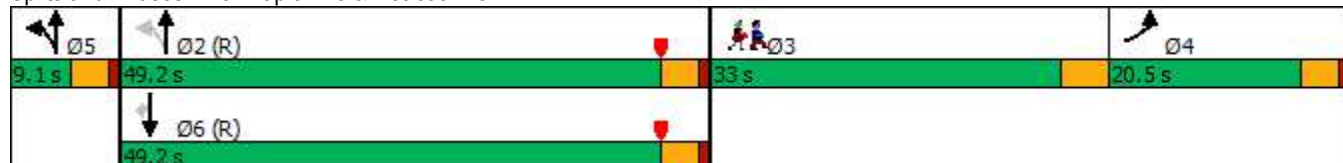


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Approach LOS	E		B		C			
Queue Length 50th (ft)	180		51		150	35		
Queue Length 95th (ft)	#326		132		m464	m77		
Internal Link Dist (ft)	1400		900		177			
Turn Bay Length (ft)								
Base Capacity (vph)	656		1851		940	909		
Starvation Cap Reductn	0		0		361	423		
Spillback Cap Reductn	18		106		0	0		
Storage Cap Reductn	0		0		0	0		
Reduced v/c Ratio	0.82		0.26		0.85	0.56		

Intersection Summary

Area Type: Other  
 Cycle Length: 111.8  
 Actuated Cycle Length: 111.8  
 Offset: 50.1 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 29.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 49.6%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Maple Ave & Retreat Ave





HCM Signalized Intersection Capacity Analysis  
8: Maple Ave & Retreat Ave

2026 Background Conditions  
Weekday Afternoon Peak Hour

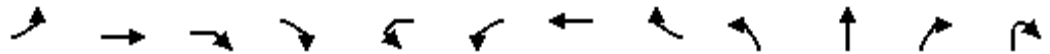


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	484	25	22	413	475	263
Future Volume (vph)	484	25	22	413	475	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.2	4.2	4.2
Lane Util. Factor	0.97			0.95	1.00	1.00
Frt	0.99			1.00	1.00	0.85
Flt Protected	0.95			1.00	1.00	1.00
Satd. Flow (prot)	3386			3464	1845	1524
Flt Permitted	0.95			0.92	1.00	1.00
Satd. Flow (perm)	3386			3202	1845	1524
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	499	26	23	426	490	271
RTOR Reduction (vph)	0	0	0	0	0	139
Lane Group Flow (vph)	525	0	0	449	490	132
Heavy Vehicles (%)	3%	6%	3%	4%	3%	6%
Turn Type	Prot		custom	NA	NA	Perm
Protected Phases	4		5	2	5	6
Permitted Phases			2			6
Actuated Green, G (s)	21.6			61.8	54.6	54.6
Effective Green, g (s)	21.6			61.8	54.6	54.6
Actuated g/C Ratio	0.19			0.55	0.49	0.49
Clearance Time (s)	4.5				4.2	4.2
Vehicle Extension (s)	2.0				2.0	2.0
Lane Grp Cap (vph)	654			1786	901	744
v/s Ratio Prot	c0.16			c0.02	c0.27	
v/s Ratio Perm				0.12		0.09
v/c Ratio	0.80			0.25	0.54	0.18
Uniform Delay, d1	43.1			13.0	19.9	16.0
Progression Factor	1.00			1.00	1.14	2.53
Incremental Delay, d2	6.7			0.0	1.8	0.4
Delay (s)	49.7			13.0	24.6	40.9
Level of Service	D			B	C	D
Approach Delay (s)	49.7			13.0	30.4	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	111.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Background Conditions  
 Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↕↕				↔	↔			↕↕	↔	
Traffic Volume (vph)	42	272	17	168	5	251	201	52	87	486	312	6
Future Volume (vph)	42	272	17	168	5	251	201	52	87	486	312	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Fr <sub>t</sub>		0.944					0.969				0.850	
Fl <sub>t</sub> Protected		0.996				0.950				0.992		
Satd. Flow (prot)	0	3328	0	0	0	1770	1805	0	0	3511	1583	0
Fl <sub>t</sub> Permitted		0.996				0.950				0.791		
Satd. Flow (perm)	0	3328	0	0	0	1770	1805	0	0	2800	1583	0
Right Turn on Red				Yes				No				No
Satd. Flow (RTOR)		67										
Link Speed (mph)		30					30			30		
Link Distance (ft)		1134					419			257		
Travel Time (s)		25.8					9.5			5.8		
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
Adj. Flow (vph)	44	283	18	175	5	261	209	54	91	506	325	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	520	0	0	0	266	263	0	0	597	331	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Detector Phase	4	4			8	8	8		5	2.5	2.5	
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0	7.0	7.0		5.0			
Minimum Split (s)	12.4	12.4			11.1	11.1	11.1		8.2			
Total Split (s)	22.4	22.4			24.1	24.1	24.1		8.2			
Total Split (%)	20.0%	20.0%			21.6%	21.6%	21.6%		7.3%			
Maximum Green (s)	17.0	17.0			20.0	20.0	20.0		5.0			
Yellow Time (s)	3.4	3.4			3.1	3.1	3.1		3.1			
All-Red Time (s)	2.0	2.0			1.0	1.0	1.0		0.1			
Lost Time Adjust (s)		0.0				0.0	0.0					
Total Lost Time (s)		5.4				4.1	4.1					
Lead/Lag	Lag	Lag										
Lead-Lag Optimize?	Yes	Yes										
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Recall Mode	None	None			None	None	None		None			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		18.1				19.3	19.3		43.5	48.6		
Actuated g/C Ratio		0.16				0.17	0.17		0.39	0.43		
v/c Ratio		0.88				0.87	0.84		0.52	0.48		
Control Delay		56.7				60.4	56.6		19.3	18.6		
Queue Delay		0.2				8.4	0.0		0.7	9.1		
Total Delay		56.9				68.8	56.6		20.0	27.6		
LOS		E				E	E		B	C		
Approach Delay		56.9					62.8		22.7			
Approach LOS		E					E		C			

Lanes, Volumes, Timings  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

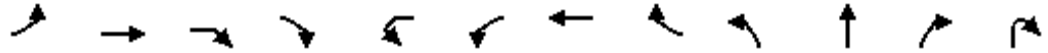
2026 Background Conditions  
 Weekday Afternoon Peak Hour



Lane Group	SBL2	SBL	SBT	SBR	Ø2	Ø3
Lane Configurations						
Traffic Volume (vph)	14	9	272	37		
Future Volume (vph)	14	9	272	37		
Ideal Flow (vphpl)	1900	1900	1900	1900		
Lane Util. Factor	0.95	0.95	0.95	0.95		
Fr <sub>t</sub>			0.983			
Fl <sub>t</sub> Protected			0.997			
Satd. Flow (prot)	0	0	3469	0		
Fl <sub>t</sub> Permitted			0.884			
Satd. Flow (perm)	0	0	3075	0		
Right Turn on Red				No		
Satd. Flow (RTOR)						
Link Speed (mph)			30			
Link Distance (ft)			614			
Travel Time (s)			14.0			
Peak Hour Factor	0.96	0.96	0.96	0.96		
Adj. Flow (vph)	15	9	283	39		
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	346	0		
Turn Type	Perm	Perm	NA			
Protected Phases			6		2	3
Permitted Phases	6	6				
Detector Phase	6	6	6			
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0		15.0	1.0
Minimum Split (s)	20.1	20.1	20.1		20.1	28.0
Total Split (s)	29.1	29.1	29.1		29.1	28.0
Total Split (%)	26.0%	26.0%	26.0%		26%	25%
Maximum Green (s)	24.0	24.0	24.0		24.0	24.0
Yellow Time (s)	3.1	3.1	3.1		3.1	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	0.0
Lost Time Adjust (s)			0.0			
Total Lost Time (s)			5.1			
Lead/Lag						Lead
Lead-Lag Optimize?						Yes
Vehicle Extension (s)	2.0	2.0	2.0		2.0	3.0
Recall Mode	C-Max	C-Max	C-Max		C-Max	None
Walk Time (s)						7.0
Flash Dont Walk (s)						17.0
Pedestrian Calls (#/hr)						19
Act Effct Green (s)			32.7			
Actuated g/C Ratio			0.29			
v/c Ratio			0.38			
Control Delay			35.6			
Queue Delay			0.1			
Total Delay			35.7			
LOS			D			
Approach Delay			35.7			
Approach LOS			D			

Lanes, Volumes, Timings  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Background Conditions  
 Weekday Afternoon Peak Hour

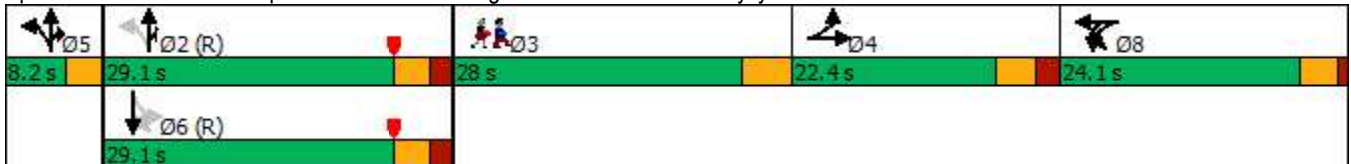


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Queue Length 50th (ft)		164				191	186			164	215	
Queue Length 95th (ft)		#276				#335	#325			#232	m264	
Internal Link Dist (ft)		1054					339			177		
Turn Bay Length (ft)												
Base Capacity (vph)		600				323	330			1156	687	
Starvation Cap Reductn		0				0	0			257	315	
Spillback Cap Reductn		3				35	0			0	0	
Storage Cap Reductn		0				0	0			0	0	
Reduced v/c Ratio		0.87				0.92	0.80			0.66	0.89	

Intersection Summary

Area Type: Other  
 Cycle Length: 111.8  
 Actuated Cycle Length: 111.8  
 Offset: 23.2 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 41.4  
 Intersection LOS: D  
 Intersection Capacity Utilization 77.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St





Lane Group	SBL2	SBL	SBT	SBR	Ø2	Ø3
Queue Length 50th (ft)			110			
Queue Length 95th (ft)			165			
Internal Link Dist (ft)			534			
Turn Bay Length (ft)						
Base Capacity (vph)			900			
Starvation Cap Reductn			0			
Spillback Cap Reductn			62			
Storage Cap Reductn			0			
Reduced v/c Ratio			0.41			
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Background Conditions  
 Weekday Afternoon Peak Hour



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↔↔				↔	↔			↔↔	↔	
Traffic Volume (vph)	42	272	17	168	5	251	201	52	87	486	312	6
Future Volume (vph)	42	272	17	168	5	251	201	52	87	486	312	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4				4.1	4.1			5.1	5.1	
Lane Util. Factor		0.95				1.00	1.00			0.95	1.00	
Frt		0.94				1.00	0.97			1.00	0.85	
Flt Protected		1.00				0.95	1.00			0.99	1.00	
Satd. Flow (prot)		3328				1770	1805			3512	1583	
Flt Permitted		1.00				0.95	1.00			0.79	1.00	
Satd. Flow (perm)		3328				1770	1805			2799	1583	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	44	283	18	175	5	261	209	54	91	506	325	6
RTOR Reduction (vph)	0	56	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	464	0	0	0	266	263	0	0	597	331	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Actuated Green, G (s)		18.1				19.3	19.3			43.0	46.2	
Effective Green, g (s)		18.1				19.3	19.3			43.0	43.0	
Actuated g/C Ratio		0.16				0.17	0.17			0.38	0.38	
Clearance Time (s)		5.4				4.1	4.1					
Vehicle Extension (s)		2.0				2.0	2.0					
Lane Grp Cap (vph)		538				305	311			1156	608	
v/s Ratio Prot		c0.14				c0.15	0.15			0.06	c0.21	
v/s Ratio Perm										0.14		
v/c Ratio		0.86				0.87	0.85			0.52	0.54	
Uniform Delay, d1		45.6				45.0	44.8			26.4	26.8	
Progression Factor		1.00				0.78	0.78			0.61	0.59	
Incremental Delay, d2		13.0				20.0	16.0			0.1	0.5	
Delay (s)		58.6				55.1	50.8			16.4	16.4	
Level of Service		E				E	D			B	B	
Approach Delay (s)		58.6					53.0			16.4		
Approach LOS		E					D			B		

Intersection Summary

HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	111.8	Sum of lost time (s)	21.8
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 9: Maple Ave/Main St & Congress St & Jefferson St/Wylllys St

2026 Background Conditions  
 Weekday Afternoon Peak Hour



Movement	SBL2	SBL	SBT	SBR
Lane Configurations			←↑→	
Traffic Volume (vph)	14	9	272	37
Future Volume (vph)	14	9	272	37
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.1	
Lane Util. Factor			0.95	
Frt			0.98	
Flt Protected			1.00	
Satd. Flow (prot)			3467	
Flt Permitted			0.88	
Satd. Flow (perm)			3075	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96
Adj. Flow (vph)	15	9	283	39
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	346	0
Turn Type	Perm	Perm	NA	
Protected Phases			6	
Permitted Phases	6	6		
Actuated Green, G (s)			30.4	
Effective Green, g (s)			30.4	
Actuated g/C Ratio			0.27	
Clearance Time (s)			5.1	
Vehicle Extension (s)			2.0	
Lane Grp Cap (vph)			836	
v/s Ratio Prot				
v/s Ratio Perm			0.11	
v/c Ratio			0.41	
Uniform Delay, d1			33.4	
Progression Factor			1.00	
Incremental Delay, d2			1.5	
Delay (s)			34.9	
Level of Service			C	
Approach Delay (s)			34.9	
Approach LOS			C	
<b>Intersection Summary</b>				

Lanes, Volumes, Timings  
10: Wethersfield Ave/Main St & Wyllys St

2026 Background Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	8	541	71	103	396	16	140	264	153	36	238	8
Future Volume (vph)	8	541	71	103	396	16	140	264	153	36	238	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.983			0.995			0.945			0.995	
Fl <sub>t</sub> Protected		0.999			0.990		0.950			0.950		
Satd. Flow (prot)	0	3473	0	0	3499	0	1787	1743	0	1719	1837	0
Fl <sub>t</sub> Permitted		0.946			0.578		0.344			0.439		
Satd. Flow (perm)	0	3289	0	0	2043	0	647	1743	0	794	1837	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		419			457			477			416	
Travel Time (s)		9.5			10.4			10.8			9.5	
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 (%)	7%	2%	2%	0%	2%	3%	1%	3%	3%	5%	3%	0%
Adj. Flow (vph)	8	564	74	107	413	17	146	275	159	38	248	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	537	0	146	434	0	38	256	0
Turn Type	Perm	NA		D,P+P	NA		D,P+P	NA		Perm	NA	
Protected Phases		4		3	3 4		1	1 2			2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		3	3 4		1	1 2		2	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0			5.0			10.0	10.0	
Minimum Split (s)	15.0	15.0		9.0			9.0			15.0	15.0	
Total Split (s)	32.0	32.0		10.0			16.0			29.8	29.8	
Total Split (%)	28.6%	28.6%		8.9%			14.3%			26.7%	26.7%	
Maximum Green (s)	27.0	27.0		6.0			12.0			24.8	24.8	
Yellow Time (s)	3.0	3.0		3.0			3.0			3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0			1.0			2.0	2.0	
Lost Time Adjust (s)		0.0					0.0			0.0	0.0	
Total Lost Time (s)		5.0					4.0			5.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0			3.0			3.0	3.0	
Recall Mode	Max	Max		Max			Max			C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		27.0			43.6		37.8	41.8		24.8	24.8	
Actuated g/C Ratio		0.24			0.39		0.34	0.37		0.22	0.22	
v/c Ratio		0.81			0.54		0.43	0.67		0.22	0.63	
Control Delay		53.8			29.7		28.2	35.3		39.4	47.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		53.8			29.7		28.2	35.3		39.4	47.2	
LOS		D			C		C	D		D	D	
Approach Delay		53.8			29.7			33.5			46.2	



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	21%
Maximum Green (s)	19.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	32
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
 10: Wethersfield Ave/Main St & Wyllys St

2026 Background Conditions  
 Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Approach LOS		D				C				D				
Queue Length 50th (ft)		257				157			71	257			22	167
Queue Length 95th (ft)		m313				208			119	371			54	256
Internal Link Dist (ft)		339				377				397				336
Turn Bay Length (ft)														
Base Capacity (vph)		794				999			341	651			176	407
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		0.81				0.54			0.43	0.67			0.22	0.63

Intersection Summary

Area Type: Other  
 Cycle Length: 111.8  
 Actuated Cycle Length: 111.8  
 Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 40.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 78.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Wethersfield Ave/Main St & Wyllys St






















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Lane Group	Ø5
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 10: Wethersfield Ave/Main St & Wyllys St

2026 Background Conditions  
 Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	541	71	103	396	16	140	264	153	36	238	8
Future Volume (vph)	8	541	71	103	396	16	140	264	153	36	238	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.0		4.0	4.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.98			1.00		1.00	0.95		1.00	1.00	
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3474			3500		1787	1743		1719	1838	
Flt Permitted		0.95			0.58		0.34	1.00		0.44	1.00	
Satd. Flow (perm)		3290			2044		646	1743		794	1838	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	564	74	107	412	17	146	275	159	38	248	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	646	0	0	537	0	146	434	0	38	256	0
Heavy Vehicles (%)	7%	2%	2%	0%	2%	3%	1%	3%	3%	5%	3%	0%
Turn Type	Perm	NA		D.P+P	NA		D.P+P	NA		Perm	NA	
Protected Phases		4		3	3 4		1	1 2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.0			42.6		34.8	38.8		22.8	22.8	
Effective Green, g (s)		27.0			42.6		34.8	38.8		22.8	22.8	
Actuated g/C Ratio		0.24			0.38		0.31	0.35		0.20	0.20	
Clearance Time (s)		5.0					4.0			5.0	5.0	
Vehicle Extension (s)		3.0					3.0			3.0	3.0	
Lane Grp Cap (vph)		794			982		323	604		161	374	
v/s Ratio Prot					c0.08		0.05	c0.25			0.14	
v/s Ratio Perm		c0.20			0.13		0.09			0.05		
v/c Ratio		0.81			0.55		0.45	0.72		0.24	0.68	
Uniform Delay, d1		40.0			27.1		29.4	31.8		37.2	41.2	
Progression Factor		1.16			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.1			2.2		4.5	7.2		3.4	9.8	
Delay (s)		53.3			29.2		33.9	38.9		40.6	50.9	
Level of Service		D			C		C	D		D	D	
Approach Delay (s)		53.3			29.2			37.7			49.6	
Approach LOS		D			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			42.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			111.8				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			78.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c	Critical Lane Group											

## Appendix D

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Intersection Capacity Analysis Worksheets  
2026 Combined Traffic Volumes  
Weekday Afternoon Peak Hour

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	13	87	19	140	140	113	16	526	245	98	413	21
Future Volume (vph)	13	87	19	140	140	113	16	526	245	98	413	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.978			0.957			0.953			0.994	
Fl <sub>t</sub> Protected		0.995			0.983			0.999			0.991	
Satd. Flow (prot)	0	1771	0	0	3360	0	0	3371	0	0	3497	0
Fl <sub>t</sub> Permitted		0.929			0.756			0.938			0.642	
Satd. Flow (perm)	0	1654	0	0	2584	0	0	3165	0	0	2265	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		8						88			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		567			531			459			319	
Travel Time (s)		12.9			12.1			10.4			7.3	
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 (%)	0%	6%	0%	2%	1%	0%	0%	2%	2%	5%	1%	0%
Adj. Flow (vph)	14	95	21	152	152	123	17	572	266	107	449	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	130	0	0	427	0	0	855	0	0	579	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D,P+P	NA	
Protected Phases		4			4			2		1	1	2
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2		1	1	2
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		5.0		
Minimum Split (s)	15.0	15.0		15.0	15.0		20.0	20.0		9.0		
Total Split (s)	23.0	23.0		23.0	23.0		46.0	46.0		14.0		
Total Split (%)	23.0%	23.0%		23.0%	23.0%		46.0%	46.0%		14.0%		
Maximum Green (s)	18.0	18.0		18.0	18.0		41.0	41.0		10.0		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		1.0		
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.0			5.0			5.0				
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		20.0			20.0			48.6			60.2	
Actuated g/C Ratio		0.20			0.20			0.49			0.60	
v/c Ratio		0.39			0.83			0.54			0.39	
Control Delay		36.7			60.5			7.3			9.7	
Queue Delay		0.0			0.0			0.1			0.0	
Total Delay		36.7			60.5			7.4			9.7	
LOS		D			E			A			A	
Approach Delay		36.7			60.5			7.4			9.7	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	17%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	16
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
1: Washington St & Jefferson St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			E			A			A	
Queue Length 50th (ft)		64			151			104			68	
Queue Length 95th (ft)		128			#242			73			127	
Internal Link Dist (ft)		487			451			379			239	
Turn Bay Length (ft)												
Base Capacity (vph)		336			516			1582			1505	
Starvation Cap Reductn		0			0			97			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			0.83			0.58			0.38	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 55 (55%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 21.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 66.3%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Washington St & Jefferson St





















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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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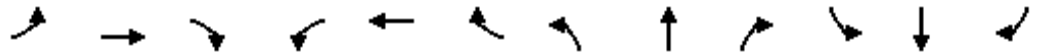
HCM Signalized Intersection Capacity Analysis  
1: Washington St & Jefferson St

2026 Combined Conditions  
Weekday Afternoon Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	13	87	19	140	140	113	16	526	245	98	413	21		
Future Volume (vph)	13	87	19	140	140	113	16	526	245	98	413	21		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		5.0			5.0			5.0			4.0			
Lane Util. Factor		1.00			0.95			0.95			0.95			
Frt		0.98			0.96			0.95			0.99			
Flt Protected		0.99			0.98			1.00			0.99			
Satd. Flow (prot)		1771			3358			3372			3496			
Flt Permitted		0.93			0.76			0.94			0.64			
Satd. Flow (perm)		1654			2583			3166			2265			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	14	95	21	152	152	123	17	572	266	107	449	23		
RTOR Reduction (vph)	0	6	0	0	0	0	0	47	0	0	3	0		
Lane Group Flow (vph)	0	124	0	0	427	0	0	808	0	0	576	0		
Heavy Vehicles (%)	0%	6%	0%	2%	1%	0%	0%	2%	2%	5%	1%	0%		
Turn Type	Perm	NA		Perm	NA		Perm	NA		D,P+P	NA			
Protected Phases		4			4			2		1	1 2			
Permitted Phases	4			4			2			2				
Actuated Green, G (s)		20.0			20.0			46.1			56.8			
Effective Green, g (s)		20.0			20.0			46.1			56.8			
Actuated g/C Ratio		0.20			0.20			0.46			0.57			
Clearance Time (s)		5.0			5.0			5.0						
Vehicle Extension (s)		3.0			3.0			3.0						
Lane Grp Cap (vph)		330			516			1459			1418			
v/s Ratio Prot											c0.04			
v/s Ratio Perm		0.07			c0.17			c0.26			0.19			
v/c Ratio		0.37			0.83			0.55			0.41			
Uniform Delay, d1		34.6			38.3			19.5			12.1			
Progression Factor		1.00			1.21			0.34			1.00			
Incremental Delay, d2		0.7			10.0			1.5			0.2			
Delay (s)		35.3			56.3			8.2			12.3			
Level of Service		D			E			A			B			
Approach Delay (s)		35.3			56.3			8.2			12.3			
Approach LOS		D			E			A			B			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			21.5									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.57											
Actuated Cycle Length (s)			100.0								18.0			
Intersection Capacity Utilization			66.3%										ICU Level of Service	C
Analysis Period (min)			15											
c Critical Lane Group														

Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗	↖	↕	↕	↖	↗	
Traffic Volume (vph)	11	3	12	111	3	151	14	587	70	78	491	1
Future Volume (vph)	11	3	12	111	3	151	14	587	70	78	491	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	55		0	250		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			175			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Fr <sub>t</sub>		0.937				0.850		0.984				
Fl <sub>t</sub> Protected		0.979			0.954		0.950			0.950		
Satd. Flow (prot)	0	1743	0	0	1813	1615	1805	3459	0	1805	3574	0
Fl <sub>t</sub> Permitted		0.881			0.711		0.458			0.326		
Satd. Flow (perm)	0	1568	0	0	1351	1615	870	3459	0	619	3574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				161		16				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		151			256			229				459
Travel Time (s)		3.4			5.8			5.2				10.4
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%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Adj. Flow (vph)	12	3	13	118	3	161	15	624	74	83	522	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	121	161	15	698	0	83	523	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4			4		4	2			2		
Detector Phase	4	4		4	4	4	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	5.0	5.0		5.0		
Minimum Split (s)	19.0	19.0		19.0	19.0	19.0	9.0	9.0		9.0		
Total Split (s)	20.0	20.0		20.0	20.0	20.0	46.0	46.0		15.0		
Total Split (%)	20.0%	20.0%		20.0%	20.0%	20.0%	46.0%	46.0%		15.0%		
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	42.0	42.0		11.0		
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)	1.0	1.0		1.0	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)		4.0			4.0	4.0	4.0	4.0		4.0		
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
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	None	C-Max	C-Max		None		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.4			15.4	15.4	55.0	55.0		65.0	69.0	
Actuated g/C Ratio		0.15			0.15	0.15	0.55	0.55		0.65	0.69	
v/c Ratio		0.11			0.58	0.42	0.03	0.37		0.16	0.21	
Control Delay		25.4			51.5	9.7	9.4	8.4		4.2	3.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	19.0
Total Split (s)	19.0
Total Split (%)	19%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	23
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		25.4			51.5	9.7	9.4	8.4		4.2	3.7	
LOS		C			D	A	A	A		A	A	
Approach Delay		25.4			27.6			8.5			3.8	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		8			73	0	2	60		6	21	
Queue Length 95th (ft)		33			132	55	m11	102		m14	m43	
Internal Link Dist (ft)		71			176			149			379	
Turn Bay Length (ft)							55			250		
Base Capacity (vph)		261			216	393	478	1909		538	2415	
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		0.11			0.56	0.41	0.03	0.37		0.15	0.22	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 51 (51%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 10.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.5%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Washington St & Dunkin' Dr/Zwieback St
























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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
2: Washington St & Dunkin' Dr/Zwieback St

2026 Combined Conditions  
Weekday Afternoon Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	11	3	12	111	3	151	14	587	70	78	491	1	
Future Volume (vph)	11	3	12	111	3	151	14	587	70	78	491	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0		
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95		
Frt		0.94			1.00	0.85	1.00	0.98		1.00	1.00		
Flt Protected		0.98			0.95	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1744			1812	1615	1805	3460		1805	3573		
Flt Permitted		0.88			0.71	1.00	0.46	1.00		0.33	1.00		
Satd. Flow (perm)		1569			1351	1615	871	3460		620	3573		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	12	3	13	118	3	161	15	624	74	83	522	1	
RTOR Reduction (vph)	0	11	0	0	0	136	0	8	0	0	0	0	
Lane Group Flow (vph)	0	17	0	0	121	25	15	690	0	83	523	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D,P+P	NA		
Protected Phases		4			4			2		1	1 2		
Permitted Phases	4			4		4	2			2			
Actuated Green, G (s)		15.4			15.4	15.4	52.6	52.6		62.6	66.6		
Effective Green, g (s)		15.4			15.4	15.4	52.6	52.6		62.6	66.6		
Actuated g/C Ratio		0.15			0.15	0.15	0.53	0.53		0.63	0.67		
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0			
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)		241			208	248	458	1819		506	2379		
v/s Ratio Prot								c0.20		0.02	c0.15		
v/s Ratio Perm		0.01			c0.09	0.02	0.02			0.09			
v/c Ratio		0.07			0.58	0.10	0.03	0.38		0.16	0.22		
Uniform Delay, d1		36.2			39.3	36.3	11.4	14.0		7.7	6.5		
Progression Factor		1.00			1.00	1.00	0.60	0.54		0.49	0.50		
Incremental Delay, d2		0.1			4.1	0.2	0.1	0.6		0.1	0.0		
Delay (s)		36.3			43.4	36.5	7.0	8.2		3.9	3.3		
Level of Service		D			D	D	A	A		A	A		
Approach Delay (s)		36.3			39.5			8.2			3.4		
Approach LOS		D			D			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			12.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.37										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			53.5%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

Lanes, Volumes, Timings  
3: Washington St & Lincoln St/Site Drive #2

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↗		↕↕			↕↔	
Traffic Volume (vph)	0	0	0	0	59	0	76	660	0	0	556	79
Future Volume (vph)	0	0	0	0	59	0	76	660	0	0	556	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Fr t												0.981
Fl t Protected								0.995				
Satd. Flow (prot)	0	0	0	0	1863	1863	0	3498	0	0	3511	0
Fl t Permitted								0.995				
Satd. Flow (perm)	0	0	0	0	1863	1863	0	3498	0	0	3511	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1165			185			130			229	
Travel Time (s)		26.5			4.2			3.0			5.2	
Peak Hour Factor	0.96	0.92	0.96	0.92	0.92	0.92	0.96	0.96	0.92	0.92	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	3%	2%	2%	1%	0%
Adj. Flow (vph)	0	0	0	0	64	0	79	688	0	0	579	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	64	0	0	767	0	0	661	0
Sign Control		Stop			Stop			Free			Free	



















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.7%
ICU Level of Service	A
Analysis Period (min)	15


















HCM Unsignalized Intersection Capacity Analysis  
 3: Washington St & Lincoln St/Site Drive #2

2026 Combined Conditions  
 Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	59	0	76	660	0	0	556	79
Future Volume (Veh/h)	0	0	0	0	59	0	76	660	0	0	556	79
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.96	0.92	0.96	0.92	0.92	0.92	0.96	0.96	0.92	0.92	0.96	0.96
Hourly flow rate (vph)	0	0	0	0	64	0	79	688	0	0	579	82
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked	0.96	0.96	0.95	0.96	0.96	0.96	0.95			0.96		
vC, conflicting volume	1154	1466	330	1136	1507	344	661			688		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	907	1231	176	888	1273	238	526			596		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	57	100	92			100		
cM capacity (veh/h)	141	156	797	216	147	734	994			939		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total	64	0	308	459	386	275						
Volume Left	0	0	79	0	0	0						
Volume Right	0	0	0	0	0	82						
cSH	147	1700	994	1700	1700	1700						
Volume to Capacity	0.43	0.00	0.08	0.27	0.23	0.16						
Queue Length 95th (ft)	49	0	6	0	0	0						
Control Delay (s)	46.9	0.0	2.9	0.0	0.0	0.0						
Lane LOS	E	A	A									
Approach Delay (s)	46.9		1.2		0.0							
Approach LOS	E											
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			51.7%	ICU Level of Service		A						
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 4: Washington St & CCMC Parking Garage/Site Drive #1

2026 Combined Conditions  
 Weekday Afternoon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	0	73	0	0	0	0	626	20	39	517	0
Future Volume (vph)	110	0	73	0	0	0	0	626	20	39	517	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Fr <sub>t</sub>		0.946						0.995				
Fl <sub>t</sub> Protected		0.971									0.997	
Satd. Flow (prot)	0	1711	0	0	0	0	0	3522	0	0	3529	0
Fl <sub>t</sub> Permitted		0.971									0.997	
Satd. Flow (perm)	0	1711	0	0	0	0	0	3522	0	0	3529	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		169			201			286			130	
Travel Time (s)		3.8			4.6			6.5			3.0	
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
Adj. Flow (vph)	120	0	79	0	0	0	0	680	22	42	562	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	0	0	0	702	0	0	604	0
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type: Other
















Control Type: Unsignalized

Intersection Capacity Utilization 53.9% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis  
 4: Washington St & CCMC Parking Garage/Site Drive #1

2026 Combined Conditions  
 Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	73	0	0	0	0	626	20	39	517	0
Future Volume (Veh/h)	110	0	73	0	0	0	0	626	20	39	517	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	120	0	79	0	0	0	0	680	22	42	562	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage veh												
Upstream signal (ft)												
								286			359	
pX, platoon unblocked	0.97	0.97	0.96	0.97	0.97	0.95	0.96			0.95		
vC, conflicting volume	986	1348	281	1135	1337	351	562			702		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	727	1101	164	881	1090	204	457			574		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	59	100	90	100	100	100	100			96		
cM capacity (veh/h)	291	195	817	204	198	761	1055			942		
Direction, Lane #												
	EB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	199	453	249	229	375							
Volume Left	120	0	0	42	0							
Volume Right	79	0	22	0	0							
cSH	391	1700	1700	942	1700							
Volume to Capacity	0.51	0.27	0.15	0.04	0.22							
Queue Length 95th (ft)	70	0	0	3	0							
Control Delay (s)	23.3	0.0	0.0	2.0	0.0							
Lane LOS	C			A								
Approach Delay (s)	23.3	0.0		0.8								
Approach LOS	C											
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			53.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
5: Washington St & Allen PI/Hospital Garage Dr

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	67	3	62	61	30	133	51	473	5	6	525	52
Future Volume (vph)	67	3	62	61	30	133	51	473	5	6	525	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr <sub>t</sub>		0.936			0.878			0.999			0.987	
Fl <sub>t</sub> Protected		0.975		0.950				0.995				
Satd. Flow (prot)	0	1734	0	1805	1668	0	0	3495	0	0	3531	0
Fl <sub>t</sub> Permitted		0.493		0.602				0.838			0.952	
Satd. Flow (perm)	0	877	0	1144	1668	0	0	2943	0	0	3362	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			141			1				15
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1133			193			356				286
Travel Time (s)		25.8			4.4			8.1				6.5
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%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Adj. Flow (vph)	71	3	66	65	32	141	54	503	5	6	559	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	65	173	0	0	562	0	0	620	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		D,P+P	NA	
Protected Phases		3			3			2			1	1 2
Permitted Phases	3			3			2				2	
Detector Phase	3	3		3	3		2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0			4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		20.0	20.0			8.0	
Total Split (s)	40.0	40.0		40.0	40.0		46.0	46.0			14.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		46.0%	46.0%			14.0%	
Maximum Green (s)	35.0	35.0		35.0	35.0		41.0	41.0			10.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0			1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0				
Total Lost Time (s)		5.0		5.0	5.0			5.0				
Lead/Lag							Lag	Lag			Lead	
Lead-Lag Optimize?							Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		0.2	0.2			0.2	
Recall Mode	None	None		None	None		C-Max	C-Max			None	
Walk Time (s)	16.0	16.0		16.0	16.0							
Flash Dont Walk (s)	1.0	1.0		1.0	1.0							
Pedestrian Calls (#/hr)	23	23		23	23							
Act Effct Green (s)		12.5		12.5	12.5			66.1			74.5	
Actuated g/C Ratio		0.12		0.12	0.12			0.66			0.74	
v/c Ratio		0.92		0.45	0.52			0.29			0.25	
Control Delay		82.7		49.0	15.9			5.5			1.9	
Queue Delay		0.0		0.0	0.0			0.2			0.0	
Total Delay		82.7		49.0	15.9			5.8			1.9	
LOS		F		D	B			A			A	
Approach Delay		82.7			24.9			5.8			1.9	

Lanes, Volumes, Timings  
5: Washington St & Allen PI/Hospital Garage Dr

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		F			C			A			A	
Queue Length 50th (ft)		60		40	19			52			28	
Queue Length 95th (ft)		#144		77	75			103			23	
Internal Link Dist (ft)		1053			113			276			206	
Turn Bay Length (ft)												
Base Capacity (vph)		338		400	675			1945			2608	
Starvation Cap Reductn		0		0	0			644			0	
Spillback Cap Reductn		0		0	0			0			0	
Storage Cap Reductn		0		0	0			0			0	
Reduced v/c Ratio		0.41		0.16	0.26			0.43			0.24	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 55 (55%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 14.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.3%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Washington St & Allen PI/Hospital Garage Dr



HCM Signalized Intersection Capacity Analysis  
5: Washington St & Allen PI/Hospital Garage Dr

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Traffic Volume (vph)	67	3	62	61	30	133	51	473	5	6	525	52
Future Volume (vph)	67	3	62	61	30	133	51	473	5	6	525	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.94		1.00	0.88			1.00			0.99	
Flt Protected		0.98		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1735		1805	1668			3494			3528	
Flt Permitted		0.49		0.60	1.00			0.84			0.95	
Satd. Flow (perm)		877		1145	1668			2944			3362	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	71	3	66	65	32	141	54	503	5	6	559	55
RTOR Reduction (vph)	0	43	0	0	123	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	97	0	65	50	0	0	562	0	0	616	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		D,P+P	NA	
Protected Phases		3			3			2			1	1
Permitted Phases	3			3			2			2		
Actuated Green, G (s)		12.5		12.5	12.5			66.1			73.5	
Effective Green, g (s)		12.5		12.5	12.5			66.1			73.5	
Actuated g/C Ratio		0.12		0.12	0.12			0.66			0.74	
Clearance Time (s)		5.0		5.0	5.0			5.0				
Vehicle Extension (s)		2.0		2.0	2.0			0.2				
Lane Grp Cap (vph)		109		143	208			1945			2483	
v/s Ratio Prot					0.03						c0.02	
v/s Ratio Perm		c0.11		0.06				c0.19			0.16	
v/c Ratio		0.89		0.45	0.24			0.29			0.25	
Uniform Delay, d1		43.1		40.6	39.5			7.1			4.3	
Progression Factor		1.00		1.00	1.00			0.63			0.51	
Incremental Delay, d2		52.4		0.8	0.2			0.3			0.0	
Delay (s)		95.5		41.4	39.7			4.8			2.2	
Level of Service		F		D	D			A			A	
Approach Delay (s)		95.5			40.2			4.8			2.2	
Approach LOS		F			D			A			A	

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
6: Vernon St/Retreat Ave & Washington St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	257	48	63	204	169	27	248	0	161	321	133
Future Volume (vph)	87	257	48	63	204	169	27	248	0	161	321	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95
Fr't		0.976				0.850						0.967
Flt Protected	0.950			0.950	0.998			0.995				0.987
Satd. Flow (prot)	1787	1809	0	1633	1764	1524	0	3518	0	0	3394	0
Flt Permitted	0.609			0.131	0.572			0.777				0.696
Satd. Flow (perm)	1146	1809	0	225	1011	1524	0	2747	0	0	2393	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		8				184						34
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1103			186			140				356
Travel Time (s)		25.1			4.2			3.2				8.1
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 (%)	1%	3%	0%	5%	2%	6%	3%	2%	5%	5%	0%	1%
Adj. Flow (vph)	95	279	52	68	222	184	29	270	0	175	349	145
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	95	331	0	61	229	184	0	299	0	0	669	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D,P+P	NA	
Protected Phases		5			4			2			1	1 2
Permitted Phases	5			4		4	2				2	
Detector Phase	5	5		4	4	4	2	2			1	1 2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	10.0	10.0			5.0	
Minimum Split (s)	11.0	11.0		12.0	12.0	12.0	15.0	15.0			9.0	
Total Split (s)	18.0	18.0		28.0	28.0	28.0	21.0	21.0			12.0	
Total Split (%)	18.0%	18.0%		28.0%	28.0%	28.0%	21.0%	21.0%			12.0%	
Maximum Green (s)	14.0	14.0		23.0	23.0	23.0	16.0	16.0			8.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	
All-Red Time (s)	1.0	1.0		2.0	2.0	2.0	2.0	2.0			1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0		5.0	5.0	5.0		5.0				
Lead/Lag				Lag	Lag	Lag	Lag	Lag			Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes			Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	0.2	0.2			0.2	
Recall Mode	None	None		None	None	None	C-Max	C-Max			Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	19.0	19.0		30.6	30.6	30.6		16.0			25.0	
Actuated g/C Ratio	0.19	0.19		0.31	0.31	0.31		0.16			0.25	
v/c Ratio	0.44	0.95		0.90	0.74	0.31		0.68			0.95	
Control Delay	45.1	78.3		124.3	50.4	6.4		48.3			53.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	45.1	78.3		124.3	50.4	6.4		48.3			53.4	
LOS	D	E		F	D	A		D			D	
Approach Delay		70.9			42.8			48.3			53.4	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	21.0
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	19
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	



Lanes, Volumes, Timings  
6: Vernon St/Retreat Ave & Washington St

2026 Combined Conditions  
Weekday Afternoon Peak Hour

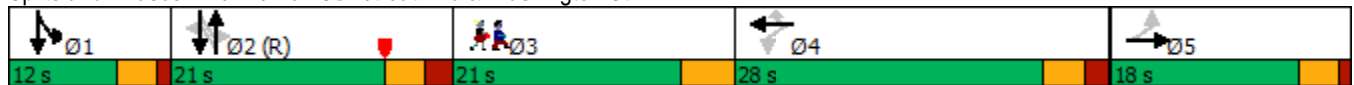


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			D			D			D		
Queue Length 50th (ft)	51	194		35	128	0		95			206	
Queue Length 95th (ft)	#122	#441		#137	#314	54		142			#248	
Internal Link Dist (ft)	1023			106			60			276		
Turn Bay Length (ft)												
Base Capacity (vph)	217	349		68	309	594		439			703	
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	0.44	0.95		0.90	0.74	0.31		0.68			0.95	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 24 (24%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 53.9 Intersection LOS: D  
 Intersection Capacity Utilization 68.3% ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Vernon St/Retreat Ave & Washington St



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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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















HCM Signalized Intersection Capacity Analysis  
6: Vernon St/Retreat Ave & Washington St

2026 Combined Conditions  
Weekday Afternoon Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	87	257	48	63	204	169	27	248	0	161	321	133		
Future Volume (vph)	87	257	48	63	204	169	27	248	0	161	321	133		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	4.0	4.0		5.0	5.0	5.0		5.0			4.0			
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00		0.95			0.95			
Frt	1.00	0.98		1.00	1.00	0.85		1.00			0.97			
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.99			
Satd. Flow (prot)	1787	1809		1633	1765	1524		3519			3396			
Flt Permitted	0.61	1.00		0.13	0.57	1.00		0.78			0.70			
Satd. Flow (perm)	1146	1809		225	1012	1524		2747			2395			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	95	279	52	68	222	184	29	270	0	175	349	145		
RTOR Reduction (vph)	0	6	0	0	0	128	0	0	0	0	27	0		
Lane Group Flow (vph)	95	325	0	61	229	56	0	299	0	0	642	0		
Heavy Vehicles (%)	1%	3%	0%	5%	2%	6%	3%	2%	5%	5%	0%	1%		
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		D,P+P	NA			
Protected Phases		5			4			2			1	1 2		
Permitted Phases	5			4		4	2			2				
Actuated Green, G (s)	19.0	19.0		30.6	30.6	30.6		13.6			21.6			
Effective Green, g (s)	19.0	19.0		30.6	30.6	30.6		13.6			21.6			
Actuated g/C Ratio	0.19	0.19		0.31	0.31	0.31		0.14			0.22			
Clearance Time (s)	4.0	4.0		5.0	5.0	5.0		5.0						
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		0.2						
Lane Grp Cap (vph)	217	343		68	309	466		373			597			
v/s Ratio Prot		c0.18									c0.09			
v/s Ratio Perm	0.08			c0.27	0.23	0.04		0.11			c0.15			
v/c Ratio	0.44	0.95		0.90	0.74	0.12		0.80			1.08			
Uniform Delay, d1	35.8	40.0		33.2	31.1	25.0		41.9			39.2			
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			0.87			
Incremental Delay, d2	0.5	34.1		72.3	8.1	0.0		16.5			58.6			
Delay (s)	36.3	74.1		105.5	39.3	25.0		58.4			92.9			
Level of Service	D	E		F	D	C		E			F			
Approach Delay (s)		65.7			42.3			58.4			92.9			
Approach LOS		E			D			E			F			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			68.3									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			0.88											
Actuated Cycle Length (s)			100.0								22.0			
Intersection Capacity Utilization			68.3%										ICU Level of Service	C
Analysis Period (min)			15											
c Critical Lane Group														

Lanes, Volumes, Timings  
7: Seymour St & Jefferson St

2026 Combined Conditions  
Weekday Afternoon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	370	25	136	307	34	84	67	207	0	0	0
Future Volume (vph)	56	370	25	136	307	34	84	67	207	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Fr <sub>t</sub>		0.993			0.985				0.850			
Fl <sub>t</sub> Protected		0.994		0.950				0.973				
Satd. Flow (prot)	0	1809	0	1805	1833	0	0	1849	1615	0	0	0
Fl <sub>t</sub> Permitted		0.908		0.343				0.973				
Satd. Flow (perm)	0	1653	0	652	1833	0	0	1849	1615	0	0	0
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		531			1134			467				822
Travel Time (s)		12.1			25.8			10.6				18.7
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 (%)	3%	4%	0%	0%	2%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	62	407	27	149	337	37	92	74	227	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	496	0	149	374	0	0	166	227	0	0	0
Turn Type	Perm	NA		D,P+P	NA		Perm	NA	Perm			
Protected Phases		2		1	1 2			4				
Permitted Phases	2			2			4		4			
Detector Phase	2	2		1	1 2		4	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	5.0	5.0			
Minimum Split (s)	9.0	9.0		9.0			9.0	9.0	9.0			
Total Split (s)	45.0	45.0		14.0			24.0	24.0	24.0			
Total Split (%)	45.0%	45.0%		14.0%			24.0%	24.0%	24.0%			
Maximum Green (s)	41.0	41.0		10.0			20.0	20.0	20.0			
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0			
All-Red Time (s)	1.0	1.0		1.0			1.0	1.0	1.0			
Lost Time Adjust (s)		0.0		0.0				0.0	0.0			
Total Lost Time (s)		4.0		4.0				4.0	4.0			
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0		3.0			3.0	3.0	3.0			
Recall Mode	C-Max	C-Max		None			Max	Max	Max			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.0		51.0	55.0			30.2	30.2			
Actuated g/C Ratio		0.41		0.51	0.55			0.30	0.30			
v/c Ratio		0.73		0.33	0.37			0.30	0.47			
Control Delay		28.1		13.3	14.1			31.5	35.2			
Queue Delay		0.1		0.0	0.0			0.0	0.0			
Total Delay		28.2		13.3	14.1			31.5	35.2			
LOS		C		B	B			C	D			
Approach Delay		28.2			13.9			33.6				

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr1	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	17.0
Total Split (s)	17.0
Total Split (%)	17%
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
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	6.0
Pedestrian Calls (#/hr)	17
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	

Lanes, Volumes, Timings  
7: Seymour St & Jefferson St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			B			C					
Queue Length 50th (ft)	203			44	127	72			105			
Queue Length 95th (ft)	277			76	191	158			#235			
Internal Link Dist (ft)	451			1054			387			742		
Turn Bay Length (ft)												
Base Capacity (vph)	677			447	1008	558			487			
Starvation Cap Reductn	5			0	0	0			0			
Spillback Cap Reductn	0			0	0	0			0			
Storage Cap Reductn	0			0	0	0			0			
Reduced v/c Ratio	0.74			0.33	0.37	0.30			0.47			

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 45 (45%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 24.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 60.5%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Seymour St & Jefferson St




















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Lane Group	Ø3
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 7: Seymour St & Jefferson St

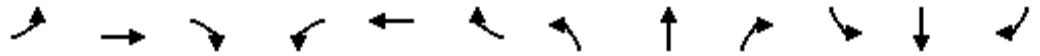
2026 Combined Conditions  
 Weekday Afternoon Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	56	370	25	136	307	34	84	67	207	0	0	0	
Future Volume (vph)	56	370	25	136	307	34	84	67	207	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0				
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00				
Fr <sub>t</sub>		0.99		1.00	0.99			1.00	0.85				
Fl <sub>t</sub> Protected		0.99		0.95	1.00			0.97	1.00				
Satd. Flow (prot)		1808		1805	1833			1849	1615				
Fl <sub>t</sub> Permitted		0.91		0.34	1.00			0.97	1.00				
Satd. Flow (perm)		1653		652	1833			1849	1615				
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	62	407	27	149	337	37	92	74	227	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	496	0	149	374	0	0	166	227	0	0	0	
Heavy Vehicles (%)	3%	4%	0%	0%	2%	3%	0%	0%	0%	0%	0%	0%	
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm				
Protected Phases		2		1	1 2			4					
Permitted Phases	2			2			4		4				
Actuated Green, G (s)		38.6		48.6	52.6			30.2	30.2				
Effective Green, g (s)		38.6		48.6	52.6			30.2	30.2				
Actuated g/C Ratio		0.39		0.49	0.53			0.30	0.30				
Clearance Time (s)		4.0		4.0				4.0	4.0				
Vehicle Extension (s)		3.0		3.0				3.0	3.0				
Lane Grp Cap (vph)		638		432	964			558	487				
v/s Ratio Prot				0.03	c0.20								
v/s Ratio Perm		c0.30		0.13				0.09	c0.14				
v/c Ratio		0.78		0.34	0.39			0.30	0.47				
Uniform Delay, d <sub>1</sub>		26.9		16.2	14.1			26.8	28.4				
Progression Factor		0.85		1.00	1.00			1.00	1.00				
Incremental Delay, d <sub>2</sub>		8.3		0.5	0.3			1.4	3.2				
Delay (s)		31.1		16.7	14.4			28.1	31.5				
Level of Service		C		B	B			C	C				
Approach Delay (s)		31.1			15.0			30.1			0.0		
Approach LOS		C			B			C			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			24.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			60.5%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												



Lanes, Volumes, Timings  
8: IOL Dr/Seymour St & Retreat Ave

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	286	44	28	354	34	58	0	90	121	2	64
Future Volume (vph)	53	286	44	28	354	34	58	0	90	121	2	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			45			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
Fr <sub>t</sub>		0.980			0.987			0.918			0.954	
Fl <sub>t</sub> Protected	0.950			0.950				0.981			0.969	
Satd. Flow (prot)	1805	1785	0	1805	1793	0	0	1711	0	0	1756	0
Fl <sub>t</sub> Permitted	0.378			0.439				0.828			0.701	
Satd. Flow (perm)	718	1785	0	834	1793	0	0	1444	0	0	1271	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			5			80			27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		456			1480			118			630	
Travel Time (s)		10.4			33.6			2.7			14.3	
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%	5%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	56	304	47	30	377	36	62	0	96	129	2	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	351	0	30	413	0	0	158	0	0	199	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	
Total Split (s)	45.0	45.0		45.0	45.0		40.0	40.0		40.0	40.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		38.1%	38.1%		38.1%	38.1%	
Maximum Green (s)	40.0	40.0		40.0	40.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	0.2	0.2		0.2	0.2		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	48.0	48.0		48.0	48.0			35.0			35.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.33			0.33	
v/c Ratio	0.17	0.43		0.08	0.50			0.30			0.45	
Control Delay	22.6	23.1		21.0	24.9			14.6			27.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. 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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	15.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	0.2
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	8.0
Pedestrian Calls (#/hr)	34
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
8: IOL Dr/Seymour St & Retreat Ave

2026 Combined Conditions  
Weekday Afternoon Peak Hour

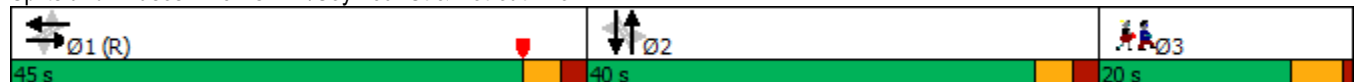


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.6	23.1		21.0	24.9			14.6			27.5	
LOS	C	C		C	C			B			C	
Approach Delay		23.0			24.6			14.6			27.5	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	25	174		13	217			37			89	
Queue Length 95th (ft)	56	262		34	320			88			159	
Internal Link Dist (ft)		376			1400			38			550	
Turn Bay Length (ft)	50			50								
Base Capacity (vph)	328	820		381	822			534			441	
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	0.17	0.43		0.08	0.50			0.30			0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	40 (38%), Referenced to phase 1:EBWB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	23.2
Intersection LOS:	C
Intersection Capacity Utilization:	63.1%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 8: IOL Dr/Seymour St & Retreat Ave



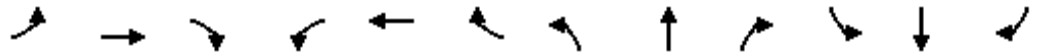
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Lane Group	Ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
8: IOL Dr/Seymour St & Retreat Ave

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	53	286	44	28	354	34	58	0	90	121	2	64	
Future Volume (vph)	53	286	44	28	354	34	58	0	90	121	2	64	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0		
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00		
Frt	1.00	0.98		1.00	0.99			0.92			0.95		
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97		
Satd. Flow (prot)	1805	1785		1805	1793			1711			1755		
Flt Permitted	0.38	1.00		0.44	1.00			0.83			0.70		
Satd. Flow (perm)	718	1785		835	1793			1445			1270		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	56	304	47	30	377	36	62	0	96	129	2	68	
RTOR Reduction (vph)	0	5	0	0	3	0	0	53	0	0	18	0	
Lane Group Flow (vph)	56	346	0	30	410	0	0	105	0	0	181	0	
Heavy Vehicles (%)	0%	5%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		1			1			2			2		
Permitted Phases	1			1			2			2			
Actuated Green, G (s)	46.0	46.0		46.0	46.0			35.0			35.0		
Effective Green, g (s)	46.0	46.0		46.0	46.0			35.0			35.0		
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.33			0.33		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0		
Vehicle Extension (s)	0.2	0.2		0.2	0.2			2.0			2.0		
Lane Grp Cap (vph)	314	782		365	785			481			423		
v/s Ratio Prot		0.19			c0.23								
v/s Ratio Perm	0.08			0.04				0.07			c0.14		
v/c Ratio	0.18	0.44		0.08	0.52			0.22			0.43		
Uniform Delay, d1	18.0	20.6		17.2	21.5			25.2			27.2		
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00		
Incremental Delay, d2	1.2	1.8		0.4	2.5			1.0			3.1		
Delay (s)	19.2	22.4		17.6	24.0			26.2			30.4		
Level of Service	B	C		B	C			C			C		
Approach Delay (s)		21.9			23.5			26.2			30.4		
Approach LOS		C			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			24.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			105.0									Sum of lost time (s)	15.0
Intersection Capacity Utilization			63.1%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings  
9: Maple Ave & Retreat Ave

2026 Combined Conditions  
Weekday Afternoon Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Lane Configurations								
Traffic Volume (vph)	484	43	32	413	475	263		
Future Volume (vph)	484	43	32	413	475	263		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	1.00		
Fr <sub>t</sub>	0.988					0.850		
Fl <sub>t</sub> Protected	0.956			0.996				
Satd. Flow (prot)	3372	0	0	3460	1845	1524		
Fl <sub>t</sub> Permitted	0.956			0.900				
Satd. Flow (perm)	3372	0	0	3126	1845	1524		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)						271		
Link Speed (mph)	30			30	30			
Link Distance (ft)	1480			980	257			
Travel Time (s)	33.6			22.3	5.8			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Heavy Vehicles (%)	3%	6%	3%	4%	3%	6%		
Adj. Flow (vph)	499	44	33	426	490	271		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	543	0	0	459	490	271		
Turn Type	Prot		custom	NA	NA	Perm		
Protected Phases	4		5	2 5	6		2	3
Permitted Phases			2			6		
Detector Phase	4		5	2 5	6	6		
Switch Phase								
Minimum Initial (s)	7.0		5.0		15.0	15.0	15.0	1.0
Minimum Split (s)	11.5		9.1		19.2	19.2	19.2	33.0
Total Split (s)	20.5		9.1		49.2	49.2	49.2	33.0
Total Split (%)	18.3%		8.1%		44.0%	44.0%	44%	30%
Maximum Green (s)	16.0		5.0		45.0	45.0	45.0	29.0
Yellow Time (s)	3.2		3.1		3.2	3.2	3.2	4.0
All-Red Time (s)	1.3		1.0		1.0	1.0	1.0	0.0
Lost Time Adjust (s)	0.0				0.0	0.0		
Total Lost Time (s)	4.5				4.2	4.2		
Lead/Lag	Lag						Lead	
Lead-Lag Optimize?	Yes						Yes	
Vehicle Extension (s)	2.0		2.0		2.0	2.0	2.0	3.0
Recall Mode	None		None		C-Max	C-Max	C-Max	None
Walk Time (s)								7.0
Flash Dont Walk (s)								22.0
Pedestrian Calls (#/hr)								12
Act Effct Green (s)	22.9			62.8	55.5	55.5		
Actuated g/C Ratio	0.20			0.56	0.50	0.50		
v/c Ratio	0.79			0.26	0.53	0.30		
Control Delay	52.9			13.4	25.1	7.4		
Queue Delay	0.5			0.0	7.1	1.2		
Total Delay	53.3			13.4	32.2	8.6		
LOS	D			B	C	A		
Approach Delay	53.3			13.4	23.8			

Lanes, Volumes, Timings  
 9: Maple Ave & Retreat Ave

2026 Combined Conditions  
 Weekday Afternoon Peak Hour

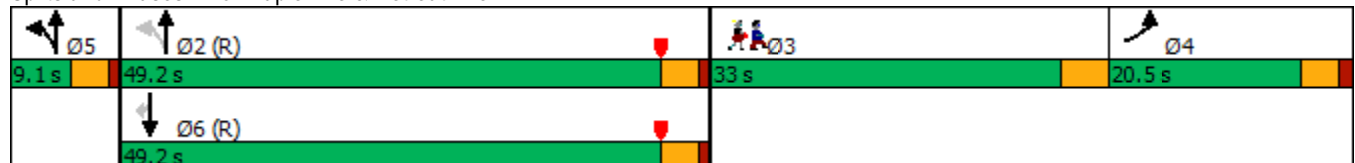


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø3
Approach LOS	D			B	C			
Queue Length 50th (ft)	185			55	153	32		
Queue Length 95th (ft)	#342			135	m473	m81		
Internal Link Dist (ft)	1400			900	177			
Turn Bay Length (ft)								
Base Capacity (vph)	690			1777	916	893		
Starvation Cap Reductn	0			0	373	414		
Spillback Cap Reductn	18			147	0	0		
Storage Cap Reductn	0			0	0	0		
Reduced v/c Ratio	0.81			0.28	0.90	0.57		

Intersection Summary

Area Type: Other  
 Cycle Length: 111.8  
 Actuated Cycle Length: 111.8  
 Offset: 50.1 (45%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 30.2 Intersection LOS: C  
 Intersection Capacity Utilization 58.2% ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Maple Ave & Retreat Ave



HCM Signalized Intersection Capacity Analysis  
 9: Maple Ave & Retreat Ave

2026 Combined Conditions  
 Weekday Afternoon Peak Hour



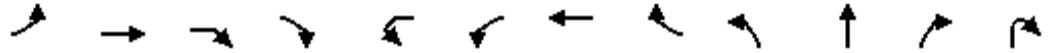
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	484	43	32	413	475	263
Future Volume (vph)	484	43	32	413	475	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.2	4.2	4.2
Lane Util. Factor	0.97			0.95	1.00	1.00
Fr <sub>t</sub>	0.99			1.00	1.00	0.85
Fl <sub>t</sub> Protected	0.96			1.00	1.00	1.00
Satd. Flow (prot)	3372			3461	1845	1524
Fl <sub>t</sub> Permitted	0.96			0.90	1.00	1.00
Satd. Flow (perm)	3372			3127	1845	1524
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	499	44	33	426	490	271
RTOR Reduction (vph)	0	0	0	0	0	142
Lane Group Flow (vph)	543	0	0	459	490	129
Heavy Vehicles (%)	3%	6%	3%	4%	3%	6%
Turn Type	Prot		custom	NA	NA	Perm
Protected Phases	4		5	2	5	6
Permitted Phases			2			6
Actuated Green, G (s)	22.9			60.5	53.1	53.1
Effective Green, g (s)	22.9			60.5	53.1	53.1
Actuated g/C Ratio	0.20			0.54	0.47	0.47
Clearance Time (s)	4.5				4.2	4.2
Vehicle Extension (s)	2.0				2.0	2.0
Lane Grp Cap (vph)	690			1714	876	723
v/s Ratio Prot	c0.16			c0.02	c0.27	
v/s Ratio Perm				0.13		0.08
v/c Ratio	0.79			0.27	0.56	0.18
Uniform Delay, d <sub>1</sub>	42.1			13.8	21.0	16.8
Progression Factor	1.00			1.00	1.07	2.50
Incremental Delay, d <sub>2</sub>	5.5			0.0	2.0	0.4
Delay (s)	47.6			13.8	24.5	42.5
Level of Service	D			B	C	D
Approach Delay (s)	47.6			13.8	30.9	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	111.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Combined Conditions  
 Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↕↕				↕	↕			↕↕	↕	
Traffic Volume (vph)	60	309	17	168	5	251	221	52	87	486	312	6
Future Volume (vph)	60	309	17	168	5	251	221	52	87	486	312	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95
Fr <sub>t</sub>		0.950					0.971					0.850
Fl <sub>t</sub> Protected		0.995				0.950				0.992		
Satd. Flow (prot)	0	3345	0	0	0	1770	1809	0	0	3511	1583	0
Fl <sub>t</sub> Permitted		0.995				0.950				0.755		
Satd. Flow (perm)	0	3345	0	0	0	1770	1809	0	0	2672	1583	0
Right Turn on Red				Yes				No				No
Satd. Flow (RTOR)		52										
Link Speed (mph)		30					30			30		
Link Distance (ft)		1134					419			257		
Travel Time (s)		25.8					9.5			5.8		
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
Adj. Flow (vph)	63	322	18	175	5	261	230	54	91	506	325	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	578	0	0	0	266	284	0	0	597	331	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Detector Phase	4	4			8	8	8		5	2.5	2.5	
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0	7.0	7.0		5.0			
Minimum Split (s)	12.4	12.4			11.1	11.1	11.1		8.2			
Total Split (s)	22.4	22.4			24.1	24.1	24.1		8.2			
Total Split (%)	20.0%	20.0%			21.6%	21.6%	21.6%		7.3%			
Maximum Green (s)	17.0	17.0			20.0	20.0	20.0		5.0			
Yellow Time (s)	3.4	3.4			3.1	3.1	3.1		3.1			
All-Red Time (s)	2.0	2.0			1.0	1.0	1.0		0.1			
Lost Time Adjust (s)		0.0					0.0		0.0			
Total Lost Time (s)		5.4					4.1		4.1			
Lead/Lag	Lag	Lag										
Lead-Lag Optimize?	Yes	Yes										
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0			
Recall Mode	None	None			None	None	None		None			
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		22.1				20.1	20.1		38.8	43.9		
Actuated g/C Ratio		0.20				0.18	0.18		0.35	0.39		
v/c Ratio		0.82				0.84	0.88		0.59	0.53		
Control Delay		51.0				55.5	59.9		23.1	21.8		
Queue Delay		1.0				6.9	0.0		0.7	13.6		
Total Delay		52.1				62.3	59.9		23.9	35.5		
LOS		D				E	E		C	D		
Approach Delay		52.1					61.1		28.0			
Approach LOS		D					E		C			

Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

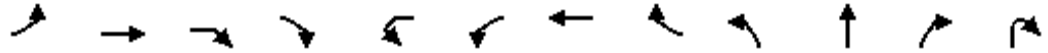
2026 Combined Conditions  
 Weekday Afternoon Peak Hour



Lane Group	SBL2	SBL	SBT	SBR	Ø2	Ø3
Lane Configurations						
Traffic Volume (vph)	14	9	272	47		
Future Volume (vph)	14	9	272	47		
Ideal Flow (vphpl)	1900	1900	1900	1900		
Lane Util. Factor	0.95	0.95	0.95	0.95		
Fr <sub>t</sub>			0.979			
Fl <sub>t</sub> Protected			0.997			
Satd. Flow (prot)	0	0	3454	0		
Fl <sub>t</sub> Permitted			0.882			
Satd. Flow (perm)	0	0	3056	0		
Right Turn on Red				No		
Satd. Flow (RTOR)						
Link Speed (mph)			30			
Link Distance (ft)			614			
Travel Time (s)			14.0			
Peak Hour Factor	0.96	0.96	0.96	0.96		
Adj. Flow (vph)	15	9	283	49		
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	356	0		
Turn Type	Perm	Perm	NA			
Protected Phases			6		2	3
Permitted Phases	6	6				
Detector Phase	6	6	6			
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0		15.0	1.0
Minimum Split (s)	20.1	20.1	20.1		20.1	28.0
Total Split (s)	29.1	29.1	29.1		29.1	28.0
Total Split (%)	26.0%	26.0%	26.0%		26%	25%
Maximum Green (s)	24.0	24.0	24.0		24.0	24.0
Yellow Time (s)	3.1	3.1	3.1		3.1	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	0.0
Lost Time Adjust (s)			0.0			
Total Lost Time (s)			5.1			
Lead/Lag						Lead
Lead-Lag Optimize?						Yes
Vehicle Extension (s)	2.0	2.0	2.0		2.0	3.0
Recall Mode	C-Max	C-Max	C-Max		C-Max	None
Walk Time (s)						7.0
Flash Dont Walk (s)						17.0
Pedestrian Calls (#/hr)						19
Act Effct Green (s)			27.7			
Actuated g/C Ratio			0.25			
v/c Ratio			0.47			
Control Delay			39.5			
Queue Delay			0.2			
Total Delay			39.6			
LOS			D			
Approach Delay			39.6			
Approach LOS			D			

Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Combined Conditions  
 Weekday Afternoon Peak Hour



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Queue Length 50th (ft)		184				181	194			206	220	
Queue Length 95th (ft)		#335				#334	#361			#258	m266	
Internal Link Dist (ft)		1054					339			177		
Turn Bay Length (ft)												
Base Capacity (vph)		701				329	336			1009	621	
Starvation Cap Reductn		0				0	0			160	267	
Spillback Cap Reductn		27				35	0			0	4	
Storage Cap Reductn		0				0	0			0	0	
Reduced v/c Ratio		0.86				0.90	0.85			0.70	0.94	

Intersection Summary

Area Type: Other  
 Cycle Length: 111.8  
 Actuated Cycle Length: 111.8  
 Offset: 23.2 (21%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 43.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 79.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

Ø5	Ø2 (R)	Ø3	Ø4	Ø8
8.2 s	29.1 s	28 s	22.4 s	24.1 s
	Ø6 (R)			
	29.1 s			

Lanes, Volumes, Timings  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

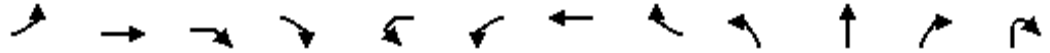
2026 Combined Conditions  
 Weekday Afternoon Peak Hour



Lane Group	SBL2	SBL	SBT	SBR	Ø2	Ø3
Queue Length 50th (ft)			120			
Queue Length 95th (ft)			170			
Internal Link Dist (ft)			534			
Turn Bay Length (ft)						
Base Capacity (vph)			758			
Starvation Cap Reductn			0			
Spillback Cap Reductn			62			
Storage Cap Reductn			0			
Reduced v/c Ratio			0.51			
Intersection Summary						

HCM Signalized Intersection Capacity Analysis  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wyllys St

2026 Combined Conditions  
 Weekday Afternoon Peak Hour



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2
Lane Configurations		↕↕				↕	↕			↕↕	↕	
Traffic Volume (vph)	60	309	17	168	5	251	221	52	87	486	312	6
Future Volume (vph)	60	309	17	168	5	251	221	52	87	486	312	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4				4.1	4.1			5.1	5.1	
Lane Util. Factor		0.95				1.00	1.00			0.95	1.00	
Frt		0.95				1.00	0.97			1.00	0.85	
Flt Protected		0.99				0.95	1.00			0.99	1.00	
Satd. Flow (prot)		3344				1770	1810			3512	1583	
Flt Permitted		0.99				0.95	1.00			0.76	1.00	
Satd. Flow (perm)		3344				1770	1810			2672	1583	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	322	18	175	5	261	230	54	91	506	325	6
RTOR Reduction (vph)	0	42	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	536	0	0	0	266	284	0	0	597	331	0
Turn Type	Split	NA			Split	Split	NA		pm+pt	NA	Prot	
Protected Phases	4	4			8	8	8		5	2.5	2.5	
Permitted Phases									2.5			
Actuated Green, G (s)		22.1				20.1	20.1			38.2	41.4	
Effective Green, g (s)		22.1				20.1	20.1			38.2	38.2	
Actuated g/C Ratio		0.20				0.18	0.18			0.34	0.34	
Clearance Time (s)		5.4				4.1	4.1					
Vehicle Extension (s)		2.0				2.0	2.0					
Lane Grp Cap (vph)		661				318	325			1010	540	
v/s Ratio Prot		c0.16				0.15	c0.16			0.07	c0.21	
v/s Ratio Perm										0.13		
v/c Ratio		0.81				0.84	0.87			0.59	0.61	
Uniform Delay, d1		42.9				44.3	44.6			30.4	30.6	
Progression Factor		1.00				0.78	0.78			0.66	0.64	
Incremental Delay, d2		7.1				14.4	18.9			0.5	1.2	
Delay (s)		50.0				48.9	53.8			20.6	20.7	
Level of Service		D				D	D			C	C	
Approach Delay (s)		50.0					51.4			20.6		
Approach LOS		D					D			C		

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	111.8	Sum of lost time (s)	21.8
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 10: Maple Ave/Main St & Congress St & Jefferson St/Wylllys St

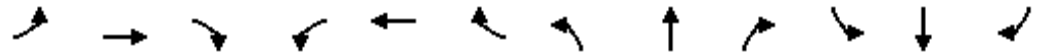
2026 Combined Conditions  
 Weekday Afternoon Peak Hour



Movement	SBL2	SBL	SBT	SBR
Lane Configurations			←↑→	
Traffic Volume (vph)	14	9	272	47
Future Volume (vph)	14	9	272	47
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.1	
Lane Util. Factor			0.95	
Fr <sub>t</sub>			0.98	
Fl <sub>t</sub> Protected			1.00	
Satd. Flow (prot)			3455	
Fl <sub>t</sub> Permitted			0.88	
Satd. Flow (perm)			3057	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96
Adj. Flow (vph)	15	9	283	49
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	356	0
Turn Type	Perm	Perm	NA	
Protected Phases			6	
Permitted Phases	6	6		
Actuated Green, G (s)			25.2	
Effective Green, g (s)			25.2	
Actuated g/C Ratio			0.23	
Clearance Time (s)			5.1	
Vehicle Extension (s)			2.0	
Lane Grp Cap (vph)			689	
v/s Ratio Prot				
v/s Ratio Perm			0.12	
v/c Ratio			0.52	
Uniform Delay, d <sub>1</sub>			38.0	
Progression Factor			1.00	
Incremental Delay, d <sub>2</sub>			2.8	
Delay (s)			40.7	
Level of Service			D	
Approach Delay (s)			40.7	
Approach LOS			D	
<b>Intersection Summary</b>				

Lanes, Volumes, Timings  
11: Wethersfield Ave/Main St & Wyllys St

2026 Combined Conditions  
Weekday Afternoon Peak Hour



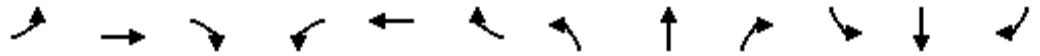
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↗	↘		↗	↘	
Traffic Volume (vph)	8	578	71	103	416	16	140	264	153	36	238	8
Future Volume (vph)	8	578	71	103	416	16	140	264	153	36	238	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.984			0.995			0.945			0.995	
Fl <sub>t</sub> Protected		0.999			0.990		0.950			0.950		
Satd. Flow (prot)	0	3477	0	0	3498	0	1787	1743	0	1719	1837	0
Fl <sub>t</sub> Permitted		0.947			0.563		0.344			0.439		
Satd. Flow (perm)	0	3296	0	0	1990	0	647	1743	0	794	1837	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		419			457			477			416	
Travel Time (s)		9.5			10.4			10.8			9.5	
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 (%)	7%	2%	2%	0%	2%	3%	1%	3%	3%	5%	3%	0%
Adj. Flow (vph)	8	602	74	107	433	17	146	275	159	38	248	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	684	0	0	557	0	146	434	0	38	256	0
Turn Type	Perm	NA		D,P+P	NA		D,P+P	NA		Perm	NA	
Protected Phases		4		3	3 4		1	1 2			2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		3	3 4		1	1 2		2	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0			5.0			10.0	10.0	
Minimum Split (s)	15.0	15.0		9.0			9.0			15.0	15.0	
Total Split (s)	32.0	32.0		10.0			16.0			29.8	29.8	
Total Split (%)	28.6%	28.6%		8.9%			14.3%			26.7%	26.7%	
Maximum Green (s)	27.0	27.0		6.0			12.0			24.8	24.8	
Yellow Time (s)	3.0	3.0		3.0			3.0			3.0	3.0	
All-Red Time (s)	2.0	2.0		1.0			1.0			2.0	2.0	
Lost Time Adjust (s)		0.0					0.0			0.0	0.0	
Total Lost Time (s)		5.0					4.0			5.0	5.0	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0			3.0			3.0	3.0	
Recall Mode	Max	Max		Max			Max			C-Max	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		27.0			43.6		37.8	41.8		24.8	24.8	
Actuated g/C Ratio		0.24			0.39		0.34	0.37		0.22	0.22	
v/c Ratio		0.86			0.56		0.43	0.67		0.22	0.63	
Control Delay		54.1			30.5		28.2	35.3		39.4	47.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		54.1			30.5		28.2	35.3		39.4	47.2	
LOS		D			C		C	D		D	D	
Approach Delay		54.1			30.5			33.5			46.2	

Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr't	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	21%
Maximum Green (s)	19.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	32
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	



Lanes, Volumes, Timings  
 11: Wethersfield Ave/Main St & Wyllys St

2026 Combined Conditions  
 Weekday Afternoon Peak Hour

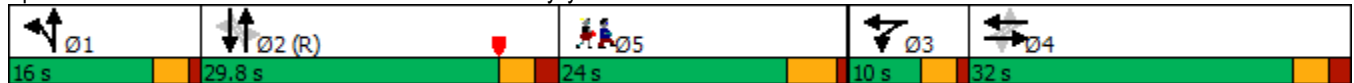


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			D		
Queue Length 50th (ft)	268			164			71	257	22			167
Queue Length 95th (ft)	m#354			#222			119	371	54			256
Internal Link Dist (ft)	339			377			397			336		
Turn Bay Length (ft)												
Base Capacity (vph)	795			986			341	651	176			407
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	0.86			0.56			0.43	0.67	0.22			0.63

Intersection Summary

Area Type: Other  
 Cycle Length: 111.8  
 Actuated Cycle Length: 111.8  
 Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 41.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 80.0%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Wethersfield Ave/Main St & Wyllys St






















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Lane Group	Ø5
Approach LOS	
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	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM Signalized Intersection Capacity Analysis  
 11: Wethersfield Ave/Main St & Wyllys St

2026 Combined Conditions  
 Weekday Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	578	71	103	416	16	140	264	153	36	238	8
Future Volume (vph)	8	578	71	103	416	16	140	264	153	36	238	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.0		4.0	4.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.98			1.00		1.00	0.95		1.00	1.00	
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3478			3502		1787	1743		1719	1838	
Flt Permitted		0.95			0.56		0.34	1.00		0.44	1.00	
Satd. Flow (perm)		3294			1989		646	1743		794	1838	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	602	74	107	433	17	146	275	159	38	248	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	684	0	0	557	0	146	434	0	38	256	0
Heavy Vehicles (%)	7%	2%	2%	0%	2%	3%	1%	3%	3%	5%	3%	0%
Turn Type	Perm	NA		D.P+P	NA		D.P+P	NA		Perm	NA	
Protected Phases		4		3	3 4		1	1 2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		27.0			42.6		34.8	38.8		22.8	22.8	
Effective Green, g (s)		27.0			42.6		34.8	38.8		22.8	22.8	
Actuated g/C Ratio		0.24			0.38		0.31	0.35		0.20	0.20	
Clearance Time (s)		5.0					4.0			5.0	5.0	
Vehicle Extension (s)		3.0					3.0			3.0	3.0	
Lane Grp Cap (vph)		795			969		323	604		161	374	
v/s Ratio Prot					c0.08		0.05	c0.25			0.14	
v/s Ratio Perm		c0.21			0.14		0.09			0.05		
v/c Ratio		0.86			0.57		0.45	0.72		0.24	0.68	
Uniform Delay, d1		40.6			27.4		29.4	31.8		37.2	41.2	
Progression Factor		1.10			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.2			2.5		4.5	7.2		3.4	9.8	
Delay (s)		53.7			29.9		33.9	38.9		40.6	50.9	
Level of Service		D			C		C	D		D	D	
Approach Delay (s)		53.7			29.9			37.7			49.6	
Approach LOS		D			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			42.5				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			111.8				Sum of lost time (s)			23.0		
Intersection Capacity Utilization			80.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c	Critical Lane Group											

## **Appendix E**

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### Turning Movement Count (TMC) Data

# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

Washington St at Jefferson Street  
Hartford, Connecticut

File Name : 23021  
Site Code : 23021  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Jefferson Street From East					Washington Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	1	87	21	0	109	7	7	10	3	27	16	45	3	0	64	1	17	3	0	21	221
07:15 AM	0	95	28	0	123	10	12	17	1	40	20	64	4	0	88	5	22	1	4	32	283
07:30 AM	1	107	38	1	147	12	12	22	4	50	42	97	3	0	142	6	17	2	3	28	367
07:45 AM	5	105	23	0	133	12	14	21	1	48	32	101	2	1	136	7	28	2	3	40	357
Total	7	394	110	1	512	41	45	70	9	165	110	307	12	1	430	19	84	8	10	121	1228
08:00 AM	3	88	26	0	117	10	11	33	1	55	29	67	4	0	100	4	27	2	8	41	313
08:15 AM	7	82	34	0	123	17	15	13	3	48	31	81	4	1	117	8	20	3	1	32	320
08:30 AM	1	68	26	0	95	12	9	20	6	47	31	92	4	0	127	9	25	2	2	38	307
08:45 AM	2	97	22	0	121	16	17	16	4	53	32	68	2	1	103	2	23	0	1	26	303
Total	13	335	108	0	456	55	52	82	14	203	123	308	14	2	447	23	95	7	12	137	1243
Grand Total	20	729	218	1	968	96	97	152	23	368	233	615	26	3	877	42	179	15	22	258	2471
Apprch %	2.1	75.3	22.5	0.1		26.1	26.4	41.3	6.2		26.6	70.1	3	0.3		16.3	69.4	5.8	8.5		
Total %	0.8	29.5	8.8	0	39.2	3.9	3.9	6.2	0.9	14.9	9.4	24.9	1.1	0.1	35.5	1.7	7.2	0.6	0.9	10.4	
Lights	19	710	205	1	935	92	89	142	23	346	226	591	26	3	846	38	168	15	22	243	2370
% Lights	95	97.4	94	100	96.6	95.8	91.8	93.4	100	94	97	96.1	100	100	96.5	90.5	93.9	100	100	94.2	95.9
Trucks	1	3	1	0	5	1	0	3	0	4	2	8	0	0	10	0	0	0	0	0	19
% Trucks	5	0.4	0.5	0	0.5	1	0	2	0	1.1	0.9	1.3	0	0	1.1	0	0	0	0	0	0.8
Buses	0	16	12	0	28	3	8	7	0	18	5	16	0	0	21	4	11	0	0	15	82
% Buses	0	2.2	5.5	0	2.9	3.1	8.2	4.6	0	4.9	2.1	2.6	0	0	2.4	9.5	6.1	0	0	5.8	3.3

# Connecticut Counts LLC

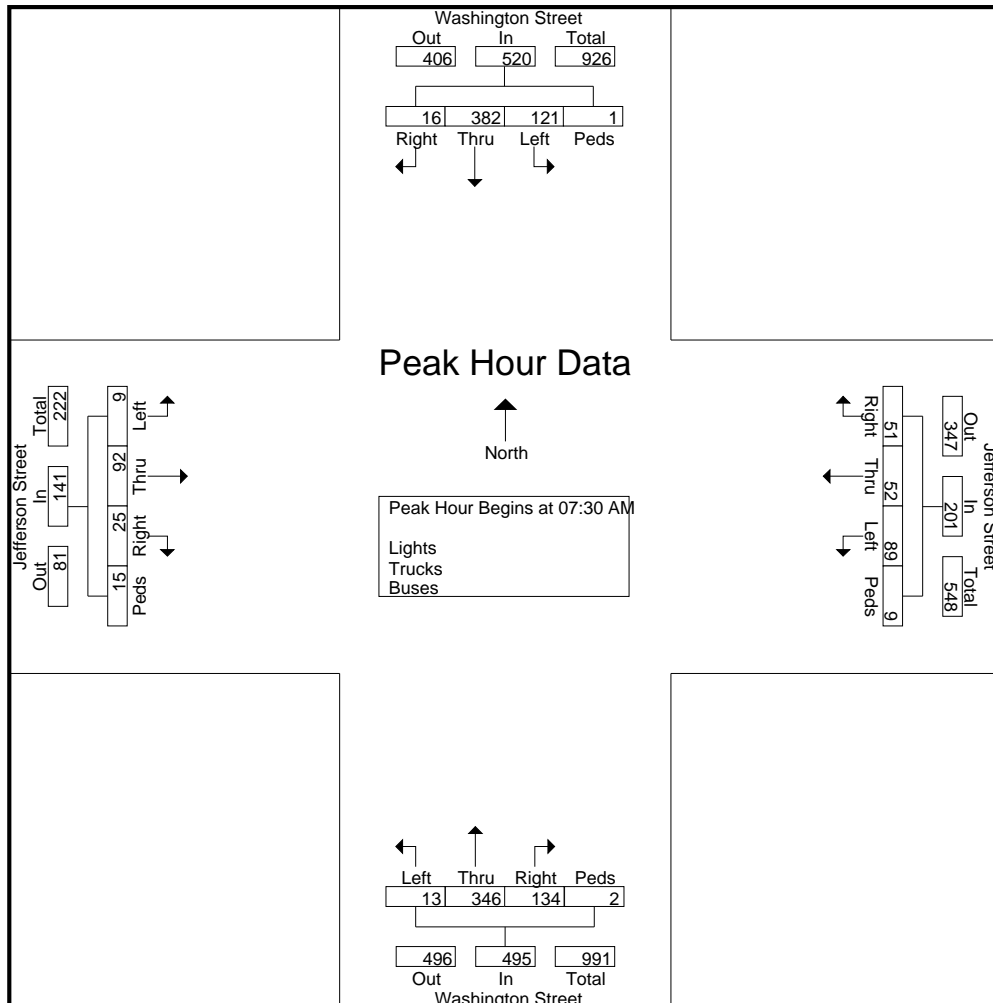
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23021  
 Site Code : 23021  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Washington Street From North					Jefferson Street From East					Washington Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	1	107	38	1	147	12	12	22	4	50	42	97	3	0	142	6	17	2	3	28	367
07:45 AM	5	105	23	0	133	12	14	21	1	48	32	101	2	1	136	7	28	2	3	40	357
08:00 AM	3	88	26	0	117	10	11	33	1	55	29	67	4	0	100	4	27	2	8	41	313
08:15 AM	7	82	34	0	123	17	15	13	3	48	31	81	4	1	117	8	20	3	1	32	320
Total Volume	16	382	121	1	520	51	52	89	9	201	134	346	13	2	495	25	92	9	15	141	1357
% App. Total	3.1	73.5	23.3	0.2		25.4	25.9	44.3	4.5		27.1	69.9	2.6	0.4		17.7	65.2	6.4	10.6		
PHF	.571	.893	.796	.250	.884	.750	.867	.674	.563	.914	.798	.856	.813	.500	.871	.781	.821	.750	.469	.860	.924



# Connecticut Counts LLC

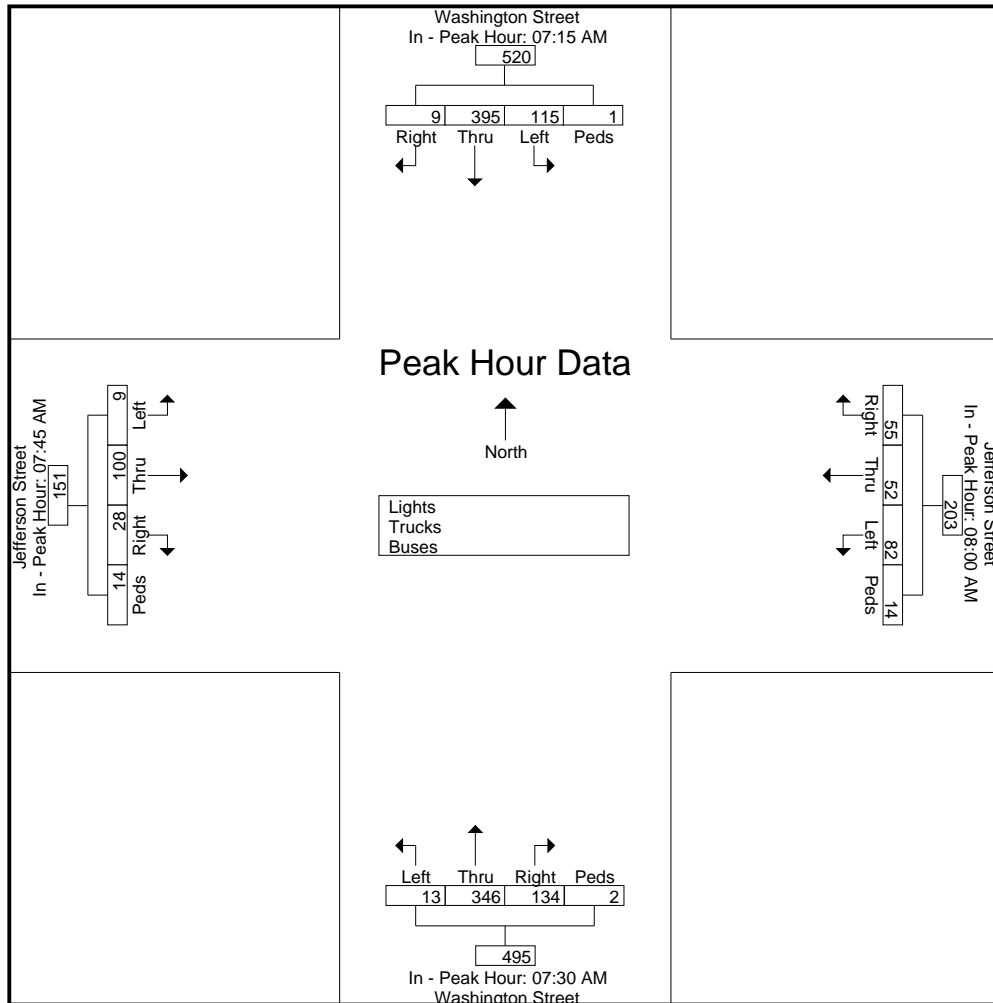
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23021  
 Site Code : 23021  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					Jefferson Street From East					Washington Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					08:00 AM					07:30 AM					07:45 AM				
+0 mins.	0	95	28	0	123	10	11	33	1	55	42	97	3	0	142	7	28	2	3	40
+15 mins.	1	107	38	1	147	17	15	13	3	48	32	101	2	1	136	4	27	2	8	41
+30 mins.	5	105	23	0	133	12	9	20	6	47	29	67	4	0	100	8	20	3	1	32
+45 mins.	3	88	26	0	117	16	17	16	4	53	31	81	4	1	117	9	25	2	2	38
Total Volume	9	395	115	1	520	55	52	82	14	203	134	346	13	2	495	28	100	9	14	151
% App. Total	1.7	76	22.1	0.2		27.1	25.6	40.4	6.9		27.1	69.9	2.6	0.4		18.5	66.2	6	9.3	
PHF	.450	.923	.757	.250	.884	.809	.765	.621	.583	.923	.798	.856	.813	.500	.871	.778	.893	.750	.438	.921



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Jefferson Street  
Hartford, Connecticut

File Name : 23022  
Site Code : 23022  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Jefferson Street From East					Washington Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	1	102	27	0	130	28	40	23	3	94	49	129	4	0	182	3	30	4	0	37	443
04:15 PM	7	91	16	1	115	18	33	37	8	96	47	111	2	1	161	2	11	1	1	15	387
04:30 PM	8	82	29	1	120	31	34	24	0	89	56	104	5	1	166	4	23	3	3	33	408
04:45 PM	4	98	23	2	127	33	29	24	1	87	33	114	5	0	152	9	21	5	2	37	403
Total	20	373	95	4	492	110	136	108	12	366	185	458	16	2	661	18	85	13	6	122	1641
05:00 PM	4	104	18	2	128	36	38	25	6	105	47	98	4	3	152	5	19	3	1	28	413
05:15 PM	3	82	30	1	116	21	30	32	0	83	30	91	5	4	130	5	16	1	4	26	355
05:30 PM	4	99	27	0	130	26	45	19	4	94	30	73	2	0	105	5	13	0	1	19	348
05:45 PM	4	70	18	0	92	27	27	22	4	80	26	62	5	0	93	4	8	3	2	17	282
Total	15	355	93	3	466	110	140	98	14	362	133	324	16	7	480	19	56	7	8	90	1398
Grand Total	35	728	188	7	958	220	276	206	26	728	318	782	32	9	1141	37	141	20	14	212	3039
Apprch %	3.7	76	19.6	0.7		30.2	37.9	28.3	3.6		27.9	68.5	2.8	0.8		17.5	66.5	9.4	6.6		
Total %	1.2	24	6.2	0.2	31.5	7.2	9.1	6.8	0.9	24	10.5	25.7	1.1	0.3	37.5	1.2	4.6	0.7	0.5	7	
Lights	35	721	178	7	941	219	272	202	23	716	312	765	32	9	1118	37	132	20	14	203	2978
% Lights	100	99	94.7	100	98.2	99.5	98.6	98.1	88.5	98.4	98.1	97.8	100	100	98	100	93.6	100	100	95.8	98
Trucks	0	1	0	0	1	0	0	0	3	3	0	2	0	0	2	0	0	0	0	0	6
% Trucks	0	0.1	0	0	0.1	0	0	0	11.5	0.4	0	0.3	0	0	0.2	0	0	0	0	0	0.2
Buses	0	6	10	0	16	1	4	4	0	9	6	15	0	0	21	0	9	0	0	9	55
% Buses	0	0.8	5.3	0	1.7	0.5	1.4	1.9	0	1.2	1.9	1.9	0	0	1.8	0	6.4	0	0	4.2	1.8



# Connecticut Counts LLC

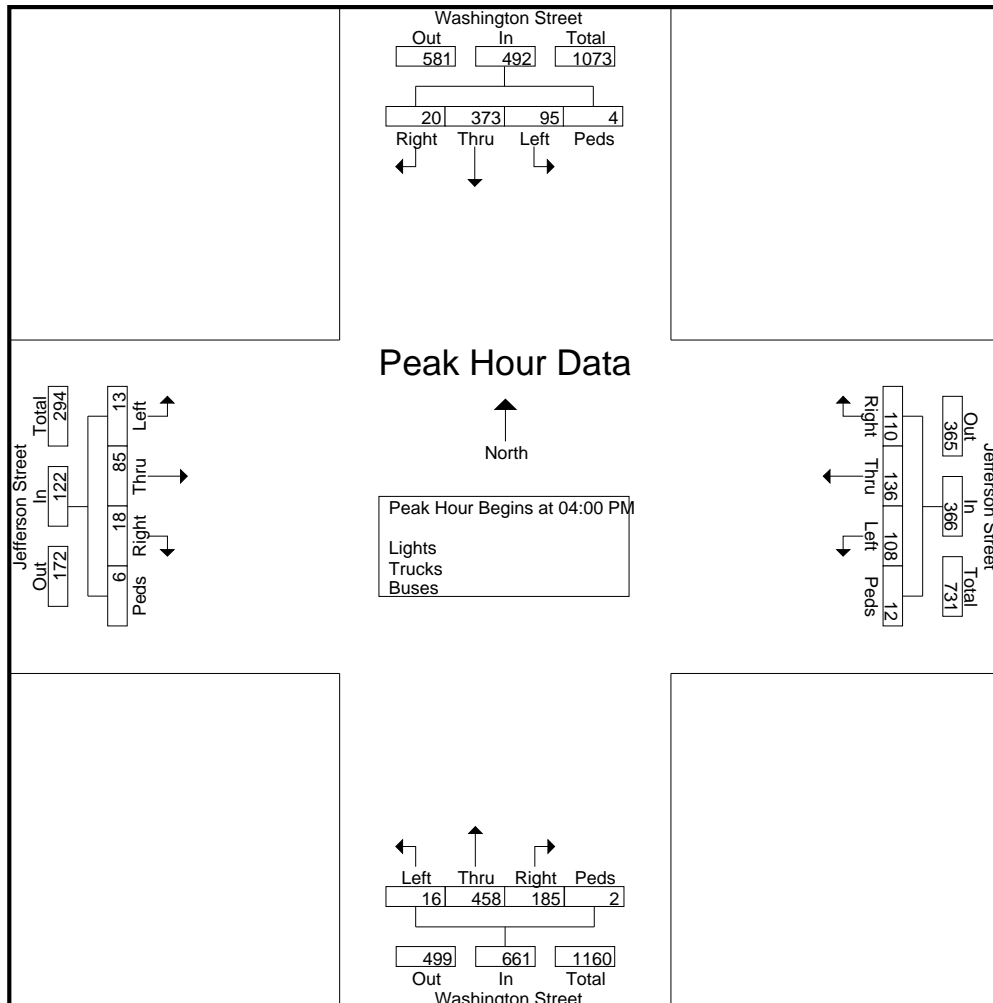
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23022  
 Site Code : 23022  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Washington Street From North					Jefferson Street From East					Washington Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	1	102	27	0	130	28	40	23	3	94	49	129	4	0	182	3	30	4	0	37	443
04:15 PM	7	91	16	1	115	18	33	37	8	96	47	111	2	1	161	2	11	1	1	15	387
04:30 PM	8	82	29	1	120	31	34	24	0	89	56	104	5	1	166	4	23	3	3	33	408
04:45 PM	4	98	23	2	127	33	29	24	1	87	33	114	5	0	152	9	21	5	2	37	403
Total Volume	20	373	95	4	492	110	136	108	12	366	185	458	16	2	661	18	85	13	6	122	1641
% App. Total	4.1	75.8	19.3	0.8		30.1	37.2	29.5	3.3		28	69.3	2.4	0.3		14.8	69.7	10.7	4.9		
PHF	.625	.914	.819	.500	.946	.833	.850	.730	.375	.953	.826	.888	.800	.500	.908	.500	.708	.650	.500	.824	.926



# Connecticut Counts LLC

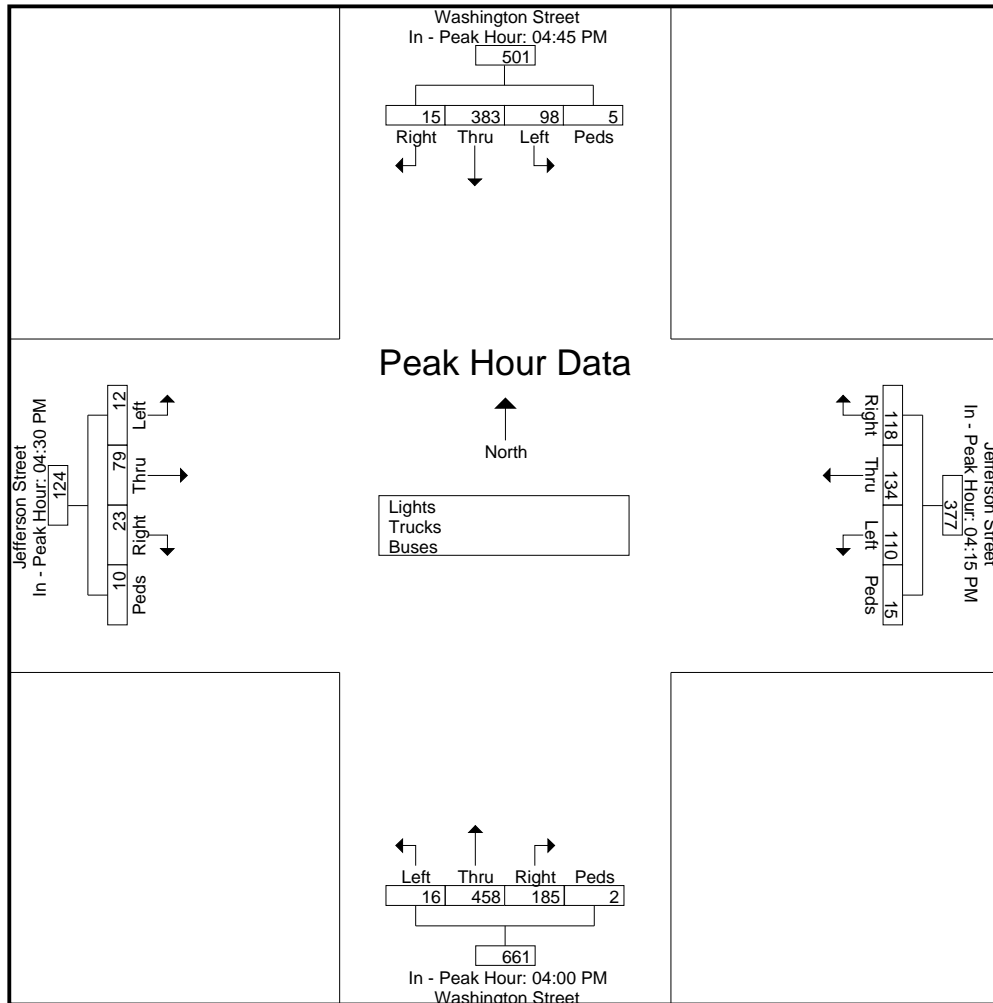
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23022  
Site Code : 23022  
Start Date : 5/12/2022  
Page No : 3

Start Time	Washington Street From North					Jefferson Street From East					Washington Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	04:45 PM					04:15 PM					04:00 PM					04:30 PM				
+0 mins.	4	98	23	2	127	18	33	37	8	96	49	129	4	0	182	4	23	3	3	33
+15 mins.	4	104	18	2	128	31	34	24	0	89	47	111	2	1	161	9	21	5	2	37
+30 mins.	3	82	30	1	116	33	29	24	1	87	56	104	5	1	166	5	19	3	1	28
+45 mins.	4	99	27	0	130	36	38	25	6	105	33	114	5	0	152	5	16	1	4	26
Total Volume	15	383	98	5	501	118	134	110	15	377	185	458	16	2	661	23	79	12	10	124
% App. Total	3	76.4	19.6	1		31.3	35.5	29.2	4		28	69.3	2.4	0.3		18.5	63.7	9.7	8.1	
PHF	.938	.921	.817	.625	.963	.819	.882	.743	.469	.898	.826	.888	.800	.500	.908	.639	.859	.600	.625	.838



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Zwieback Street  
Hartford, Connecticut

File Name : 23023  
Site Code : 23023  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Zwieback Street From East					Private Dr From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	73	18	1	92	16	0	9	0	25	15	48	8	0	71	6	2	5	0	13	201
07:15 AM	1	89	22	1	113	10	1	9	0	20	26	76	13	0	115	6	2	9	0	17	265
07:30 AM	0	105	19	5	129	10	0	14	0	24	24	122	8	0	154	9	2	9	0	20	327
07:45 AM	1	90	22	3	116	24	0	11	2	37	32	108	11	0	151	9	3	12	0	24	328
Total	2	357	81	10	450	60	1	43	2	106	97	354	40	0	491	30	9	35	0	74	1121
08:00 AM	0	90	31	0	121	9	1	5	3	18	16	90	4	0	110	11	2	11	0	24	273
08:15 AM	1	81	17	1	100	11	0	5	0	16	22	81	9	0	112	9	1	5	1	16	244
08:30 AM	0	70	26	2	98	20	0	8	3	31	20	91	14	3	128	6	3	7	1	17	274
08:45 AM	2	79	20	0	101	19	4	13	3	39	19	73	12	0	104	11	5	6	0	22	266
Total	3	320	94	3	420	59	5	31	9	104	77	335	39	3	454	37	11	29	2	79	1057
Grand Total	5	677	175	13	870	119	6	74	11	210	174	689	79	3	945	67	20	64	2	153	2178
Apprch %	0.6	77.8	20.1	1.5		56.7	2.9	35.2	5.2		18.4	72.9	8.4	0.3		43.8	13.1	41.8	1.3		
Total %	0.2	31.1	8	0.6	39.9	5.5	0.3	3.4	0.5	9.6	8	31.6	3.6	0.1	43.4	3.1	0.9	2.9	0.1	7	
Lights	5	648	175	13	841	118	6	74	10	208	173	662	79	3	917	67	20	64	2	153	2119
% Lights	100	95.7	100	100	96.7	99.2	100	100	90.9	99	99.4	96.1	100	100	97	100	100	100	100	100	97.3
Trucks	0	8	0	0	8	1	0	0	1	2	0	6	0	0	6	0	0	0	0	0	16
% Trucks	0	1.2	0	0	0.9	0.8	0	0	9.1	1	0	0.9	0	0	0.6	0	0	0	0	0	0.7
Buses	0	21	0	0	21	0	0	0	0	0	1	21	0	0	22	0	0	0	0	0	43
% Buses	0	3.1	0	0	2.4	0	0	0	0	0	0.6	3	0	0	2.3	0	0	0	0	0	2

# Connecticut Counts LLC

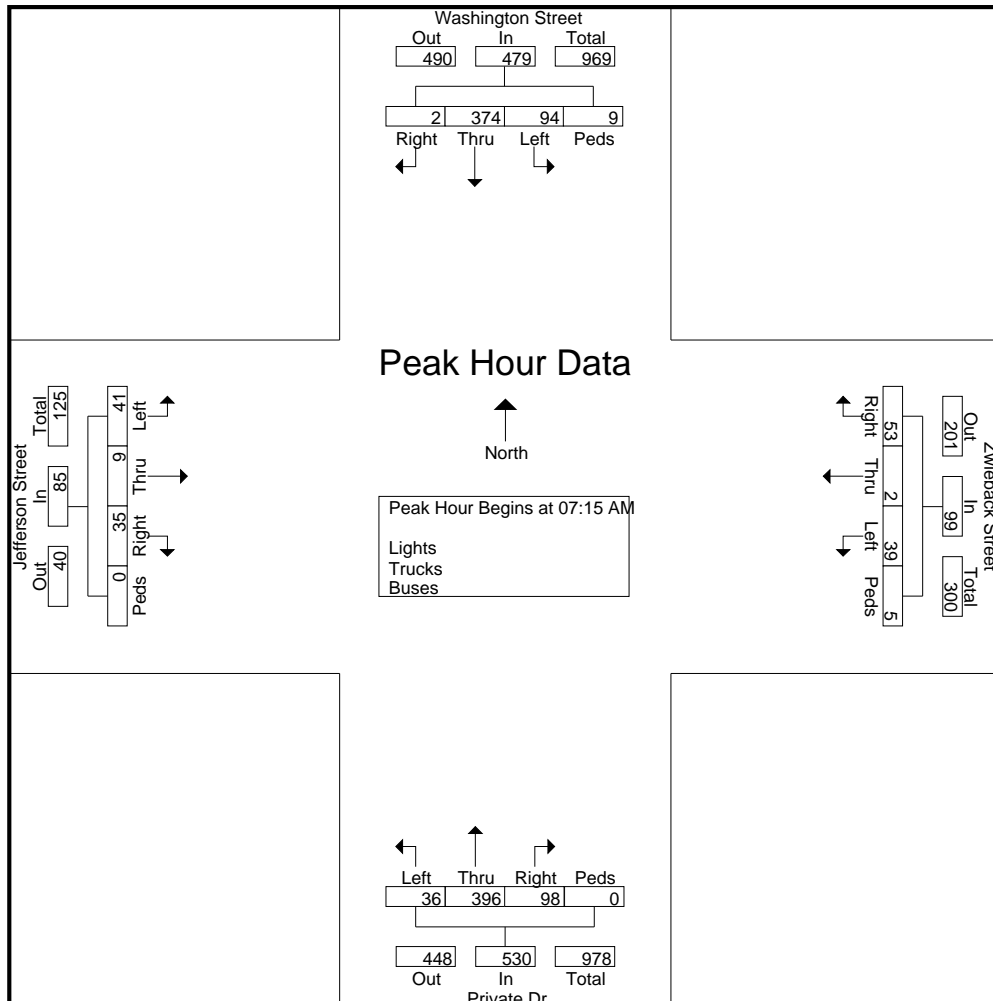
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23023  
Site Code : 23023  
Start Date : 5/12/2022  
Page No : 2

Start Time	Washington Street From North					Zwieback Street From East					Private Dr From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:15 AM

07:15 AM	1	89	22	1	113	10	1	9	0	20	26	76	13	0	115	6	2	9	0	17	265
07:30 AM	0	105	19	5	129	10	0	14	0	24	24	122	8	0	154	9	2	9	0	20	327
07:45 AM	1	90	22	3	116	24	0	11	2	37	32	108	11	0	151	9	3	12	0	24	328
08:00 AM	0	90	31	0	121	9	1	5	3	18	16	90	4	0	110	11	2	11	0	24	273
Total Volume	2	374	94	9	479	53	2	39	5	99	98	396	36	0	530	35	9	41	0	85	1193
% App. Total	0.4	78.1	19.6	1.9		53.5	2	39.4	5.1		18.5	74.7	6.8	0		41.2	10.6	48.2	0		
PHF	.500	.890	.758	.450	.928	.552	.500	.696	.417	.669	.766	.811	.692	.000	.860	.795	.750	.854	.000	.885	.909



# Connecticut Counts LLC

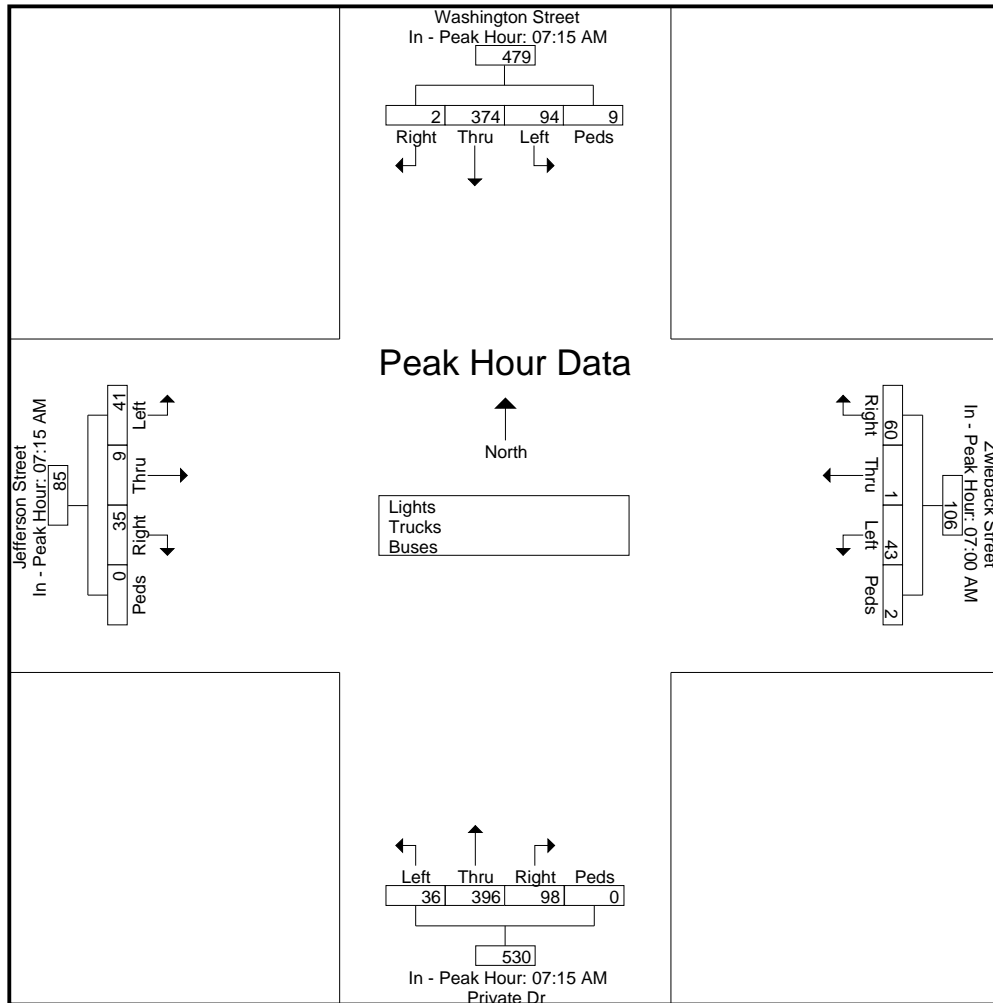
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23023  
 Site Code : 23023  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					Zwieback Street From East					Private Dr From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:00 AM					07:15 AM					07:15 AM				
+0 mins.	1	89	22	1	113	16	0	9	0	25	26	76	13	0	115	6	2	9	0	17
+15 mins.	0	105	19	5	129	10	1	9	0	20	24	122	8	0	154	9	2	9	0	20
+30 mins.	1	90	22	3	116	10	0	14	0	24	32	108	11	0	151	9	3	12	0	24
+45 mins.	0	90	31	0	121	24	0	11	2	37	16	90	4	0	110	11	2	11	0	24
Total Volume	2	374	94	9	479	60	1	43	2	106	98	396	36	0	530	35	9	41	0	85
% App. Total	0.4	78.1	19.6	1.9		56.6	0.9	40.6	1.9		18.5	74.7	6.8	0		41.2	10.6	48.2	0	
PHF	.500	.890	.758	.450	.928	.625	.250	.768	.250	.716	.766	.811	.692	.000	.860	.795	.750	.854	.000	.885



# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

Washington St at Zwieback Street  
Hartford, Connecticut

File Name : 23024  
Site Code : 23024  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Zwieback Street From East					Private Dr From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	116	14	5	135	37	2	19	4	62	26	132	3	5	166	2	0	1	1	4	367
04:15 PM	1	108	18	0	127	38	1	25	0	64	12	110	3	0	125	5	3	3	0	11	327
04:30 PM	0	92	22	6	120	44	0	32	2	78	17	104	1	1	123	3	0	3	1	7	328
04:45 PM	0	104	22	6	132	28	0	32	0	60	13	118	7	0	138	2	0	4	0	6	336
<b>Total</b>	<b>1</b>	<b>420</b>	<b>76</b>	<b>17</b>	<b>514</b>	<b>147</b>	<b>3</b>	<b>108</b>	<b>6</b>	<b>264</b>	<b>68</b>	<b>464</b>	<b>14</b>	<b>6</b>	<b>552</b>	<b>12</b>	<b>3</b>	<b>11</b>	<b>2</b>	<b>28</b>	<b>1358</b>
05:00 PM	1	116	28	2	147	23	0	20	3	46	18	113	1	0	132	2	0	3	0	5	330
05:15 PM	1	96	19	2	118	23	0	13	0	36	9	100	1	1	111	4	0	0	0	4	269
05:30 PM	0	105	27	5	137	15	0	19	2	36	5	82	1	0	88	4	2	1	0	7	268
05:45 PM	0	78	21	4	103	15	0	12	3	30	16	71	4	0	91	3	1	2	1	7	231
<b>Total</b>	<b>2</b>	<b>395</b>	<b>95</b>	<b>13</b>	<b>505</b>	<b>76</b>	<b>0</b>	<b>64</b>	<b>8</b>	<b>148</b>	<b>48</b>	<b>366</b>	<b>7</b>	<b>1</b>	<b>422</b>	<b>13</b>	<b>3</b>	<b>6</b>	<b>1</b>	<b>23</b>	<b>1098</b>
<b>Grand Total</b>	<b>3</b>	<b>815</b>	<b>171</b>	<b>30</b>	<b>1019</b>	<b>223</b>	<b>3</b>	<b>172</b>	<b>14</b>	<b>412</b>	<b>116</b>	<b>830</b>	<b>21</b>	<b>7</b>	<b>974</b>	<b>25</b>	<b>6</b>	<b>17</b>	<b>3</b>	<b>51</b>	<b>2456</b>
<b>Apprch %</b>	<b>0.3</b>	<b>80</b>	<b>16.8</b>	<b>2.9</b>		<b>54.1</b>	<b>0.7</b>	<b>41.7</b>	<b>3.4</b>		<b>11.9</b>	<b>85.2</b>	<b>2.2</b>	<b>0.7</b>		<b>49</b>	<b>11.8</b>	<b>33.3</b>	<b>5.9</b>		
<b>Total %</b>	<b>0.1</b>	<b>33.2</b>	<b>7</b>	<b>1.2</b>	<b>41.5</b>	<b>9.1</b>	<b>0.1</b>	<b>7</b>	<b>0.6</b>	<b>16.8</b>	<b>4.7</b>	<b>33.8</b>	<b>0.9</b>	<b>0.3</b>	<b>39.7</b>	<b>1</b>	<b>0.2</b>	<b>0.7</b>	<b>0.1</b>	<b>2.1</b>	
<b>Lights</b>	<b>3</b>	<b>804</b>	<b>171</b>	<b>30</b>	<b>1008</b>	<b>223</b>	<b>3</b>	<b>172</b>	<b>14</b>	<b>412</b>	<b>116</b>	<b>808</b>	<b>21</b>	<b>7</b>	<b>952</b>	<b>25</b>	<b>6</b>	<b>17</b>	<b>3</b>	<b>51</b>	<b>2423</b>
<b>% Lights</b>	<b>100</b>	<b>98.7</b>	<b>100</b>	<b>100</b>	<b>98.9</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>97.3</b>	<b>100</b>	<b>100</b>	<b>97.7</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>98.7</b>
<b>Trucks</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>% Trucks</b>	<b>0</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.4</b>	<b>0</b>	<b>0</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.2</b>
<b>Buses</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>
<b>% Buses</b>	<b>0</b>	<b>1.2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2.3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.2</b>

# Connecticut Counts LLC

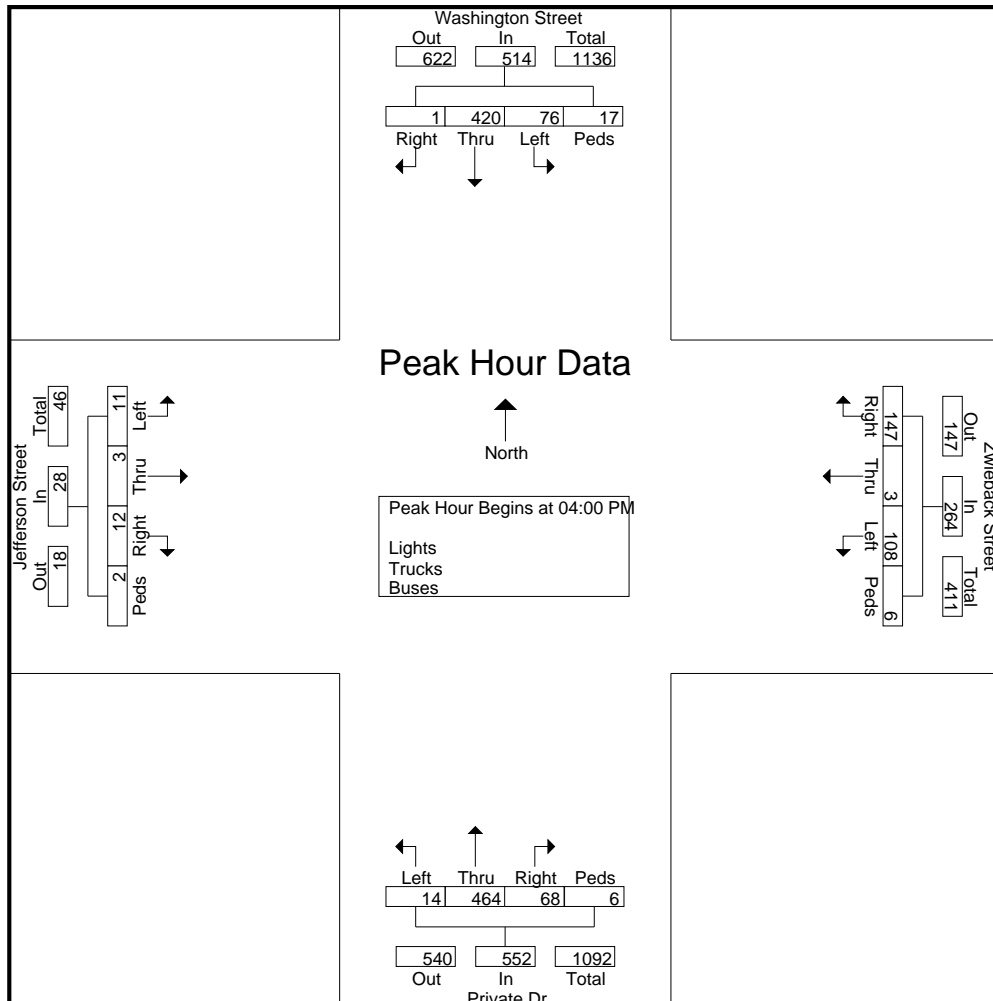
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23024  
 Site Code : 23024  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Washington Street From North					Zwieback Street From East					Private Dr From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	0	116	14	5	135	37	2	19	4	62	26	132	3	5	166	2	0	1	1	4	367
04:15 PM	1	108	18	0	127	38	1	25	0	64	12	110	3	0	125	5	3	3	0	11	327
04:30 PM	0	92	22	6	120	44	0	32	2	78	17	104	1	1	123	3	0	3	1	7	328
04:45 PM	0	104	22	6	132	28	0	32	0	60	13	118	7	0	138	2	0	4	0	6	336
Total Volume	1	420	76	17	514	147	3	108	6	264	68	464	14	6	552	12	3	11	2	28	1358
% App. Total	0.2	81.7	14.8	3.3		55.7	1.1	40.9	2.3		12.3	84.1	2.5	1.1		42.9	10.7	39.3	7.1		
PHF	.250	.905	.864	.708	.952	.835	.375	.844	.375	.846	.654	.879	.500	.300	.831	.600	.250	.688	.500	.636	.925



# Connecticut Counts LLC

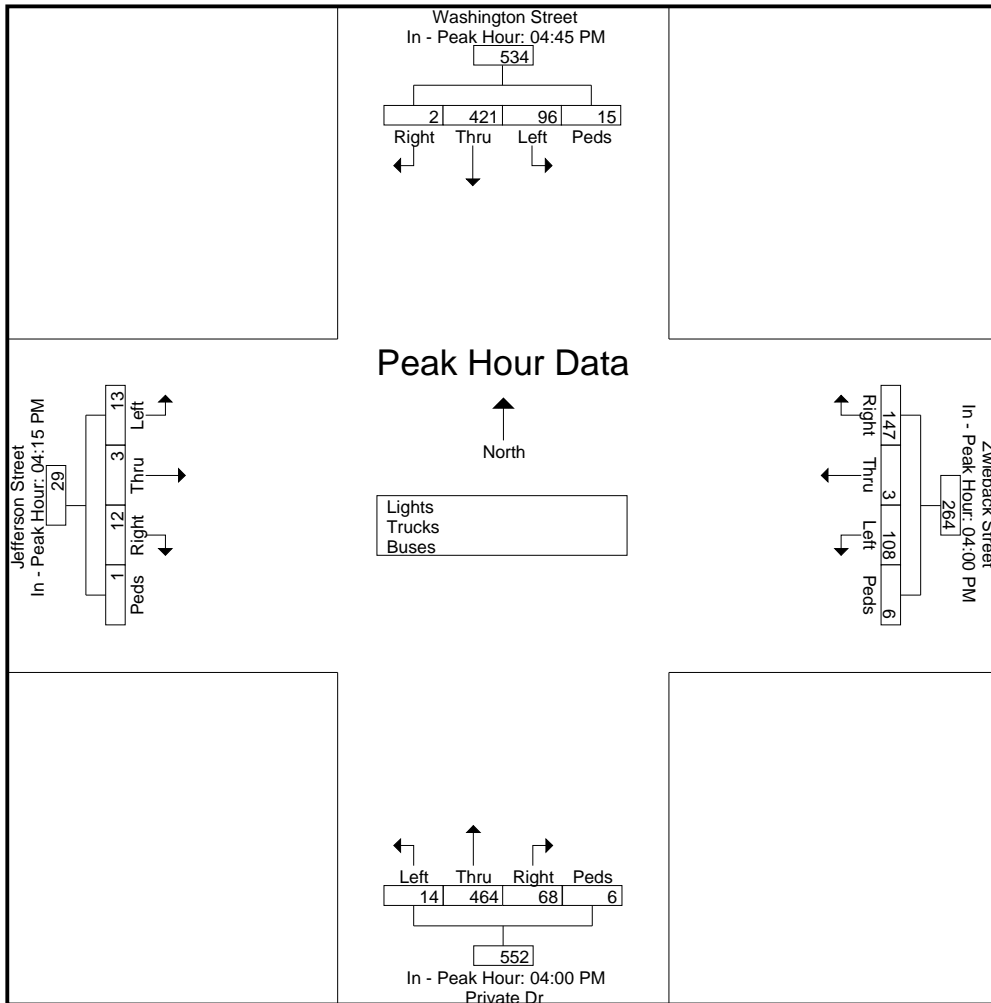
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23024  
Site Code : 23024  
Start Date : 5/12/2022  
Page No : 3

Start Time	Washington Street From North					Zwieback Street From East					Private Dr From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	04:45 PM					04:00 PM					04:00 PM					04:15 PM				
+0 mins.	0	104	22	6	132	37	2	19	4	62	26	132	3	5	166	5	3	3	0	11
+15 mins.	1	116	28	2	147	38	1	25	0	64	12	110	3	0	125	3	0	3	1	7
+30 mins.	1	96	19	2	118	44	0	32	2	78	17	104	1	1	123	2	0	4	0	6
+45 mins.	0	105	27	5	137	28	0	32	0	60	13	118	7	0	138	2	0	3	0	5
Total Volume	2	421	96	15	534	147	3	108	6	264	68	464	14	6	552	12	3	13	1	29
% App. Total	0.4	78.8	18	2.8		55.7	1.1	40.9	2.3		12.3	84.1	2.5	1.1		41.4	10.3	44.8	3.4	
PHF	.500	.907	.857	.625	.908	.835	.375	.844	.375	.846	.654	.879	.500	.300	.831	.600	.250	.813	.250	.659





**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Lincoln Street  
Hartford, Connecticut

File Name : 23025  
Site Code : 23025  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					From East					Private Dr From South					Lincoln Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	1	86	0	1	88	0	0	0	0	0	0	67	4	1	72	0	0	0	2	2	162
07:15 AM	5	114	0	0	119	0	0	0	0	0	0	98	2	0	100	0	0	0	2	2	221
07:30 AM	7	119	0	0	126	0	0	0	0	0	0	153	5	0	158	0	0	0	4	4	288
07:45 AM	4	126	0	1	131	0	0	0	0	0	0	156	7	1	164	0	0	0	0	0	295
Total	17	445	0	2	464	0	0	0	0	0	0	474	18	2	494	0	0	0	8	8	966
08:00 AM	13	98	0	0	111	0	0	0	0	0	0	105	12	2	119	0	0	0	4	4	234
08:15 AM	10	87	0	0	97	0	0	0	0	0	0	113	6	0	119	1	0	3	5	9	225
08:30 AM	8	78	0	1	87	0	0	0	0	0	0	128	8	2	138	0	0	0	7	7	232
08:45 AM	10	93	0	0	103	0	0	0	0	0	0	101	7	0	108	0	0	0	0	0	211
Total	41	356	0	1	398	0	0	0	0	0	0	447	33	4	484	1	0	3	16	20	902
Grand Total	58	801	0	3	862	0	0	0	0	0	0	921	51	6	978	1	0	3	24	28	1868
Apprch %	6.7	92.9	0	0.3		0	0	0	0		0	94.2	5.2	0.6		3.6	0	10.7	85.7		
Total %	3.1	42.9	0	0.2	46.1	0	0	0	0	0	0	49.3	2.7	0.3	52.4	0.1	0	0.2	1.3	1.5	
Lights	56	776	0	3	835	0	0	0	0	0	0	890	49	6	945	1	0	3	24	28	1808
% Lights	96.6	96.9	0	100	96.9	0	0	0	0	0	0	96.6	96.1	100	96.6	100	0	100	100	100	96.8
Trucks	1	5	0	0	6	0	0	0	0	0	0	9	1	0	10	0	0	0	0	0	16
% Trucks	1.7	0.6	0	0	0.7	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0.9
Buses	1	20	0	0	21	0	0	0	0	0	0	22	1	0	23	0	0	0	0	0	44
% Buses	1.7	2.5	0	0	2.4	0	0	0	0	0	0	2.4	2	0	2.4	0	0	0	0	0	2.4

# Connecticut Counts LLC

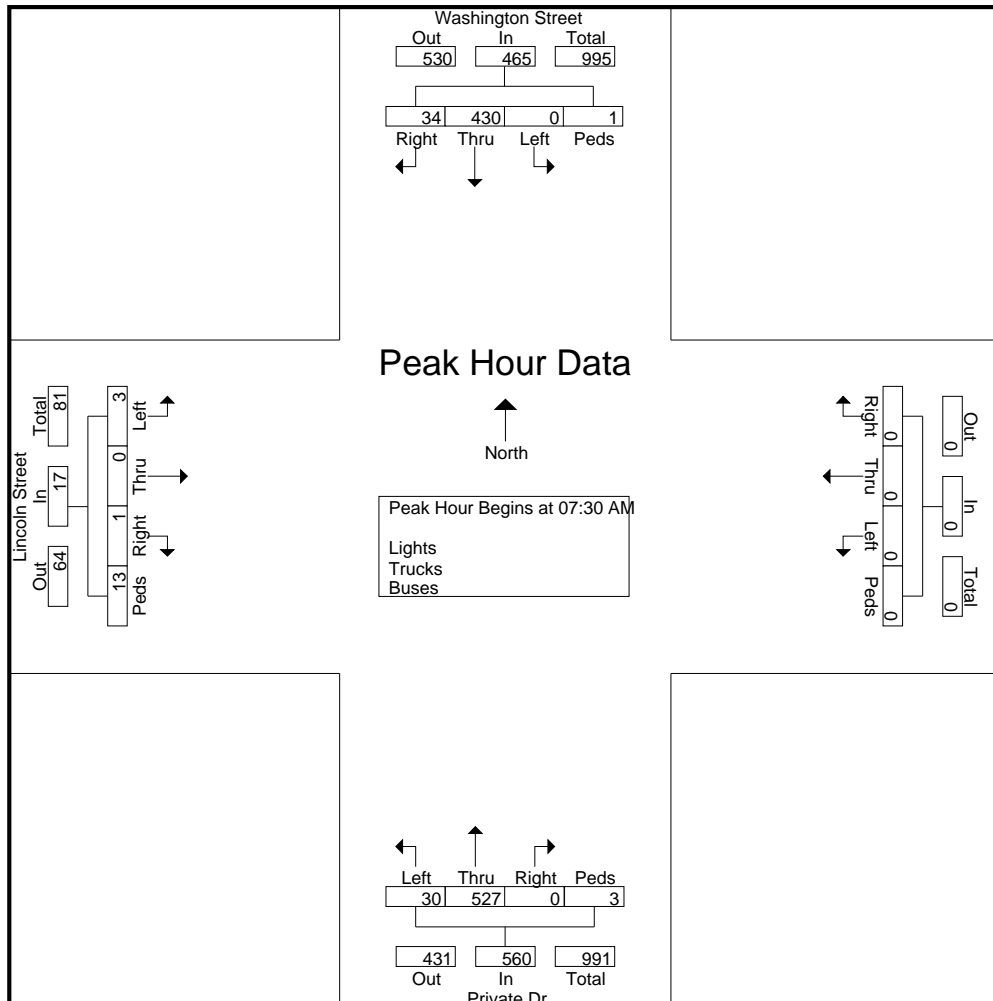
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23025  
Site Code : 23025  
Start Date : 5/12/2022  
Page No : 2

Start Time	Washington Street From North					From East					Private Dr From South					Lincoln Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	7	119	0	0	126	0	0	0	0	0	0	153	5	0	158	0	0	0	4	4	288
07:45 AM	4	126	0	1	131	0	0	0	0	0	0	156	7	1	164	0	0	0	0	0	295
08:00 AM	13	98	0	0	111	0	0	0	0	0	0	105	12	2	119	0	0	0	4	4	234
08:15 AM	10	87	0	0	97	0	0	0	0	0	0	113	6	0	119	1	0	3	5	9	225
Total Volume	34	430	0	1	465	0	0	0	0	0	0	527	30	3	560	1	0	3	13	17	1042
% App. Total	7.3	92.5	0	0.2		0	0	0	0		0	94.1	5.4	0.5		5.9	0	17.6	76.5		
PHF	.654	.853	.000	.250	.887	.000	.000	.000	.000	.000	.000	.845	.625	.375	.854	.250	.000	.250	.650	.472	.883



# Connecticut Counts LLC

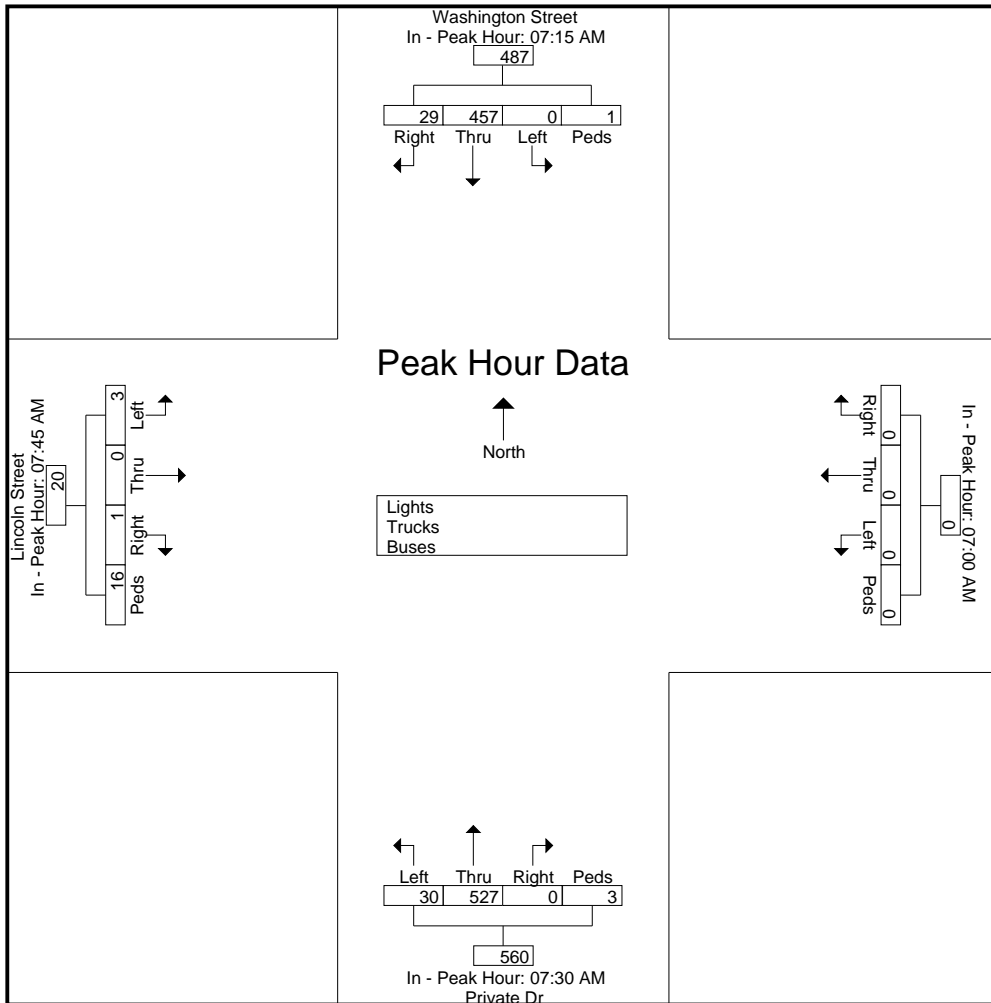
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23025  
 Site Code : 23025  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					From East					Private Dr From South					Lincoln Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:00 AM					07:30 AM					07:45 AM				
+0 mins.	5	114	0	0	119	0	0	0	0	0	0	153	5	0	158	0	0	0	0	0
+15 mins.	7	119	0	0	126	0	0	0	0	0	0	156	7	1	164	0	0	0	4	4
+30 mins.	4	126	0	1	131	0	0	0	0	0	0	105	12	2	119	1	0	3	5	9
+45 mins.	13	98	0	0	111	0	0	0	0	0	0	113	6	0	119	0	0	0	7	7
Total Volume	29	457	0	1	487	0	0	0	0	0	0	527	30	3	560	1	0	3	16	20
% App. Total	6	93.8	0	0.2		0	0	0	0		0	94.1	5.4	0.5		5	0	15	80	
PHF	.558	.907	.000	.250	.929	.000	.000	.000	.000	.000	.000	.845	.625	.375	.854	.250	.000	.250	.571	.556



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Lincoln Street  
Hartford, Connecticut

File Name : 23026  
Site Code : 23026  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					From East					Private Dr From South					Lincoln Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	14	134	0	0	148	0	0	0	0	0	1	143	10	0	154	0	0	0	14	14	316
04:15 PM	12	131	0	0	143	0	0	0	0	0	0	135	12	0	147	1	0	0	12	13	303
04:30 PM	19	108	0	0	127	0	0	0	0	0	0	121	16	0	137	0	0	0	5	5	269
04:45 PM	12	130	0	0	142	0	0	0	0	0	0	136	17	1	154	1	0	0	3	4	300
Total	57	503	0	0	560	0	0	0	0	0	1	535	55	1	592	2	0	0	34	36	1188
05:00 PM	13	127	0	0	140	0	0	0	0	0	0	121	21	0	142	1	0	0	4	5	287
05:15 PM	10	110	0	0	120	0	0	0	0	0	0	119	9	0	128	0	0	0	3	3	251
05:30 PM	9	119	0	0	128	0	0	0	0	0	0	83	9	1	93	1	0	0	0	1	222
05:45 PM	8	93	0	1	102	0	0	0	0	0	0	96	7	0	103	0	0	0	0	0	205
Total	40	449	0	1	490	0	0	0	0	0	0	419	46	1	466	2	0	0	7	9	965
Grand Total	97	952	0	1	1050	0	0	0	0	0	1	954	101	2	1058	4	0	0	41	45	2153
Apprch %	9.2	90.7	0	0.1		0	0	0	0		0.1	90.2	9.5	0.2		8.9	0	0	91.1		
Total %	4.5	44.2	0	0	48.8	0	0	0	0	0	0	44.3	4.7	0.1	49.1	0.2	0	0	1.9	2.1	
Lights	97	942	0	1	1040	0	0	0	0	0	1	928	101	2	1032	4	0	0	41	45	2117
% Lights	100	98.9	0	100	99	0	0	0	0	0	100	97.3	100	100	97.5	100	0	0	100	100	98.3
Trucks	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% Trucks	0	0.1	0	0	0.1	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1
Buses	0	9	0	0	9	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	33
% Buses	0	0.9	0	0	0.9	0	0	0	0	0	0	2.5	0	0	2.3	0	0	0	0	0	1.5

# Connecticut Counts LLC

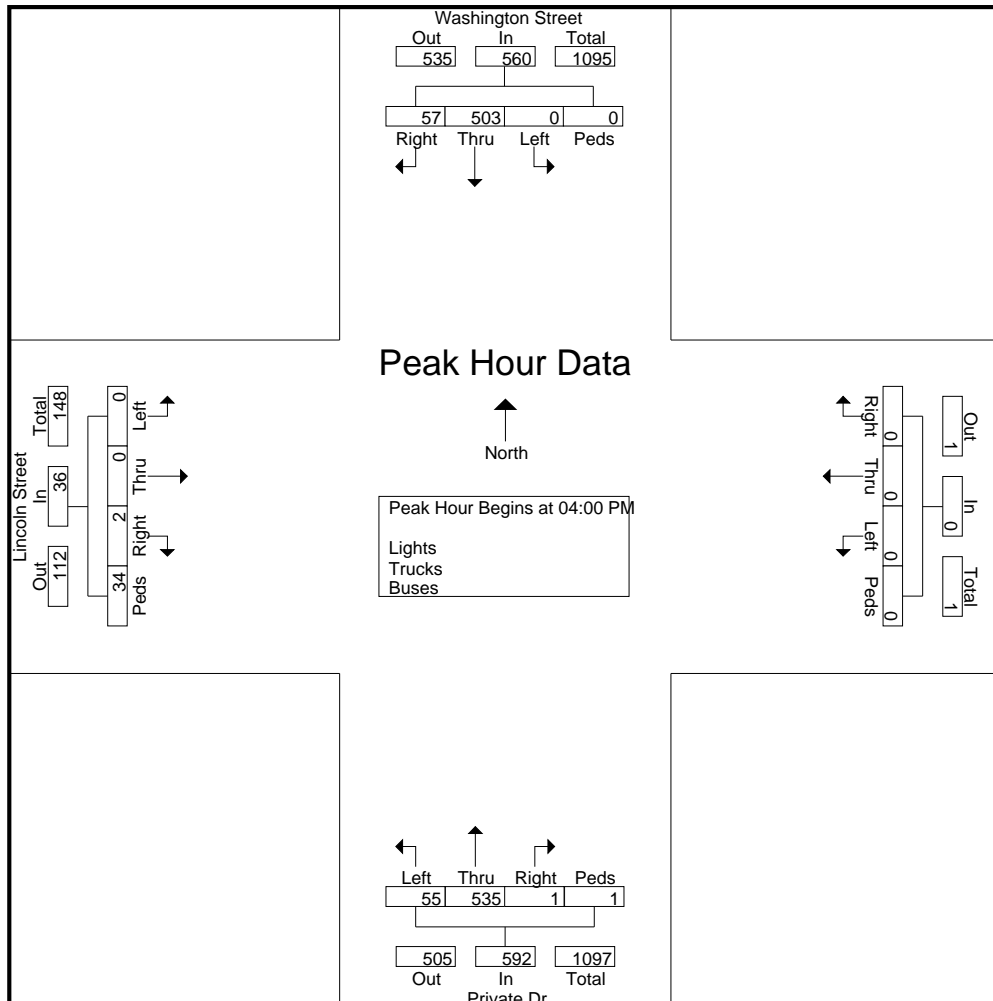
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23026  
Site Code : 23026  
Start Date : 5/12/2022  
Page No : 2

Start Time	Washington Street From North					From East					Private Dr From South					Lincoln Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	14	134	0	0	148	0	0	0	0	0	1	143	10	0	154	0	0	0	14	14	316
04:15 PM	12	131	0	0	143	0	0	0	0	0	0	135	12	0	147	1	0	0	12	13	303
04:30 PM	19	108	0	0	127	0	0	0	0	0	0	121	16	0	137	0	0	0	5	5	269
04:45 PM	12	130	0	0	142	0	0	0	0	0	0	136	17	1	154	1	0	0	3	4	300
Total Volume	57	503	0	0	560	0	0	0	0	0	1	535	55	1	592	2	0	0	34	36	1188
% App. Total	10.2	89.8	0	0		0	0	0	0		0.2	90.4	9.3	0.2		5.6	0	0	94.4		
PHF	.750	.938	.000	.000	.946	.000	.000	.000	.000	.000	.250	.935	.809	.250	.961	.500	.000	.000	.607	.643	.940



# Connecticut Counts LLC

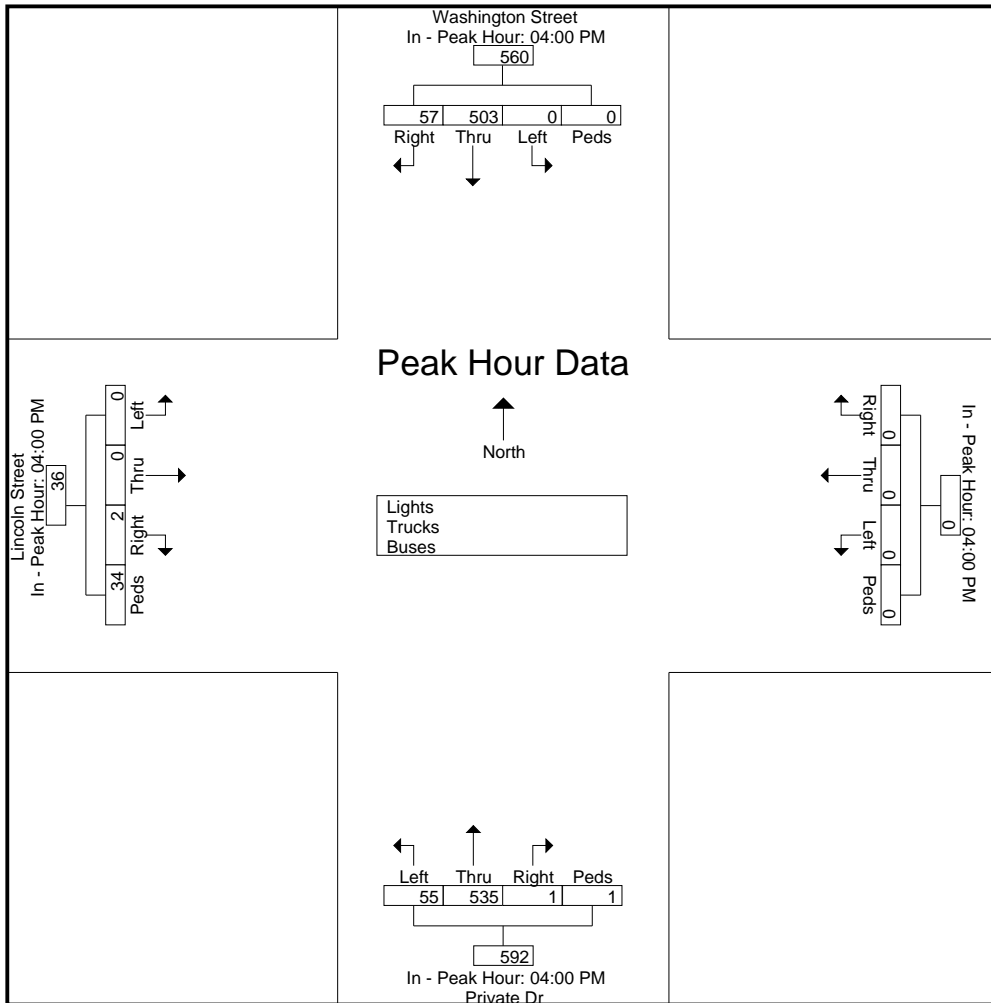
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23026  
 Site Code : 23026  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					From East					Private Dr From South					Lincoln Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:00 PM					04:00 PM				
+0 mins.	14	134	0	0	148	0	0	0	0	0	1	143	10	0	154	0	0	0	14	14
+15 mins.	12	131	0	0	143	0	0	0	0	0	0	135	12	0	147	1	0	0	12	13
+30 mins.	19	108	0	0	127	0	0	0	0	0	0	121	16	0	137	0	0	0	5	5
+45 mins.	12	130	0	0	142	0	0	0	0	0	0	136	17	1	154	1	0	0	3	4
Total Volume	57	503	0	0	560	0	0	0	0	0	1	535	55	1	592	2	0	0	34	36
% App. Total	10.2	89.8	0	0		0	0	0	0		0.2	90.4	9.3	0.2		5.6	0	0	94.4	
PHF	.750	.938	.000	.000	.946	.000	.000	.000	.000	.000	.250	.935	.809	.250	.961	.500	.000	.000	.607	.643



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Allen Place/Private Dr  
Hartford, Connecticut

File Name : 23027  
Site Code : 23027  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Private Drive From East					Washington Street From South					Allen Place From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	7	67	18	1	93	7	1	1	0	9	8	56	1	0	65	4	2	5	2	13	180
07:15 AM	9	71	22	0	102	15	2	3	1	21	7	87	10	0	104	18	5	7	0	30	257
07:30 AM	2	83	41	6	132	37	3	7	0	47	10	107	2	0	119	8	7	15	3	33	331
07:45 AM	7	75	29	1	112	20	2	6	0	28	10	111	6	1	128	8	10	21	0	39	307
Total	25	296	110	8	439	79	8	17	1	105	35	361	19	1	416	38	24	48	5	115	1075
08:00 AM	5	78	16	0	99	16	0	1	2	19	6	85	11	1	103	8	7	8	1	24	245
08:15 AM	4	62	11	2	79	7	0	2	0	9	5	102	9	0	116	9	2	10	1	22	226
08:30 AM	2	56	10	0	68	5	0	0	0	5	1	97	5	0	103	10	3	15	3	31	207
08:45 AM	7	73	9	0	89	2	1	1	0	4	0	90	6	0	96	5	4	5	4	18	207
Total	18	269	46	2	335	30	1	4	2	37	12	374	31	1	418	32	16	38	9	95	885
Grand Total	43	565	156	10	774	109	9	21	3	142	47	735	50	2	834	70	40	86	14	210	1960
Apprch %	5.6	73	20.2	1.3		76.8	6.3	14.8	2.1		5.6	88.1	6	0.2		33.3	19	41	6.7		
Total %	2.2	28.8	8	0.5	39.5	5.6	0.5	1.1	0.2	7.2	2.4	37.5	2.6	0.1	42.6	3.6	2	4.4	0.7	10.7	
Lights	42	539	156	10	747	109	9	21	3	142	47	705	48	2	802	66	40	84	14	204	1895
% Lights	97.7	95.4	100	100	96.5	100	100	100	100	100	100	95.9	96	100	96.2	94.3	100	97.7	100	97.1	96.7
Trucks	0	6	0	0	6	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	15
% Trucks	0	1.1	0	0	0.8	0	0	0	0	0	0	1.1	0	0	1	0	0	1.2	0	0.5	0.8
Buses	1	20	0	0	21	0	0	0	0	0	0	22	2	0	24	4	0	1	0	5	50
% Buses	2.3	3.5	0	0	2.7	0	0	0	0	0	0	3	4	0	2.9	5.7	0	1.2	0	2.4	2.6

# Connecticut Counts LLC

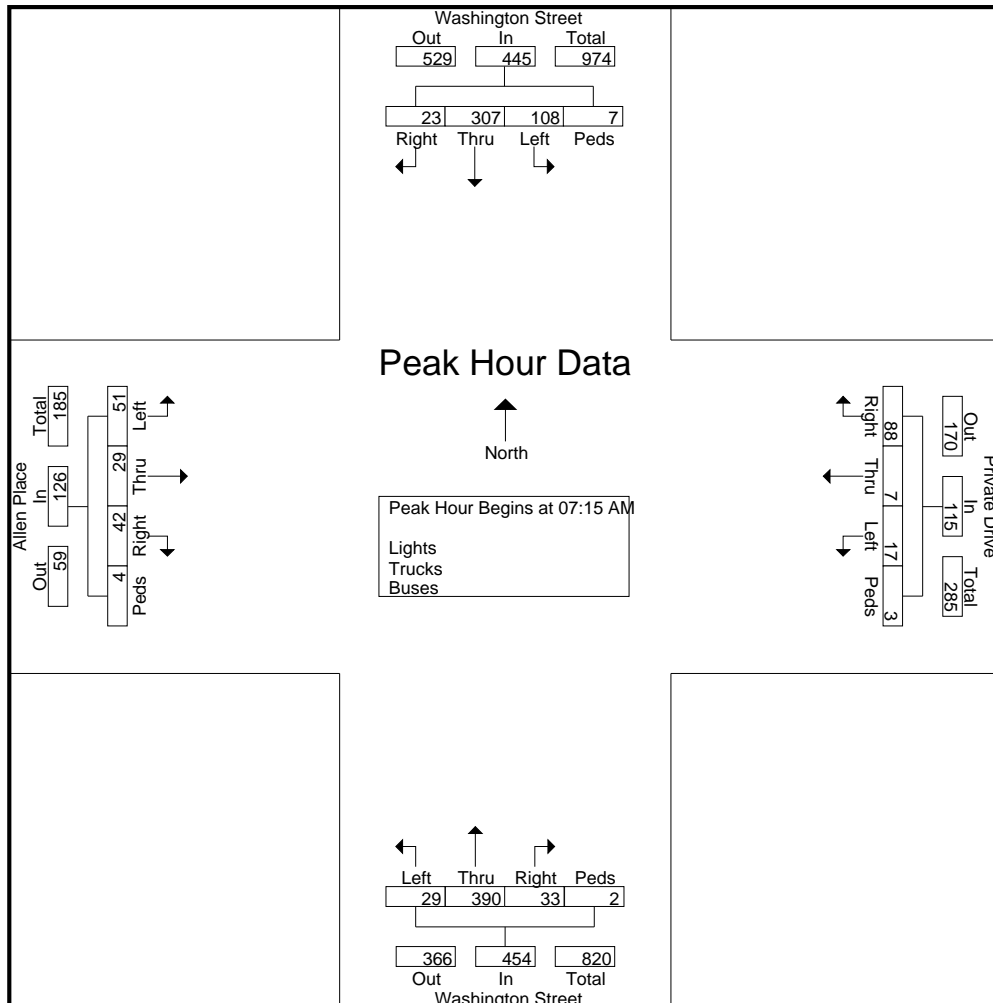
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23027  
Site Code : 23027  
Start Date : 5/12/2022  
Page No : 2

Start Time	Washington Street From North					Private Drive From East					Washington Street From South					Allen Place From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:15 AM

07:15 AM	9	71	22	0	102	15	2	3	1	21	7	87	10	0	104	18	5	7	0	30	257
07:30 AM	2	83	41	6	132	37	3	7	0	47	10	107	2	0	119	8	7	15	3	33	331
07:45 AM	7	75	29	1	112	20	2	6	0	28	10	111	6	1	128	8	10	21	0	39	307
08:00 AM	5	78	16	0	99	16	0	1	2	19	6	85	11	1	103	8	7	8	1	24	245
Total Volume	23	307	108	7	445	88	7	17	3	115	33	390	29	2	454	42	29	51	4	126	1140
% App. Total	5.2	69	24.3	1.6		76.5	6.1	14.8	2.6		7.3	85.9	6.4	0.4		33.3	23	40.5	3.2		
PHF	.639	.925	.659	.292	.843	.595	.583	.607	.375	.612	.825	.878	.659	.500	.887	.583	.725	.607	.333	.808	.861





# Connecticut Counts LLC

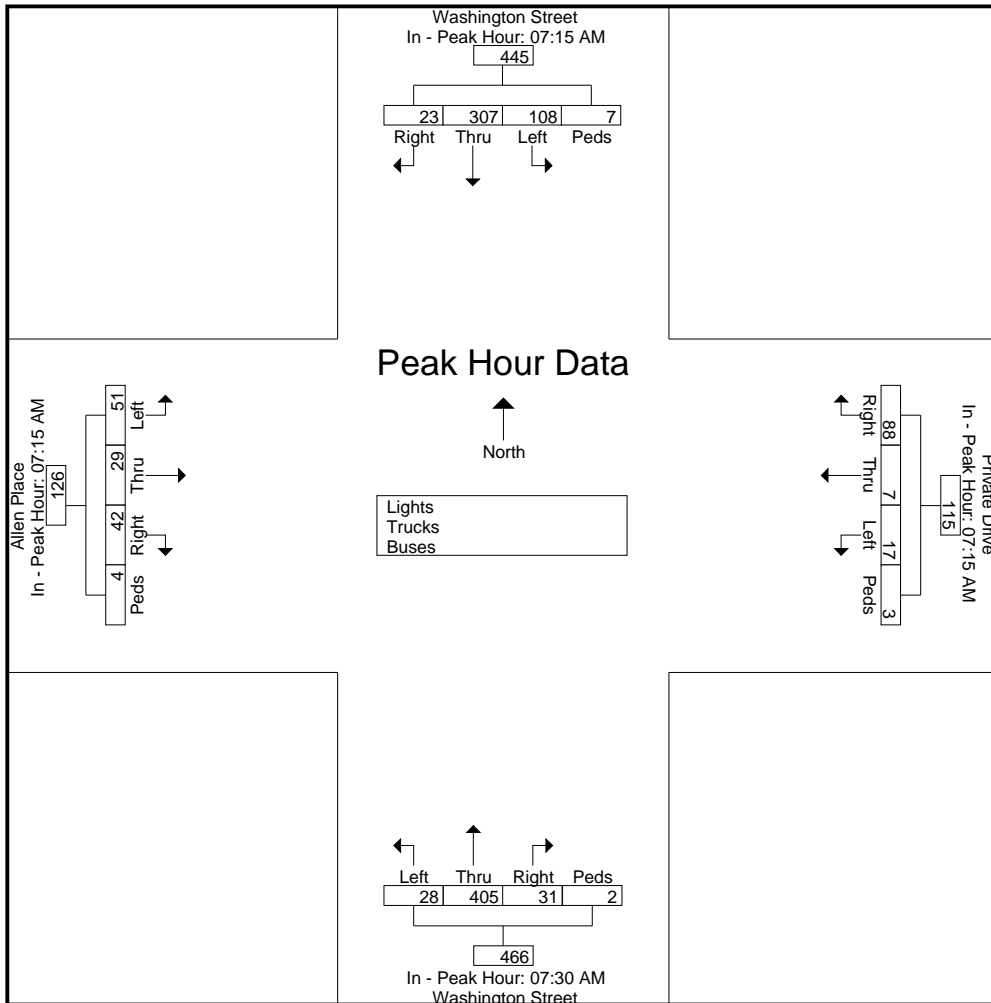
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23027  
 Site Code : 23027  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					Private Drive From East					Washington Street From South					Allen Place From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:30 AM					07:15 AM				
+0 mins.	9	71	22	0	102	15	2	3	1	21	10	107	2	0	119	18	5	7	0	30
+15 mins.	2	83	41	6	132	37	3	7	0	47	10	111	6	1	128	8	7	15	3	33
+30 mins.	7	75	29	1	112	20	2	6	0	28	6	85	11	1	103	8	10	21	0	39
+45 mins.	5	78	16	0	99	16	0	1	2	19	5	102	9	0	116	8	7	8	1	24
Total Volume	23	307	108	7	445	88	7	17	3	115	31	405	28	2	466	42	29	51	4	126
% App. Total	5.2	69	24.3	1.6		76.5	6.1	14.8	2.6		6.7	86.9	6	0.4		33.3	23	40.5	3.2	
PHF	.639	.925	.659	.292	.843	.595	.583	.607	.375	.612	.775	.912	.636	.500	.910	.583	.725	.607	.333	.808



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Allen POlace/Private Dr  
Hartford, Connecticut

File Name : 23028  
Site Code : 23028  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Private Drive From East					Washington Street From South					Allen Place From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	8	119	1	1	129	30	11	12	1	54	2	105	16	1	124	26	1	20	5	52	359
04:15 PM	14	105	2	0	121	26	7	10	1	44	2	115	12	0	129	9	0	16	5	30	324
04:30 PM	19	105	2	6	132	46	6	22	1	75	0	102	13	0	115	9	1	16	1	27	349
04:45 PM	10	111	1	2	124	27	5	15	1	48	1	100	9	0	110	16	1	13	3	33	315
Total	51	440	6	9	506	129	29	59	4	221	5	422	50	1	478	60	3	65	14	142	1347
05:00 PM	8	115	0	4	127	32	5	18	0	55	0	103	16	1	120	6	0	9	0	15	317
05:15 PM	13	92	3	0	108	25	4	10	0	39	0	88	9	1	98	4	1	15	3	23	268
05:30 PM	12	95	6	0	113	20	5	5	0	30	1	61	7	0	69	9	1	11	0	21	233
05:45 PM	4	90	2	0	96	13	4	6	2	25	2	72	5	0	79	11	1	10	3	25	225
Total	37	392	11	4	444	90	18	39	2	149	3	324	37	2	366	30	3	45	6	84	1043
Grand Total	88	832	17	13	950	219	47	98	6	370	8	746	87	3	844	90	6	110	20	226	2390
Apprch %	9.3	87.6	1.8	1.4		59.2	12.7	26.5	1.6		0.9	88.4	10.3	0.4		39.8	2.7	48.7	8.8		
Total %	3.7	34.8	0.7	0.5	39.7	9.2	2	4.1	0.3	15.5	0.3	31.2	3.6	0.1	35.3	3.8	0.3	4.6	0.8	9.5	
Lights	88	822	17	13	940	219	47	98	6	370	8	723	87	3	821	90	6	110	20	226	2357
% Lights	100	98.8	100	100	98.9	100	100	100	100	100	100	96.9	100	100	97.3	100	100	100	100	100	98.6
Trucks	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
% Trucks	0	0.1	0	0	0.1	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.2
Buses	0	9	0	0	9	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	29
% Buses	0	1.1	0	0	0.9	0	0	0	0	0	0	2.7	0	0	2.4	0	0	0	0	0	1.2

# Connecticut Counts LLC

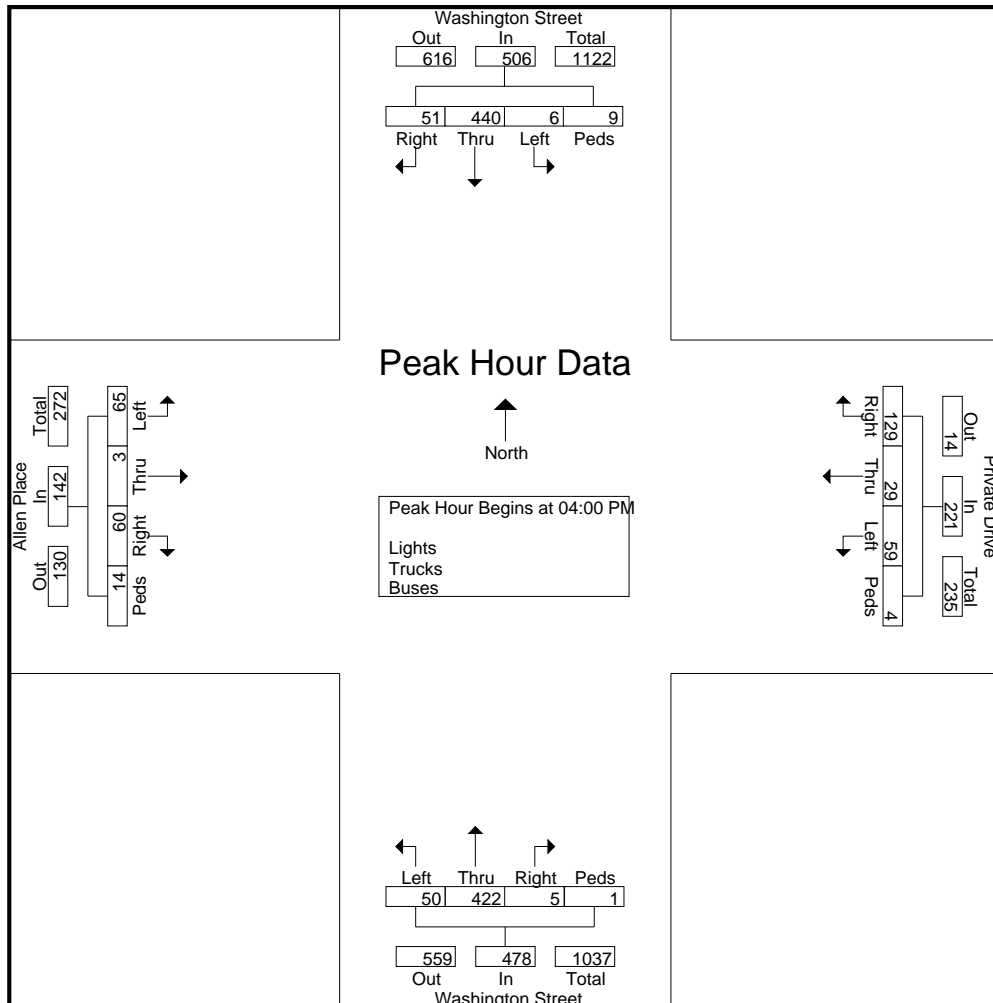
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23028  
Site Code : 23028  
Start Date : 5/12/2022  
Page No : 2

Start Time	Washington Street From North					Private Drive From East					Washington Street From South					Allen Place From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	8	119	1	1	129	30	11	12	1	54	2	105	16	1	124	26	1	20	5	52	359
04:15 PM	14	105	2	0	121	26	7	10	1	44	2	115	12	0	129	9	0	16	5	30	324
04:30 PM	19	105	2	6	132	46	6	22	1	75	0	102	13	0	115	9	1	16	1	27	349
04:45 PM	10	111	1	2	124	27	5	15	1	48	1	100	9	0	110	16	1	13	3	33	315
Total Volume	51	440	6	9	506	129	29	59	4	221	5	422	50	1	478	60	3	65	14	142	1347
% App. Total	10.1	87	1.2	1.8		58.4	13.1	26.7	1.8		1	88.3	10.5	0.2		42.3	2.1	45.8	9.9		
PHF	.671	.924	.750	.375	.958	.701	.659	.670	1.00	.737	.625	.917	.781	.250	.926	.577	.750	.813	.700	.683	.938



# Connecticut Counts LLC

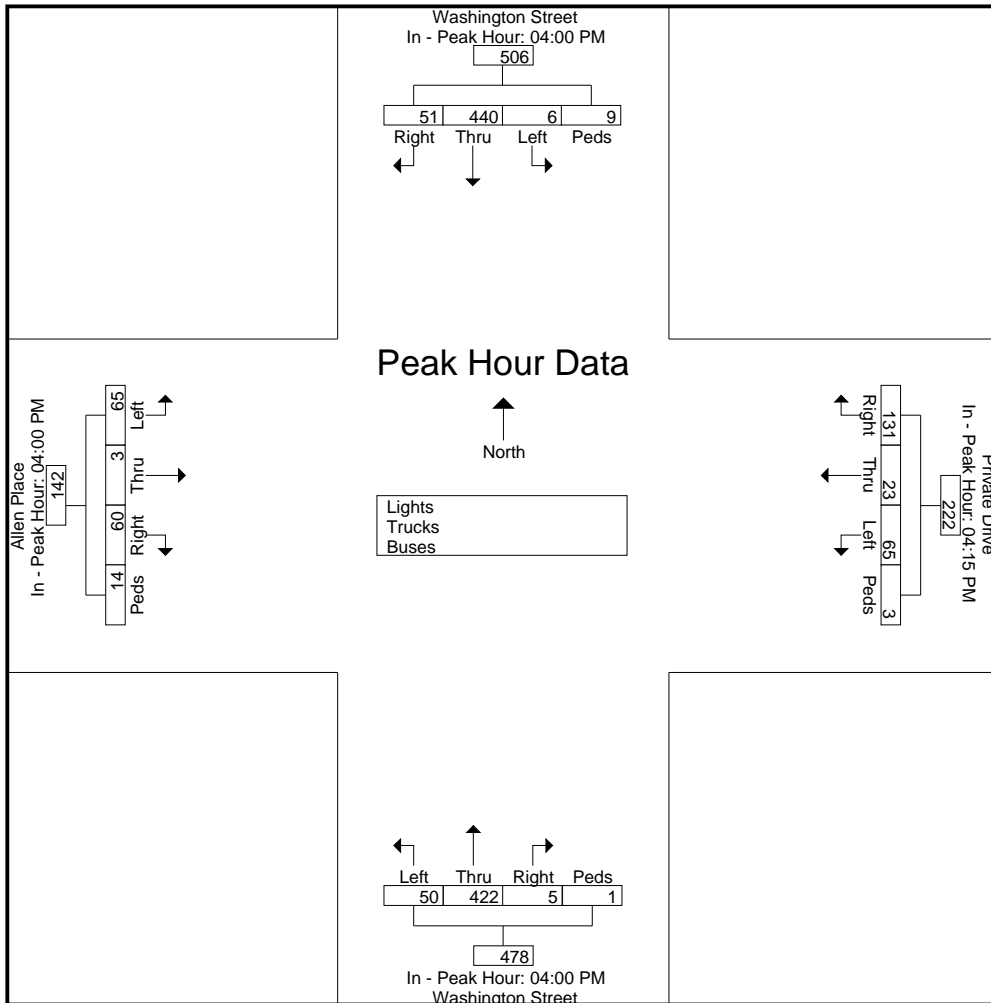
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23028  
 Site Code : 23028  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					Private Drive From East					Washington Street From South					Allen Place From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM					04:15 PM					04:00 PM					04:00 PM				
+0 mins.	8	119	1	1	129	26	7	10	1	44	2	105	16	1	124	26	1	20	5	52
+15 mins.	14	105	2	0	121	46	6	22	1	75	2	115	12	0	129	9	0	16	5	30
+30 mins.	19	105	2	6	132	27	5	15	1	48	0	102	13	0	115	9	1	16	1	27
+45 mins.	10	111	1	2	124	32	5	18	0	55	1	100	9	0	110	16	1	13	3	33
Total Volume	51	440	6	9	506	131	23	65	3	222	5	422	50	1	478	60	3	65	14	142
% App. Total	10.1	87	1.2	1.8		59	10.4	29.3	1.4		1	88.3	10.5	0.2		42.3	2.1	45.8	9.9	
PHF	.671	.924	.750	.375	.958	.712	.821	.739	.750	.740	.625	.917	.781	.250	.926	.577	.750	.813	.700	.683



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Washington St at Vernon/Retreat Avenue  
Hartford, Connecticut

File Name : 23029  
Site Code : 23029  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Retreat Avenue From East					Washington Street From South					Vernon Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	6	30	33	2	71	26	15	22	0	63	20	40	2	0	62	9	17	6	2	34	230
07:15 AM	11	42	40	1	94	37	18	34	0	89	29	55	14	0	98	18	19	22	1	60	341
07:30 AM	4	51	45	3	103	53	22	23	1	99	38	79	1	0	118	14	22	4	1	41	361
07:45 AM	11	51	35	0	97	49	6	20	1	76	33	83	2	1	119	3	17	3	0	23	315
Total	32	174	153	6	365	165	61	99	2	327	120	257	19	1	397	44	75	35	4	158	1247
08:00 AM	4	55	23	1	83	32	10	30	0	72	31	75	0	0	106	5	18	2	0	25	286
08:15 AM	5	40	28	4	77	37	8	26	0	71	35	84	6	1	126	4	16	2	3	25	299
08:30 AM	3	42	24	2	71	40	8	25	0	73	38	67	2	0	107	1	15	3	4	23	274
08:45 AM	4	42	37	2	85	30	6	22	0	58	18	70	1	0	89	9	9	1	0	19	251
Total	16	179	112	9	316	139	32	103	0	274	122	296	9	1	428	19	58	8	7	92	1110
Grand Total	48	353	265	15	681	304	93	202	2	601	242	553	28	2	825	63	133	43	11	250	2357
Apprch %	7	51.8	38.9	2.2		50.6	15.5	33.6	0.3		29.3	67	3.4	0.2		25.2	53.2	17.2	4.4		
Total %	2	15	11.2	0.6	28.9	12.9	3.9	8.6	0.1	25.5	10.3	23.5	1.2	0.1	35	2.7	5.6	1.8	0.5	10.6	
Lights	46	333	259	15	653	289	90	165	2	546	222	539	28	2	791	61	130	42	10	243	2233
% Lights	95.8	94.3	97.7	100	95.9	95.1	96.8	81.7	100	90.8	91.7	97.5	100	100	95.9	96.8	97.7	97.7	90.9	97.2	94.7
Trucks	1	2	2	0	5	3	1	1	0	5	1	3	0	0	4	0	0	1	1	2	16
% Trucks	2.1	0.6	0.8	0	0.7	1	1.1	0.5	0	0.8	0.4	0.5	0	0	0.5	0	0	2.3	9.1	0.8	0.7
Buses	1	18	4	0	23	12	2	36	0	50	19	11	0	0	30	2	3	0	0	5	108
% Buses	2.1	5.1	1.5	0	3.4	3.9	2.2	17.8	0	8.3	7.9	2	0	0	3.6	3.2	2.3	0	0	2	4.6

# Connecticut Counts LLC

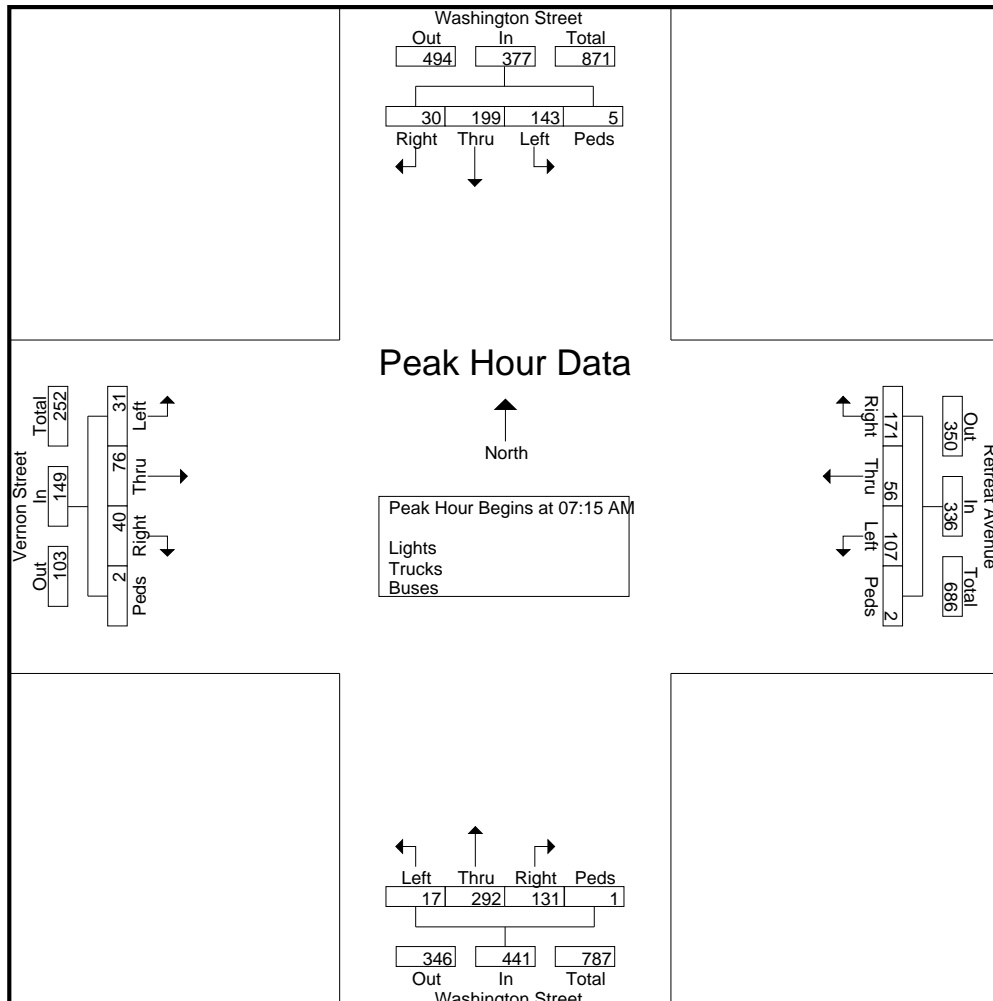
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23029  
Site Code : 23029  
Start Date : 5/12/2022  
Page No : 2

Start Time	Washington Street From North					Retreat Avenue From East					Washington Street From South					Vernon Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:15 AM

07:15 AM	11	42	40	1	94	37	18	34	0	89	29	55	14	0	98	18	19	22	1	60	341
07:30 AM	4	51	45	3	103	53	22	23	1	99	38	79	1	0	118	14	22	4	1	41	361
07:45 AM	11	51	35	0	97	49	6	20	1	76	33	83	2	1	119	3	17	3	0	23	315
08:00 AM	4	55	23	1	83	32	10	30	0	72	31	75	0	0	106	5	18	2	0	25	286
Total Volume	30	199	143	5	377	171	56	107	2	336	131	292	17	1	441	40	76	31	2	149	1303
% App. Total	8	52.8	37.9	1.3		50.9	16.7	31.8	0.6		29.7	66.2	3.9	0.2		26.8	51	20.8	1.3		
PHF	.682	.905	.794	.417	.915	.807	.636	.787	.500	.848	.862	.880	.304	.250	.926	.556	.864	.352	.500	.621	.902



# Connecticut Counts LLC

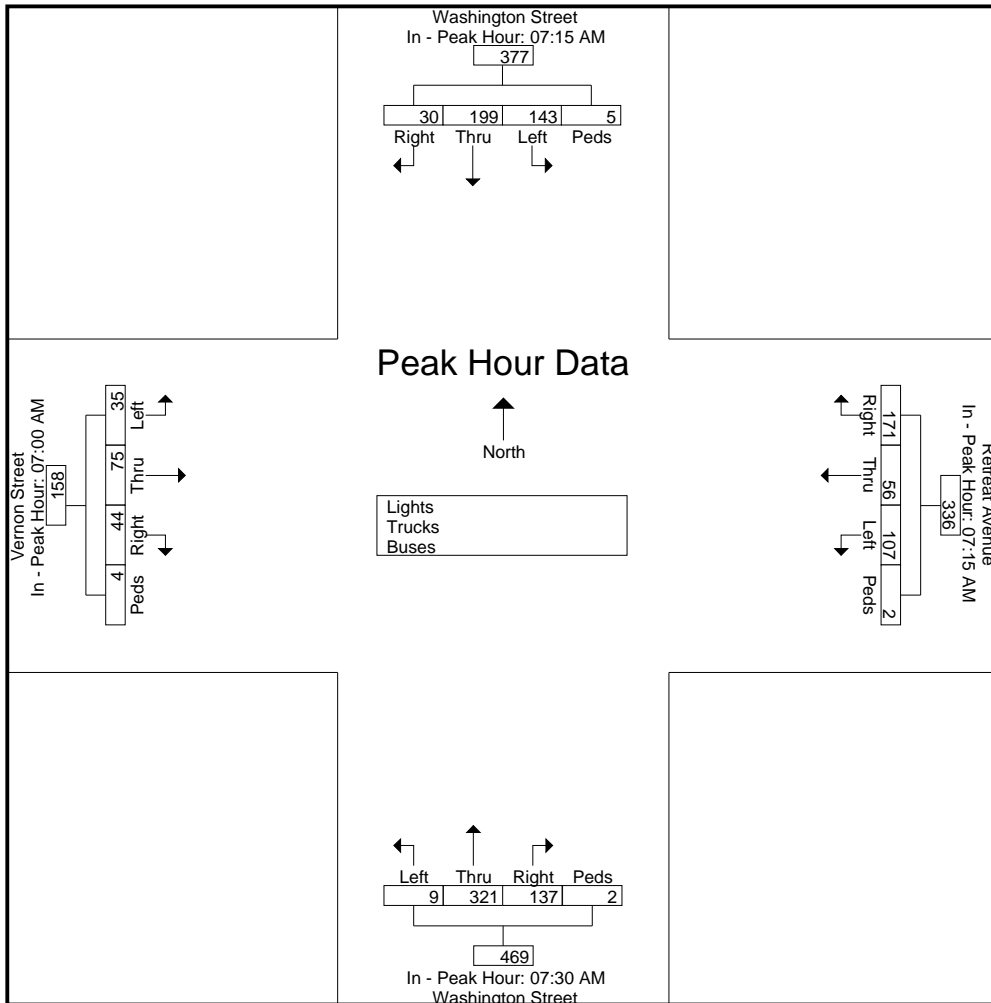
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23029  
 Site Code : 23029  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					Retreat Avenue From East					Washington Street From South					Vernon Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:30 AM					07:00 AM				
+0 mins.	11	42	40	1	94	37	18	34	0	89	38	79	1	0	118	9	17	6	2	34
+15 mins.	4	51	45	3	103	53	22	23	1	99	33	83	2	1	119	18	19	22	1	60
+30 mins.	11	51	35	0	97	49	6	20	1	76	31	75	0	0	106	14	22	4	1	41
+45 mins.	4	55	23	1	83	32	10	30	0	72	35	84	6	1	126	3	17	3	0	23
Total Volume	30	199	143	5	377	171	56	107	2	336	137	321	9	2	469	44	75	35	4	158
% App. Total	8	52.8	37.9	1.3		50.9	16.7	31.8	0.6		29.2	68.4	1.9	0.4		27.8	47.5	22.2	2.5	
PHF	.682	.905	.794	.417	.915	.807	.636	.787	.500	.848	.901	.955	.375	.500	.931	.611	.852	.398	.500	.658



Washington St at Retreat/Vernon St - TMC

Tue Jan 23, 2018

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,

Kensington, CT, 12345, US

Leg Direction	Washington Street Southbound						East Westbound						Washington Street Northbound						Vernon Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2018-01-23 6:00AM	0	11	30	0	41	1	8	2	6	0	16	1	24	27	0	0	51	0	0	6	1	0	7	1	115
6:15AM	1	17	23	0	41	0	10	3	6	0	19	2	22	49	0	0	71	0	1	10	3	0	14	1	145
6:30AM	1	25	36	0	62	0	12	2	7	0	21	1	39	58	4	0	101	1	1	5	2	0	8	2	192
6:45AM	1	36	56	0	93	2	20	9	13	0	42	2	32	71	2	0	105	0	0	13	4	0	17	2	257
Hourly Total	3	89	145	0	237	3	50	16	32	0	98	6	117	205	6	0	328	1	2	34	10	0	46	6	709
7:00AM	3	40	33	0	76	0	20	9	16	0	45	0	20	71	2	0	93	1	1	8	7	0	16	5	230
7:15AM	3	40	35	0	78	0	33	9	28	0	70	0	45	64	2	0	111	2	7	11	1	0	19	3	278
7:30AM	3	44	35	0	82	0	32	11	29	0	72	1	45	88	3	0	136	0	7	23	7	0	37	0	327
7:45AM	5	59	39	0	103	3	32	21	35	0	88	2	45	82	5	0	132	0	13	20	7	0	40	5	363
Hourly Total	14	183	142	0	339	3	117	50	108	0	275	3	155	305	12	0	472	3	28	62	22	0	112	13	1198
8:00AM	11	77	45	0	133	2	31	17	32	0	80	1	64	102	7	0	173	2	16	25	15	0	56	0	442
8:15AM	8	50	41	0	99	3	29	12	24	0	65	2	58	95	6	0	159	0	15	28	9	0	52	3	375
8:30AM	2	48	33	0	83	2	28	12	25	0	65	1	38	88	2	0	128	0	4	21	4	0	29	3	305
8:45AM	6	36	28	0	70	0	27	6	22	0	55	1	49	99	2	0	150	0	4	9	4	0	17	1	292
Hourly Total	27	211	147	0	385	7	115	47	103	0	265	5	209	384	17	0	610	2	39	83	32	0	154	7	1414
9:00AM	5	41	30	0	76	0	29	13	20	1	63	4	49	57	3	0	109	0	5	14	4	0	23	0	271
9:15AM	3	52	40	0	95	2	38	13	22	0	73	4	30	82	1	0	113	0	3	9	4	0	16	0	297
9:30AM	3	61	40	0	104	0	34	10	18	0	62	0	23	51	1	0	75	0	2	8	4	0	14	2	255
9:45AM	5	62	36	0	103	0	27	13	26	0	66	2	29	67	4	0	100	0	5	11	2	0	18	0	287
Hourly Total	16	216	146	0	378	2	128	49	86	1	264	10	131	257	9	0	397	0	15	42	14	0	71	2	1110
10:00AM	5	58	20	0	83	1	30	7	11	0	48	3	28	48	0	0	76	0	3	1	2	0	6	5	213
10:15AM	3	40	24	0	67	0	44	7	21	0	72	0	26	53	4	0	83	0	2	8	3	0	13	1	235
10:30AM	2	62	42	0	106	0	36	10	13	0	59	1	25	53	1	0	79	0	1	4	7	0	12	5	256
10:45AM	4	55	39	0	98	0	32	4	17	0	53	2	24	62	7	0	93	2	2	6	2	0	10	1	254
Hourly Total	14	215	125	0	354	1	142	28	62	0	232	6	103	216	12	0	331	2	8	19	14	0	41	12	958
11:00AM	2	67	26	0	95	0	34	11	26	1	72	0	26	47	3	0	76	1	2	6	3	0	11	2	254
11:15AM	1	63	20	0	84	0	33	14	16	0	63	1	18	50	3	0	71	0	6	8	1	0	15	2	233
11:30AM	7	43	27	0	77	3	36	9	18	0	63	1	19	45	2	0	66	1	1	8	4	0	13	3	219
11:45AM	7	75	27	0	109	0	41	8	25	0	74	3	23	47	4	0	74	0	7	6	3	0	16	4	273
Hourly Total	17	248	100	0	365	3	144	42	85	1	272	5	86	189	12	0	287	2	16	28	11	0	55	11	979
12:00PM	4	53	28	0	85	0	48	11	25	0	84	1	33	61	3	0	97	1	4	8	3	0	15	5	281
12:15PM	6	68	25	0	99	1	38	11	30	0	79	4	30	68	2	0	100	1	1	9	2	0	12	5	290
12:30PM	3	69	24	0	96	1	40	13	28	0	81	0	28	56	1	0	85	0	1	9	5	0	15	6	277
12:45PM	5	50	23	0	78	0	47	11	40	0	98	3	25	58	3	0	86	0	2	19	3	0	24	3	286
Hourly Total	18	240	100	0	358	2	173	46	123	0	342	8	116	243	9	0	368	2	8	45	13	0	66	19	1134
1:00PM	3	72	23	0	98	0	45	14	29	0	88	1	19	57	5	0	81	0	4	7	12	0	23	2	290
1:15PM	6	64	24	0	94	0	40	14	22	0	76	0	21	56	3	0	80	1	3	10	1	0	14	5	264
1:30PM	3	58	33	0	94	0	40	17	34	0	91	0	34	74	1	0	109	0	5	6	3	0	14	1	308
1:45PM	6	67	30	0	103	1	43	10	47	0	100	0	28	59	3	0	90	0	7	12	2	0	21	3	314
Hourly Total	18	261	110	0	389	1	168	55	132	0	355	1	102	246	12	0	360	1	19	35	18	0	72	11	1176
2:00PM	2	68	35	0	105	0	54	11	38	1	104	2	37	45	4	0	86	0	2	15	6	0	23	1	318
2:15PM	5	73	34	0	112	1	42	14	23	0	79	3	30	65	3	0	98	1	4	12	2	0	18	4	307
2:30PM	1	76	40	0	117	1	45	10	30	0	85	1	27	57	1	0	85	0	7	5	6	0	18	1	305
2:45PM	6	83	37	0	126	0	44	8	33	0	85	0	35	65	8	0	108	0	5	5	3	0	13	4	332
Hourly Total	14	300	146	0	460	2	185	43	124	1	353	6	129	232	16	0	377	1	18	37	17	0	72	10	1262
3:00PM	6	101	33	0	140	4	46	15	26	0	87	2	27	70	5	0	102	0	9	7	3	0	19	5	348
3:15PM	7	91	35	0	133	2	49	16	20	0	85	1	24	76	6	0	106	1	27	9	16	0	52	4	376
3:30PM	12	111	31	0	154	6	77	24	50	0	151	1	24	95	6	0	125	0	10	11	7	0	28	8	458
3:45PM	7	115	30	0	152	1	59	26	38	0	123	0	31	82	8	0	121	0	5	6	7	0	18	2	414
Hourly Total	32	418	129	0	579	13	231	81	134	0	446	4	106	323	25	0	454	1	51	33	33	0	117	19	1596
4:00PM	21	114	27	0	162	0	68	17	45	0	130	1	22	94	5	0	121	1	8	5	4	0	17	4	430
4:15PM	9	117	19	0	145	3	54	21	49	0	124	2	32	96	11	0	139	1	21	28	17	0	66	6	474
4:30PM	8	111	25	0	144	0	59	32	36	0	127	2	33	76	6	0	115	5	17	13	9	0	39	4	425
4:45PM	6	122	27	0	155	1	66	25	42	0	133	2	21	62	4	0	87	0	10	8	2	0	20	4	395
Hourly Total	44	464	98	0	606	4	247	95	172	0	514	7	108	328	26	0	462	7	56	54	32	0	142	18	1724
5:00PM	15	101	15	0	131	1	59	22	38	0	119	2	24	59	4	0	87	0	9	19	11	0	39	2	376
5:15PM	7	103	17	0	127	0	55	26	48	0	129	1	28	58	6	0	92	3	8	8	5	0	21	3	369
5:30PM	5	95	19	0	119	0	50	26	35	0	111	2	24	56	3	0	83	0	8	9	7	0	24	4	337
5:45PM	3	79	20	0	102	1	37	20	30	0	87	1	26	67	2	0	95	0	7	10	7	0	24	2	308



Leg Direction	Washington Street Southbound						East Westbound						Washington Street Northbound						Vernon Street Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
Hourly Total	30	378	71	0	479	2	201	94	151	0	446	6	102	240	15	0	357	3	32	46	30	0	108	11	1390
<b>Total</b>	247	3223	1459	0	4929	43	1901	646	1312	3	3862	67	1464	3168	171	0	4803	25	292	518	246	0	1056	139	14650
<b>% Approach</b>	5.0%	65.4%	29.6%	0%	-	-	49.2%	16.7%	34.0%	0.1%	-	-	30.5%	66.0%	3.6%	0%	-	-	27.7%	49.1%	23.3%	0%	-	-	-
<b>% Total</b>	1.7%	22.0%	10.0%	0%	33.6%	-	13.0%	4.4%	9.0%	0%	26.4%	-	10.0%	21.6%	1.2%	0%	32.8%	-	2.0%	3.5%	1.7%	0%	7.2%	-	-
<b>Lights</b>	240	3071	1418	0	4729	-	1791	627	1176	3	3597	-	1345	3037	161	0	4543	-	268	487	232	0	987	-	13856
<b>% Lights</b>	97.2%	95.3%	97.2%	0%	95.9%	-	94.2%	97.1%	89.6%	100%	93.1%	-	91.9%	95.9%	94.2%	0%	94.6%	-	91.8%	94.0%	94.3%	0%	93.5%	-	94.6%
<b>Articulated Trucks and Single-Unit Trucks</b>	4	26	25	0	55	-	42	8	18	0	68	-	12	33	4	0	49	-	5	1	4	0	10	-	182
<b>% Articulated Trucks and Single-Unit Trucks</b>	1.6%	0.8%	1.7%	0%	1.1%	-	2.2%	1.2%	1.4%	0%	1.8%	-	0.8%	1.0%	2.3%	0%	1.0%	-	1.7%	0.2%	1.6%	0%	0.9%	-	1.2%
<b>Buses</b>	3	126	16	0	145	-	68	11	118	0	197	-	107	98	6	0	211	-	19	30	10	0	59	-	612
<b>% Buses</b>	1.2%	3.9%	1.1%	0%	2.9%	-	3.6%	1.7%	9.0%	0%	5.1%	-	7.3%	3.1%	3.5%	0%	4.4%	-	6.5%	5.8%	4.1%	0%	5.6%	-	4.2%
Pedestrians	-	-	-	-	-	43	-	-	-	-	-	67	-	-	-	-	-	25	-	-	-	-	-	134	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	96.4%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	5	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	3.6%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Washington St at Retreat/Vernon St - TMC**

Tue Jan 23, 2018

Full Length (6 AM-6 PM)

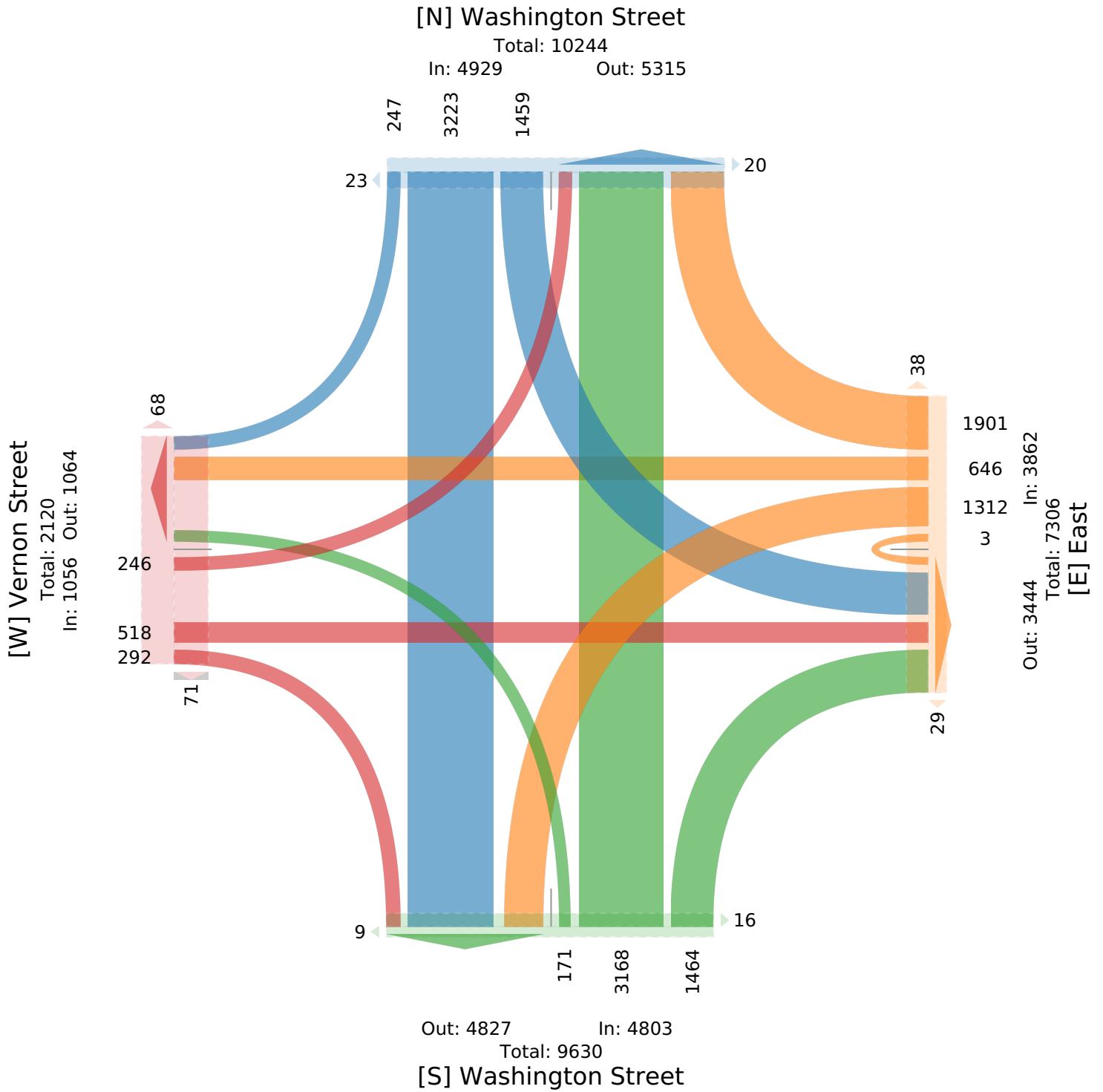
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US



**Washington St at Retreat/Vernon St - TMC**

Tue Jan 23, 2018

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,

Kensington, CT, 12345, US

Leg Direction	Washington Street Southbound						East Westbound						Washington Street Northbound						Vernon Street Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2018-01-23 7:30AM	3	44	35	0	<b>82</b>	0	32	11	29	0	<b>72</b>	1	45	88	3	0	<b>136</b>	0	7	23	7	0	<b>37</b>	0	<b>327</b>
7:45AM	5	59	39	0	<b>103</b>	3	32	21	35	0	<b>88</b>	2	45	82	5	0	<b>132</b>	0	13	20	7	0	<b>40</b>	5	<b>363</b>
8:00AM	11	77	45	0	<b>133</b>	2	31	17	32	0	<b>80</b>	1	64	102	7	0	<b>173</b>	2	16	25	15	0	<b>56</b>	0	<b>442</b>
8:15AM	8	50	41	0	<b>99</b>	3	29	12	24	0	<b>65</b>	2	58	95	6	0	<b>159</b>	0	15	28	9	0	<b>52</b>	3	<b>375</b>
<b>Total</b>	27	230	160	0	<b>417</b>	8	124	61	120	0	<b>305</b>	6	212	367	21	0	<b>600</b>	2	51	96	38	0	<b>185</b>	8	<b>1507</b>
<b>% Approach</b>	6.5%	55.2%	38.4%	0%	-	-	40.7%	20.0%	39.3%	0%	-	-	35.3%	61.2%	3.5%	0%	-	-	27.6%	51.9%	20.5%	0%	-	-	-
<b>% Total</b>	1.8%	15.3%	10.6%	0%	<b>27.7%</b>	-	8.2%	4.0%	8.0%	0%	<b>20.2%</b>	-	14.1%	24.4%	1.4%	0%	<b>39.8%</b>	-	3.4%	6.4%	2.5%	0%	<b>12.3%</b>	-	-
<b>PHF</b>	0.614	0.747	0.889	-	<b>0.784</b>	-	0.969	0.726	0.857	-	<b>0.866</b>	-	0.828	0.900	0.750	-	<b>0.867</b>	-	0.797	0.857	0.633	-	<b>0.826</b>	-	0.852
<b>Lights</b>	27	200	153	0	<b>380</b>	-	114	60	95	0	<b>269</b>	-	203	350	20	0	<b>573</b>	-	46	84	38	0	<b>168</b>	-	1390
<b>% Lights</b>	100%	87.0%	95.6%	0%	<b>91.1%</b>	-	91.9%	98.4%	79.2%	0%	<b>88.2%</b>	-	95.8%	95.4%	95.2%	0%	<b>95.5%</b>	-	90.2%	87.5%	100%	0%	<b>90.8%</b>	-	92.2%
<b>Articulated Trucks and Single-Unit Trucks</b>	0	4	3	0	7	-	3	0	2	0	5	-	0	2	0	0	2	-	0	0	0	0	0	-	14
<b>% Articulated Trucks and Single-Unit Trucks</b>	0%	1.7%	1.9%	0%	<b>1.7%</b>	-	2.4%	0%	1.7%	0%	<b>1.6%</b>	-	0%	0.5%	0%	0%	<b>0.3%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0.9%
<b>Buses</b>	0	26	4	0	<b>30</b>	-	7	1	23	0	<b>31</b>	-	9	15	1	0	<b>25</b>	-	5	12	0	0	<b>17</b>	-	103
<b>% Buses</b>	0%	11.3%	2.5%	0%	<b>7.2%</b>	-	5.6%	1.6%	19.2%	0%	<b>10.2%</b>	-	4.2%	4.1%	4.8%	0%	<b>4.2%</b>	-	9.8%	12.5%	0%	0%	<b>9.2%</b>	-	6.8%
Pedestrians	-	-	-	-	-	8	-	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	8	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Washington St at Retreat/Vernon St - TMC**

Tue Jan 23, 2018

AM Peak (7:30 AM - 8:30 AM)

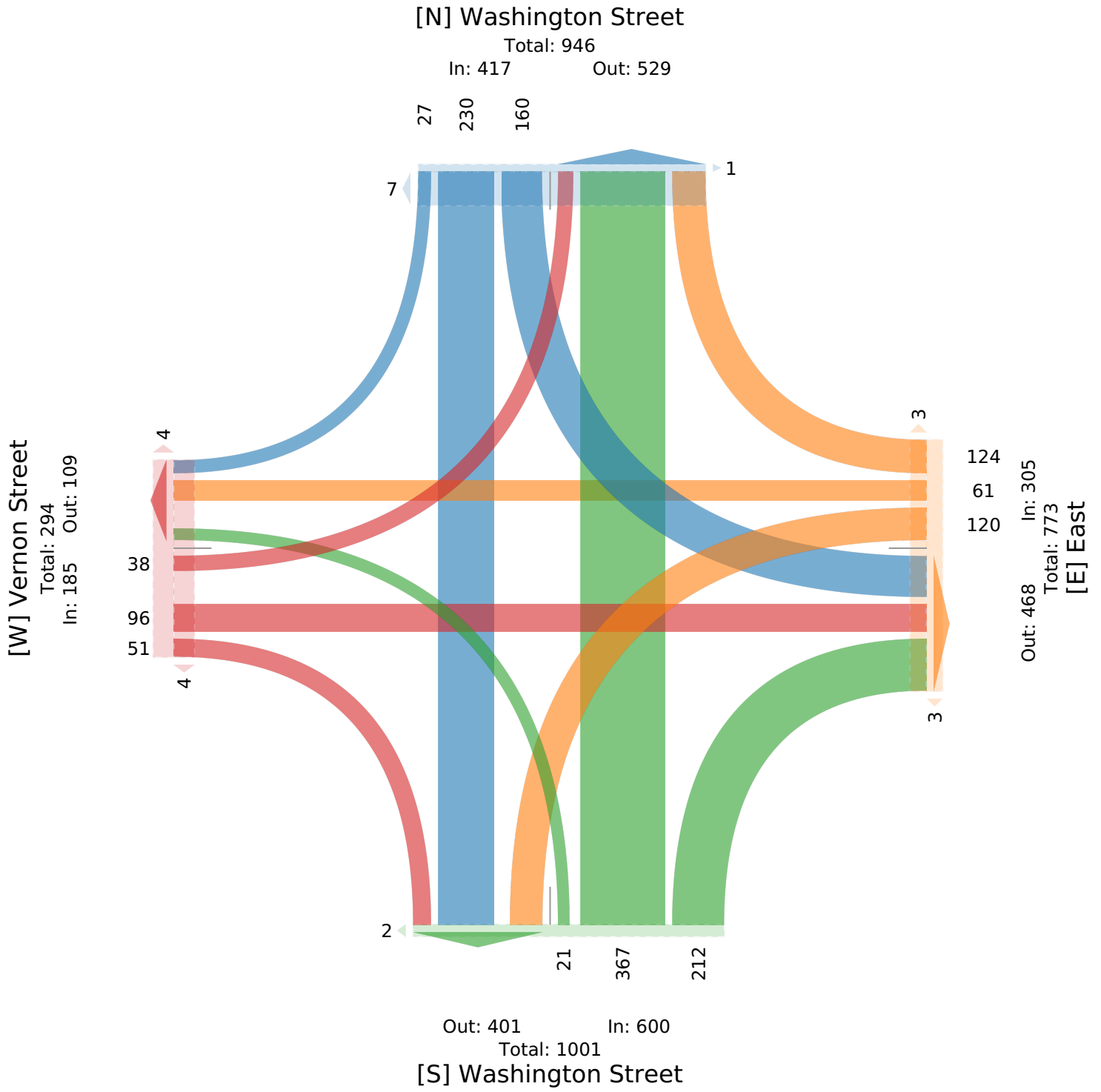
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US



Washington St at Retreat/Vernon St - TMC

Tue Jan 23, 2018

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,

Kensington, CT, 12345, US

Leg Direction	Washington Street Southbound						East Westbound						Washington Street Northbound						Vernon Street Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2018-01-23 1:00PM	3	72	23	0	<b>98</b>	0	45	14	29	0	<b>88</b>	1	19	57	5	0	<b>81</b>	0	4	7	12	0	<b>23</b>	2	<b>290</b>
1:15PM	6	64	24	0	<b>94</b>	0	40	14	22	0	<b>76</b>	0	21	56	3	0	<b>80</b>	1	3	10	1	0	<b>14</b>	5	<b>264</b>
1:30PM	3	58	33	0	<b>94</b>	0	40	17	34	0	<b>91</b>	0	34	74	1	0	<b>109</b>	0	5	6	3	0	<b>14</b>	1	<b>308</b>
1:45PM	6	67	30	0	<b>103</b>	1	43	10	47	0	<b>100</b>	0	28	59	3	0	<b>90</b>	0	7	12	2	0	<b>21</b>	3	<b>314</b>
<b>Total</b>	18	261	110	0	<b>389</b>	1	168	55	132	0	<b>355</b>	1	102	246	12	0	<b>360</b>	1	19	35	18	0	<b>72</b>	11	<b>1176</b>
<b>% Approach</b>	4.6%	67.1%	28.3%	0%	-	-	47.3%	15.5%	37.2%	0%	-	-	28.3%	68.3%	3.3%	0%	-	-	26.4%	48.6%	25.0%	0%	-	-	-
<b>% Total</b>	1.5%	22.2%	9.4%	0%	<b>33.1%</b>	-	14.3%	4.7%	11.2%	0%	<b>30.2%</b>	-	8.7%	20.9%	1.0%	0%	<b>30.6%</b>	-	1.6%	3.0%	1.5%	0%	<b>6.1%</b>	-	-
<b>PHF</b>	0.750	0.906	0.833	-	<b>0.944</b>	-	0.933	0.809	0.702	-	<b>0.888</b>	-	0.750	0.831	0.600	-	<b>0.826</b>	-	0.679	0.729	0.375	-	<b>0.783</b>	-	0.936
<b>Lights</b>	18	255	105	0	<b>378</b>	-	157	53	118	0	<b>328</b>	-	95	238	12	0	<b>345</b>	-	17	32	16	0	<b>65</b>	-	1116
<b>% Lights</b>	100%	97.7%	95.5%	0%	<b>97.2%</b>	-	93.5%	96.4%	89.4%	0%	<b>92.4%</b>	-	93.1%	96.7%	100%	0%	<b>95.8%</b>	-	89.5%	91.4%	88.9%	0%	<b>90.3%</b>	-	94.9%
<b>Articulated Trucks and Single-Unit Trucks</b>	0	3	4	0	7	-	5	2	2	0	9	-	2	5	0	0	7	-	0	1	1	0	2	-	25
<b>% Articulated Trucks and Single-Unit Trucks</b>	0%	1.1%	3.6%	0%	<b>1.8%</b>	-	3.0%	3.6%	1.5%	0%	<b>2.5%</b>	-	2.0%	2.0%	0%	0%	<b>1.9%</b>	-	0%	2.9%	5.6%	0%	<b>2.8%</b>	-	2.1%
<b>Buses</b>	0	3	1	0	4	-	6	0	12	0	18	-	5	3	0	0	8	-	2	2	1	0	5	-	35
<b>% Buses</b>	0%	1.1%	0.9%	0%	<b>1.0%</b>	-	3.6%	0%	9.1%	0%	<b>5.1%</b>	-	4.9%	1.2%	0%	0%	<b>2.2%</b>	-	10.5%	5.7%	5.6%	0%	<b>6.9%</b>	-	3.0%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	10	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	90.9%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	9.1%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Washington St at Retreat/Vernon St - TMC**

Tue Jan 23, 2018

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

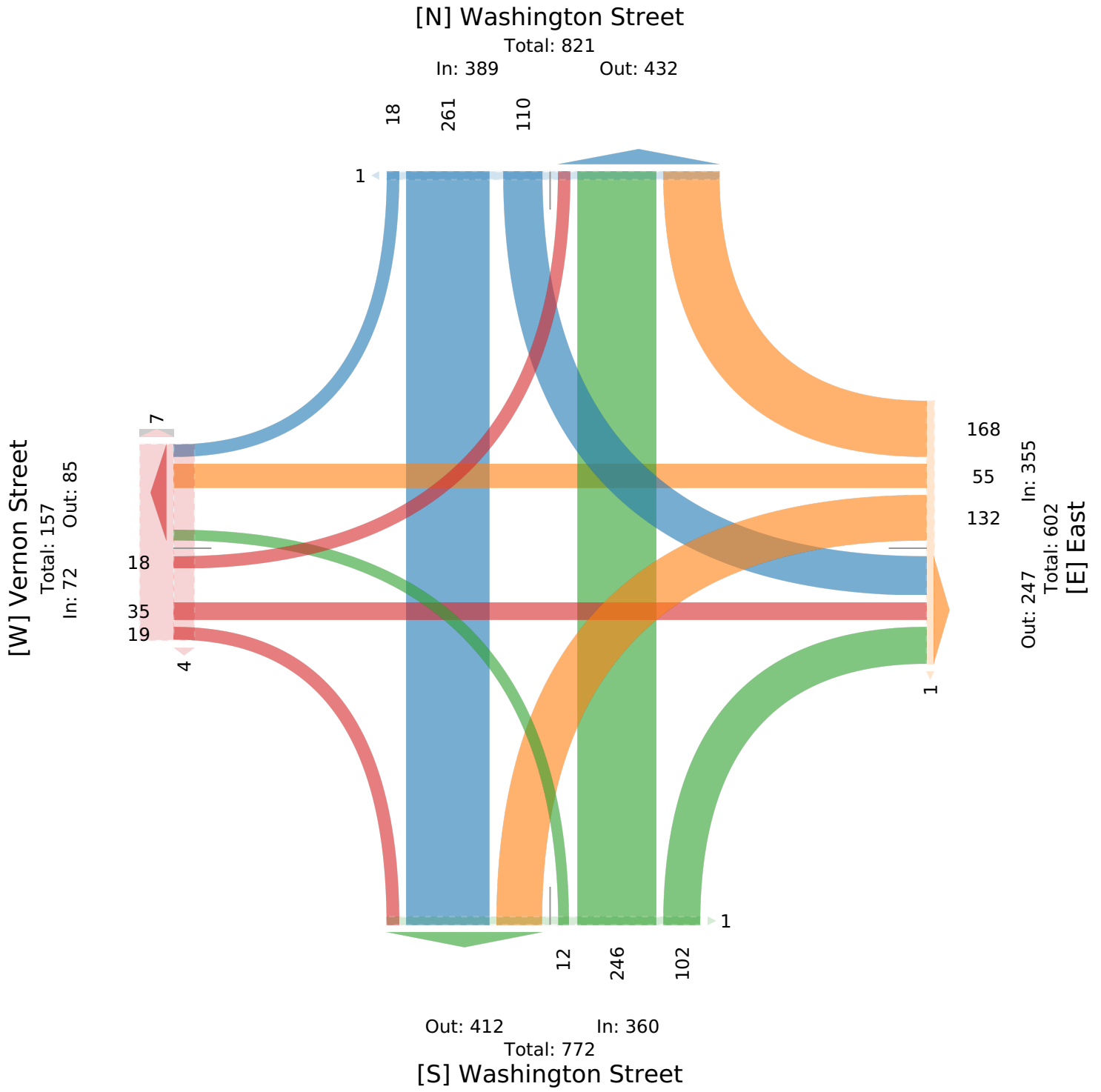
All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,

Kensington, CT, 12345, US



**Washington St at Retreat/Vernon St - TMC**

Tue Jan 23, 2018

PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,

Kensington, CT, 12345, US

Leg Direction	Washington Street Southbound						East Westbound						Washington Street Northbound						Vernon Street Eastbound						Int
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2018-01-23 3:30PM	12	111	31	0	154	6	77	24	50	0	151	1	24	95	6	0	125	0	10	11	7	0	28	8	458
3:45PM	7	115	30	0	152	1	59	26	38	0	123	0	31	82	8	0	121	0	5	6	7	0	18	2	414
4:00PM	21	114	27	0	162	0	68	17	45	0	130	1	22	94	5	0	121	1	8	5	4	0	17	4	430
4:15PM	9	117	19	0	145	3	54	21	49	0	124	2	32	96	11	0	139	1	21	28	17	0	66	6	474
<b>Total</b>	49	457	107	0	613	10	258	88	182	0	528	4	109	367	30	0	506	2	44	50	35	0	129	20	1776
<b>% Approach</b>	8.0%	74.6%	17.5%	0%	-	-	48.9%	16.7%	34.5%	0%	-	-	21.5%	72.5%	5.9%	0%	-	-	34.1%	38.8%	27.1%	0%	-	-	-
<b>% Total</b>	2.8%	25.7%	6.0%	0%	34.5%	-	14.5%	5.0%	10.2%	0%	29.7%	-	6.1%	20.7%	1.7%	0%	28.5%	-	2.5%	2.8%	2.0%	0%	7.3%	-	-
<b>PHF</b>	0.583	0.976	0.863	-	0.946	-	0.838	0.846	0.910	-	0.874	-	0.852	0.956	0.682	-	0.910	-	0.524	0.446	0.515	-	0.489	-	0.937
<b>Lights</b>	48	439	105	0	592	-	250	88	156	0	494	-	93	349	28	0	470	-	42	47	33	0	122	-	1678
<b>% Lights</b>	98.0%	96.1%	98.1%	0%	96.6%	-	96.9%	100%	85.7%	0%	93.6%	-	85.3%	95.1%	93.3%	0%	92.9%	-	95.5%	94.0%	94.3%	0%	94.6%	-	94.5%
<b>Articulated Trucks and Single-Unit Trucks</b>	0	1	2	0	3	-	3	0	3	0	6	-	1	0	0	0	1	-	0	0	0	0	0	-	10
<b>% Articulated Trucks and Single-Unit Trucks</b>	0%	0.2%	1.9%	0%	0.5%	-	1.2%	0%	1.6%	0%	1.1%	-	0.9%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.6%
<b>Buses</b>	1	17	0	0	18	-	5	0	23	0	28	-	15	18	2	0	35	-	2	3	2	0	7	-	88
<b>% Buses</b>	2.0%	3.7%	0%	0%	2.9%	-	1.9%	0%	12.6%	0%	5.3%	-	13.8%	4.9%	6.7%	0%	6.9%	-	4.5%	6.0%	5.7%	0%	5.4%	-	5.0%
<b>Pedestrians</b>	-	-	-	-	-	10	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	19	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	95.0%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	5.0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Washington St at Retreat/Vernon St - TMC**

Tue Jan 23, 2018

PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour

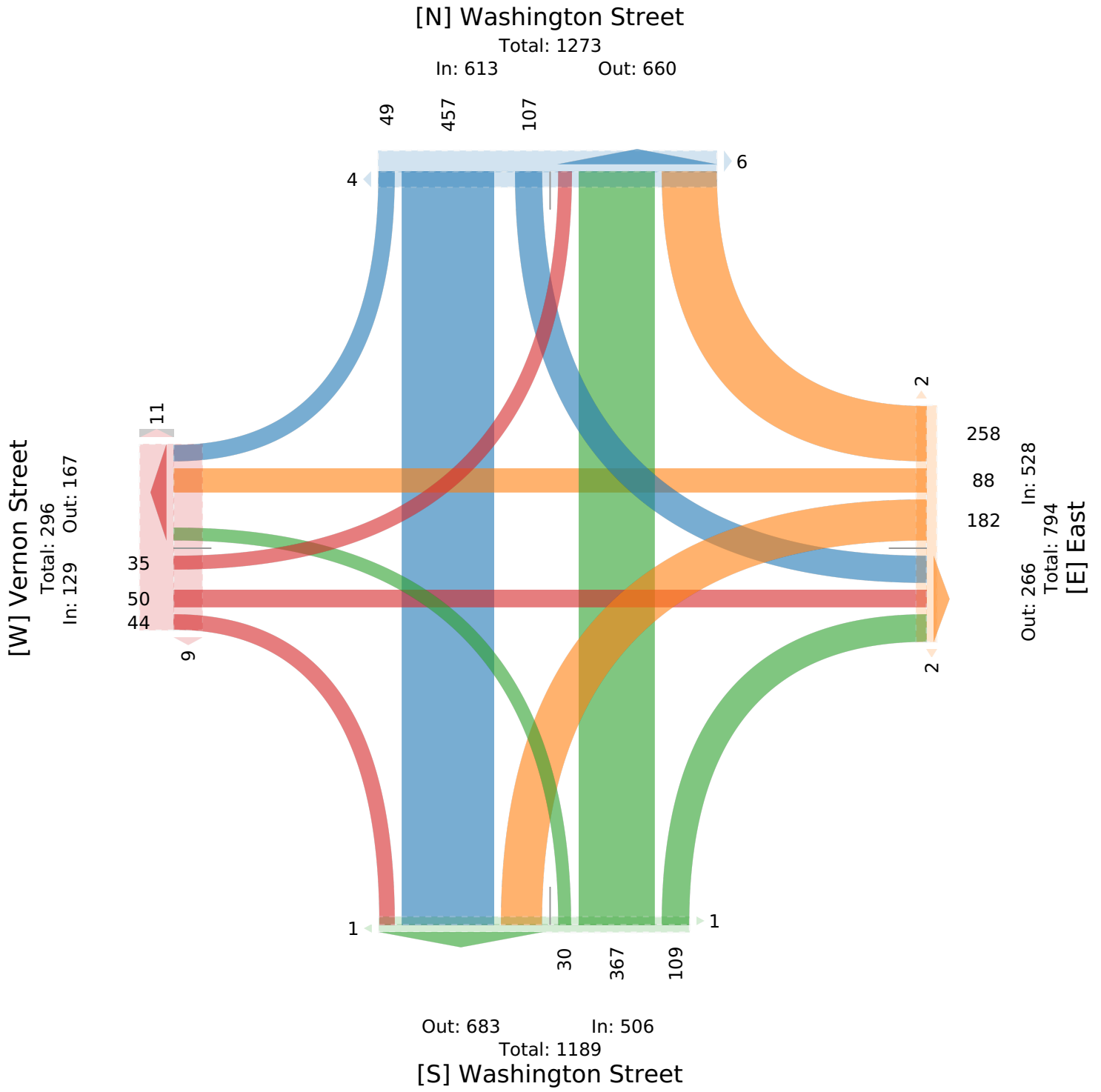
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 489863, Location: 41.751402, -72.683069

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US





# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

Washington St at Vernon/Retreat Avenue  
Hartford, Connecticut

File Name : 23030  
Site Code : 23030  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Washington Street From North					Retreat Avenue From East					Washington Street From South					Vernon Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	49	40	41	2	132	33	77	4	0	114	5	41	4	2	52	14	96	35	2	147	445
04:15 PM	48	53	42	2	145	33	57	3	0	93	10	52	15	2	79	17	84	26	2	129	446
04:30 PM	25	47	31	3	106	38	40	18	0	96	10	63	6	0	79	11	57	20	1	89	370
04:45 PM	7	119	25	3	154	51	24	36	2	113	27	57	1	1	86	5	13	4	4	26	379
<b>Total</b>	<b>129</b>	<b>259</b>	<b>139</b>	<b>10</b>	<b>537</b>	<b>155</b>	<b>198</b>	<b>61</b>	<b>2</b>	<b>416</b>	<b>52</b>	<b>213</b>	<b>26</b>	<b>5</b>	<b>296</b>	<b>47</b>	<b>250</b>	<b>85</b>	<b>9</b>	<b>391</b>	<b>1640</b>
05:00 PM	10	104	20	2	136	44	29	41	2	116	20	73	1	0	94	6	10	4	2	22	368
05:15 PM	7	76	22	1	106	35	16	34	0	85	22	53	2	0	77	3	5	1	1	10	278
05:30 PM	4	81	20	0	105	33	20	30	2	85	21	35	3	0	59	3	8	2	1	14	263
05:45 PM	12	68	20	0	100	35	16	22	1	74	20	39	2	1	62	8	8	4	2	22	258
<b>Total</b>	<b>33</b>	<b>329</b>	<b>82</b>	<b>3</b>	<b>447</b>	<b>147</b>	<b>81</b>	<b>127</b>	<b>5</b>	<b>360</b>	<b>83</b>	<b>200</b>	<b>8</b>	<b>1</b>	<b>292</b>	<b>20</b>	<b>31</b>	<b>11</b>	<b>6</b>	<b>68</b>	<b>1167</b>
<b>Grand Total</b>	<b>162</b>	<b>588</b>	<b>221</b>	<b>13</b>	<b>984</b>	<b>302</b>	<b>279</b>	<b>188</b>	<b>7</b>	<b>776</b>	<b>135</b>	<b>413</b>	<b>34</b>	<b>6</b>	<b>588</b>	<b>67</b>	<b>281</b>	<b>96</b>	<b>15</b>	<b>459</b>	<b>2807</b>
<b>Apprch %</b>	<b>16.5</b>	<b>59.8</b>	<b>22.5</b>	<b>1.3</b>		<b>38.9</b>	<b>36</b>	<b>24.2</b>	<b>0.9</b>		<b>23</b>	<b>70.2</b>	<b>5.8</b>	<b>1</b>		<b>14.6</b>	<b>61.2</b>	<b>20.9</b>	<b>3.3</b>		
<b>Total %</b>	<b>5.8</b>	<b>20.9</b>	<b>7.9</b>	<b>0.5</b>	<b>35.1</b>	<b>10.8</b>	<b>9.9</b>	<b>6.7</b>	<b>0.2</b>	<b>27.6</b>	<b>4.8</b>	<b>14.7</b>	<b>1.2</b>	<b>0.2</b>	<b>20.9</b>	<b>2.4</b>	<b>10</b>	<b>3.4</b>	<b>0.5</b>	<b>16.4</b>	
<b>Lights</b>	<b>160</b>	<b>585</b>	<b>209</b>	<b>12</b>	<b>966</b>	<b>285</b>	<b>273</b>	<b>179</b>	<b>7</b>	<b>744</b>	<b>128</b>	<b>407</b>	<b>33</b>	<b>6</b>	<b>574</b>	<b>67</b>	<b>272</b>	<b>95</b>	<b>15</b>	<b>449</b>	<b>2733</b>
<b>% Lights</b>	<b>98.8</b>	<b>99.5</b>	<b>94.6</b>	<b>92.3</b>	<b>98.2</b>	<b>94.4</b>	<b>97.8</b>	<b>95.2</b>	<b>100</b>	<b>95.9</b>	<b>94.8</b>	<b>98.5</b>	<b>97.1</b>	<b>100</b>	<b>97.6</b>	<b>100</b>	<b>96.8</b>	<b>99</b>	<b>100</b>	<b>97.8</b>	<b>97.4</b>
<b>Trucks</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>% Trucks</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7.7</b>	<b>0.1</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.1</b>
<b>Buses</b>	<b>2</b>	<b>3</b>	<b>12</b>	<b>0</b>	<b>17</b>	<b>16</b>	<b>6</b>	<b>9</b>	<b>0</b>	<b>31</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>9</b>	<b>1</b>	<b>0</b>	<b>10</b>	<b>72</b>
<b>% Buses</b>	<b>1.2</b>	<b>0.5</b>	<b>5.4</b>	<b>0</b>	<b>1.7</b>	<b>5.3</b>	<b>2.2</b>	<b>4.8</b>	<b>0</b>	<b>4</b>	<b>5.2</b>	<b>1.5</b>	<b>2.9</b>	<b>0</b>	<b>2.4</b>	<b>0</b>	<b>3.2</b>	<b>1</b>	<b>0</b>	<b>2.2</b>	<b>2.6</b>

# Connecticut Counts LLC

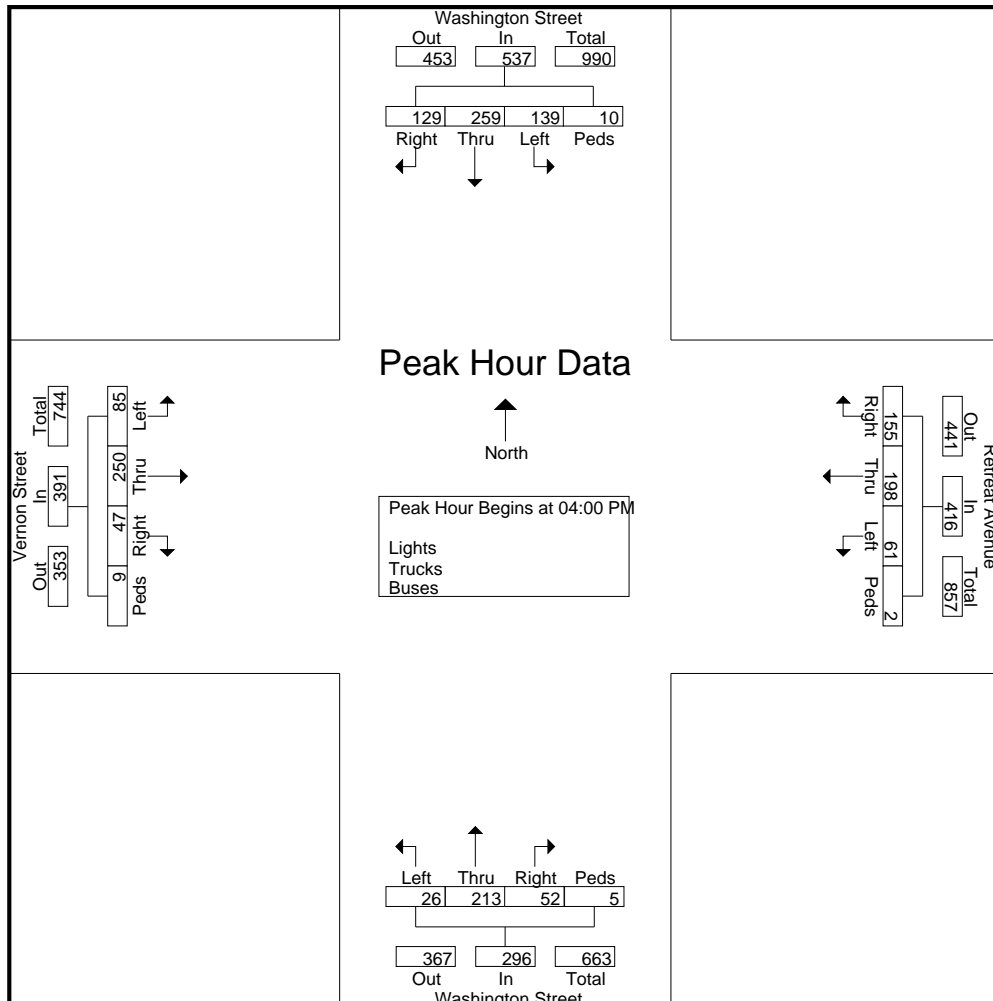
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23030  
 Site Code : 23030  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Washington Street From North					Retreat Avenue From East					Washington Street From South					Vernon Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	49	40	41	2	132	33	77	4	0	114	5	41	4	2	52	14	96	35	2	147	445
04:15 PM	48	53	42	2	145	33	57	3	0	93	10	52	15	2	79	17	84	26	2	129	446
04:30 PM	25	47	31	3	106	38	40	18	0	96	10	63	6	0	79	11	57	20	1	89	370
04:45 PM	7	119	25	3	154	51	24	36	2	113	27	57	1	1	86	5	13	4	4	26	379
Total Volume	129	259	139	10	537	155	198	61	2	416	52	213	26	5	296	47	250	85	9	391	1640
% App. Total	24	48.2	25.9	1.9		37.3	47.6	14.7	0.5		17.6	72	8.8	1.7		12	63.9	21.7	2.3		
PHF	.658	.544	.827	.833	.872	.760	.643	.424	.250	.912	.481	.845	.433	.625	.860	.691	.651	.607	.563	.665	.919



# Connecticut Counts LLC

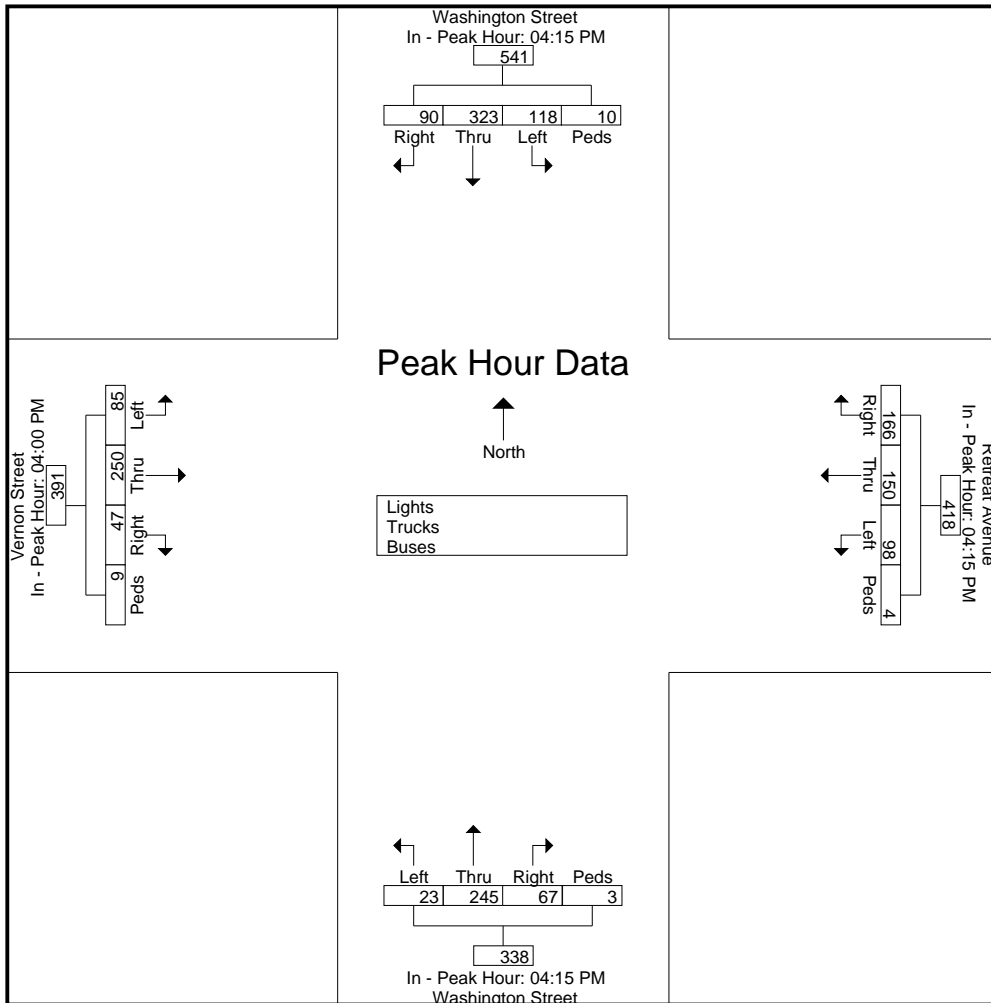
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23030  
 Site Code : 23030  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Washington Street From North					Retreat Avenue From East					Washington Street From South					Vernon Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:15 PM					04:15 PM					04:15 PM					04:00 PM				
+0 mins.	48	53	42	2	145	33	57	3	0	93	10	52	15	2	79	14	96	35	2	147
+15 mins.	25	47	31	3	106	38	40	18	0	96	10	63	6	0	79	17	84	26	2	129
+30 mins.	7	119	25	3	154	51	24	36	2	113	27	57	1	1	86	11	57	20	1	89
+45 mins.	10	104	20	2	136	44	29	41	2	116	20	73	1	0	94	5	13	4	4	26
Total Volume	90	323	118	10	541	166	150	98	4	418	67	245	23	3	338	47	250	85	9	391
% App. Total	16.6	59.7	21.8	1.8		39.7	35.9	23.4	1		19.8	72.5	6.8	0.9		12	63.9	21.7	2.3	
PHF	.469	.679	.702	.833	.878	.814	.658	.598	.500	.901	.620	.839	.383	.375	.899	.691	.651	.607	.563	.665



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Jefferson Street at Seymour Street  
Hartford, Connecticut

File Name : 23037  
Site Code : 23037  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Seymour Street From North					Jefferson Street From East					Seymour Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	2	2	7	21	53	3	84	19	6	6	4	35	23	27	4	2	56	177
07:15 AM	0	0	0	2	2	3	31	63	1	98	17	5	10	1	33	32	29	12	0	73	206
07:30 AM	0	0	0	1	1	9	38	67	3	117	19	4	9	0	32	19	61	14	0	94	244
07:45 AM	0	0	0	2	2	6	49	85	4	144	21	3	5	1	30	20	47	6	0	73	249
Total	0	0	0	7	7	25	139	268	11	443	76	18	30	6	130	94	164	36	2	296	876
08:00 AM	0	0	0	0	0	3	56	53	0	112	14	5	4	1	24	25	45	22	2	94	230
08:15 AM	1	0	0	1	2	13	43	60	0	116	13	3	5	1	22	29	39	10	4	82	222
08:30 AM	0	0	0	0	0	6	46	59	1	112	17	4	3	4	28	13	53	12	5	83	223
08:45 AM	0	1	0	1	2	6	49	50	1	106	18	7	9	2	36	22	53	6	6	87	231
Total	1	1	0	2	4	28	194	222	2	446	62	19	21	8	110	89	190	50	17	346	906
Grand Total	1	1	0	9	11	53	333	490	13	889	138	37	51	14	240	183	354	86	19	642	1782
Apprch %	9.1	9.1	0	81.8		6	37.5	55.1	1.5		57.5	15.4	21.2	5.8		28.5	55.1	13.4	3		
Total %	0.1	0.1	0	0.5	0.6	3	18.7	27.5	0.7	49.9	7.7	2.1	2.9	0.8	13.5	10.3	19.9	4.8	1.1	36	
Lights	1	1	0	9	11	48	310	489	13	860	138	37	51	14	240	183	328	81	18	610	1721
% Lights	100	100	0	100	100	90.6	93.1	99.8	100	96.7	100	100	100	100	100	100	92.7	94.2	94.7	95	96.6
Trucks	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	2	0	1	3	8
% Trucks	0	0	0	0	0	1.9	1.2	0	0	0.6	0	0	0	0	0	0	0.6	0	5.3	0.5	0.4
Buses	0	0	0	0	0	4	19	1	0	24	0	0	0	0	0	0	24	5	0	29	53
% Buses	0	0	0	0	0	7.5	5.7	0.2	0	2.7	0	0	0	0	0	0	6.8	5.8	0	4.5	3

# Connecticut Counts LLC

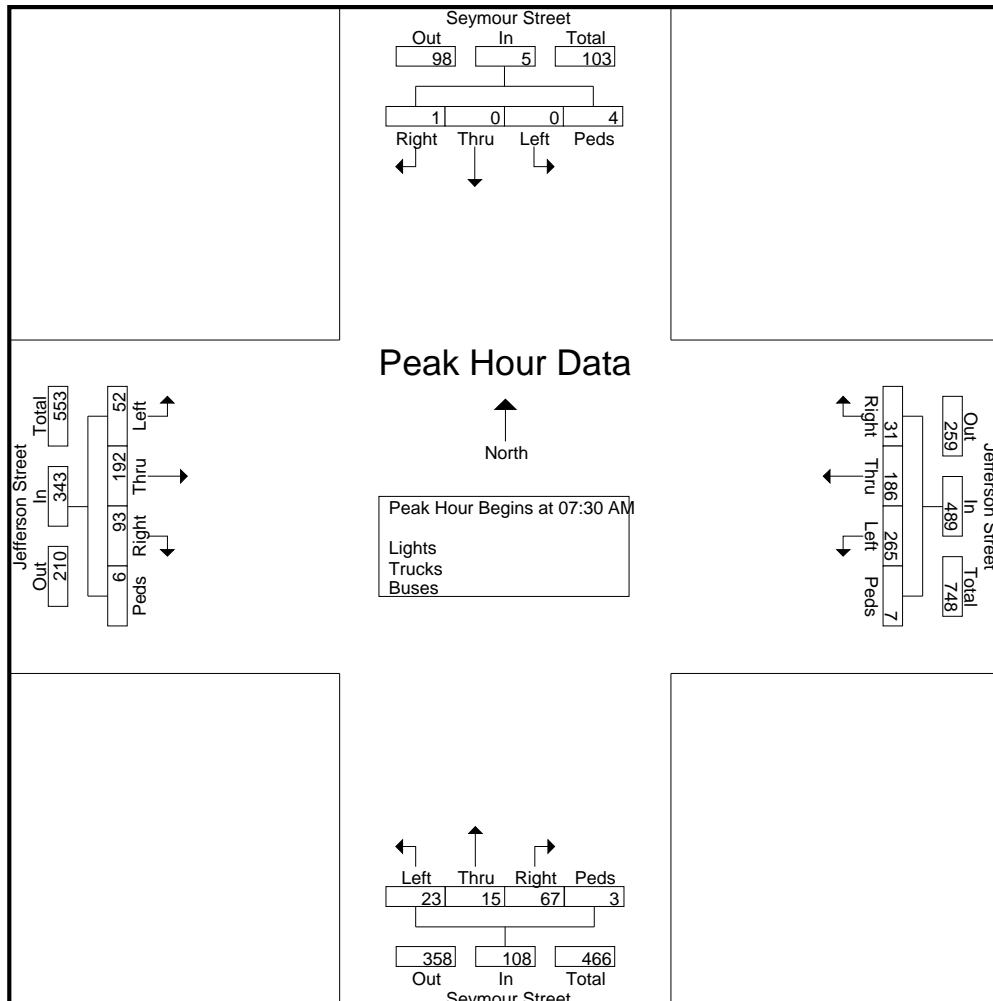
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23037  
Site Code : 23037  
Start Date : 5/12/2022  
Page No : 2

Start Time	Seymour Street From North					Jefferson Street From East					Seymour Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	0	0	0	1	1	9	38	67	3	117	19	4	9	0	32	19	61	14	0	94	244
07:45 AM	0	0	0	2	2	6	49	85	4	144	21	3	5	1	30	20	47	6	0	73	249
08:00 AM	0	0	0	0	0	3	56	53	0	112	14	5	4	1	24	25	45	22	2	94	230
08:15 AM	1	0	0	1	2	13	43	60	0	116	13	3	5	1	22	29	39	10	4	82	222
Total Volume	1	0	0	4	5	31	186	265	7	489	67	15	23	3	108	93	192	52	6	343	945
% App. Total	20	0	0	80		6.3	38	54.2	1.4		62	13.9	21.3	2.8		27.1	56	15.2	1.7		
PHF	.250	.000	.000	.500	.625	.596	.830	.779	.438	.849	.798	.750	.639	.750	.844	.802	.787	.591	.375	.912	.949



# Connecticut Counts LLC

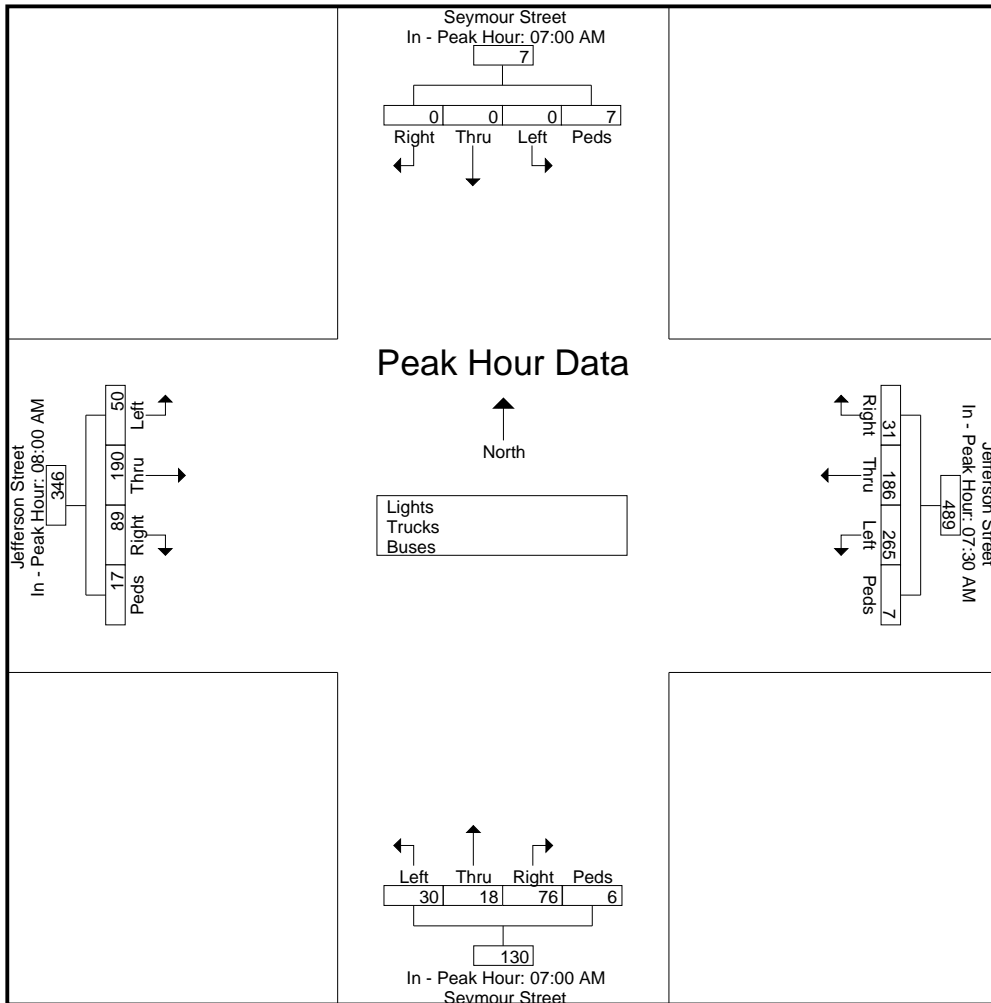
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23037  
 Site Code : 23037  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Seymour Street From North					Jefferson Street From East					Seymour Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:00 AM					07:30 AM					07:00 AM					08:00 AM				
+0 mins.	0	0	0	2	2	9	38	67	3	117	19	6	6	4	35	25	45	22	2	94
+15 mins.	0	0	0	2	2	6	49	85	4	144	17	5	10	1	33	29	39	10	4	82
+30 mins.	0	0	0	1	1	3	56	53	0	112	19	4	9	0	32	13	53	12	5	83
+45 mins.	0	0	0	2	2	13	43	60	0	116	21	3	5	1	30	22	53	6	6	87
Total Volume	0	0	0	7	7	31	186	265	7	489	76	18	30	6	130	89	190	50	17	346
% App. Total	0	0	0	100		6.3	38	54.2	1.4		58.5	13.8	23.1	4.6		25.7	54.9	14.5	4.9	
PHF	.000	.000	.000	.875	.875	.596	.830	.779	.438	.849	.905	.750	.750	.375	.929	.767	.896	.568	.708	.920



# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

Jefferson Street at Seymour Street  
Hartford, Connecticut

File Name : 23038  
Site Code : 23038  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Seymour Street From North					Jefferson Street From East					Seymour Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	0	0	3	3	10	78	39	5	132	42	12	19	5	78	3	90	20	0	113	326
04:15 PM	0	1	0	1	2	8	62	28	0	98	48	17	16	0	81	0	71	9	2	82	263
04:30 PM	0	0	0	2	2	8	69	34	0	111	54	19	25	3	101	14	86	11	4	115	329
04:45 PM	0	0	0	2	2	7	61	31	1	100	57	17	22	1	97	7	59	14	2	82	281
Total	0	1	0	8	9	33	270	132	6	441	201	65	82	9	357	24	306	54	8	392	1199
05:00 PM	1	0	0	5	6	6	79	26	2	113	53	19	22	2	96	2	60	16	2	80	295
05:15 PM	2	0	0	2	4	11	73	30	2	116	36	10	12	6	64	1	70	12	0	83	267
05:30 PM	0	0	0	1	1	13	67	26	0	106	39	10	23	5	77	6	59	10	4	79	263
05:45 PM	0	0	0	6	6	4	63	21	2	90	34	8	11	0	53	1	43	3	0	47	196
Total	3	0	0	14	17	34	282	103	6	425	162	47	68	13	290	10	232	41	6	289	1021
Grand Total	3	1	0	22	26	67	552	235	12	866	363	112	150	22	647	34	538	95	14	681	2220
Apprch %	11.5	3.8	0	84.6		7.7	63.7	27.1	1.4		56.1	17.3	23.2	3.4		5	79	14	2.1		
Total %	0.1	0	0	1	1.2	3	24.9	10.6	0.5	39	16.4	5	6.8	1	29.1	1.5	24.2	4.3	0.6	30.7	
Lights	3	1	0	20	24	65	542	235	12	854	363	112	150	14	639	34	515	92	14	655	2172
% Lights	100	100	0	90.9	92.3	97	98.2	100	100	98.6	100	100	100	63.6	98.8	100	95.7	96.8	100	96.2	97.8
Trucks	0	0	0	2	2	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	10
% Trucks	0	0	0	9.1	7.7	0	0	0	0	0	0	0	0	36.4	1.2	0	0	0	0	0	0.5
Buses	0	0	0	0	0	2	10	0	0	12	0	0	0	0	0	0	23	3	0	26	38
% Buses	0	0	0	0	0	3	1.8	0	0	1.4	0	0	0	0	0	0	4.3	3.2	0	3.8	1.7

# Connecticut Counts LLC

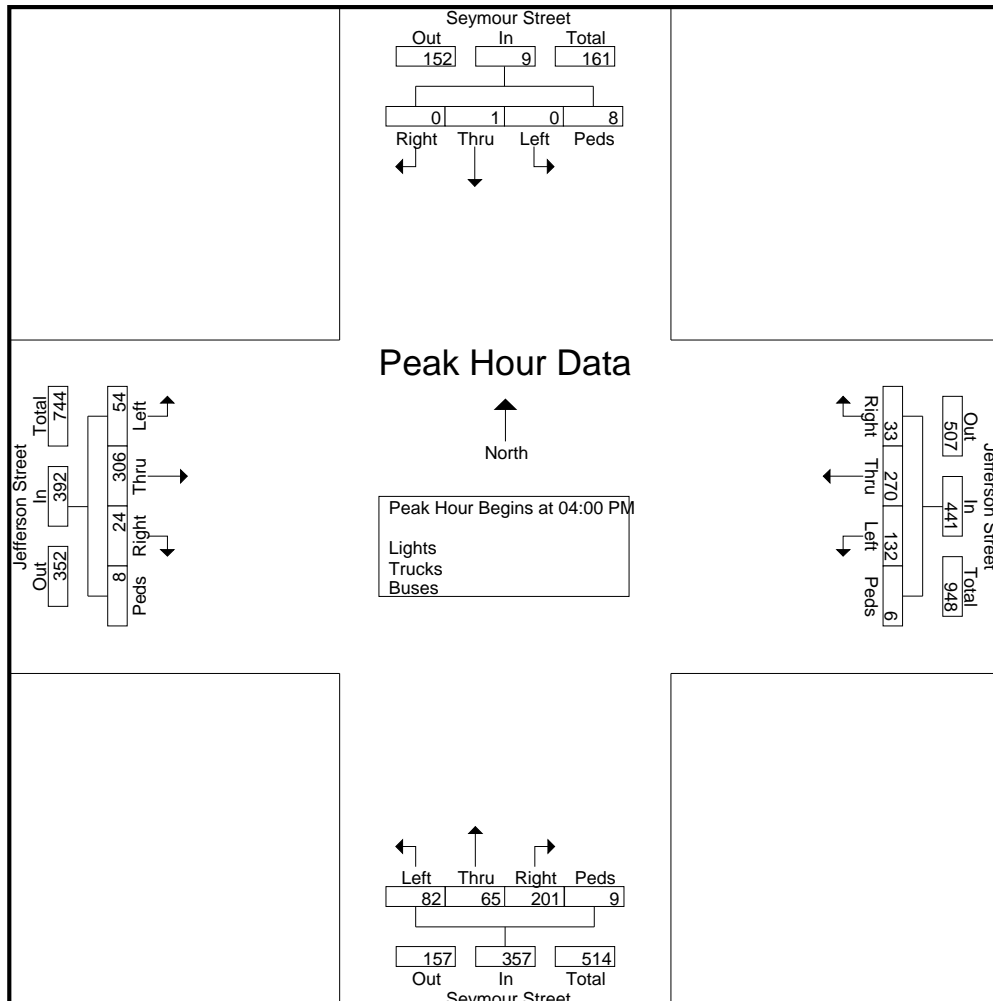
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23038  
 Site Code : 23038  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Seymour Street From North					Jefferson Street From East					Seymour Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	0	0	0	3	3	10	78	39	5	132	42	12	19	5	78	3	90	20	0	113	326
04:15 PM	0	1	0	1	2	8	62	28	0	98	48	17	16	0	81	0	71	9	2	82	263
04:30 PM	0	0	0	2	2	8	69	34	0	111	54	19	25	3	101	14	86	11	4	115	329
04:45 PM	0	0	0	2	2	7	61	31	1	100	57	17	22	1	97	7	59	14	2	82	281
Total Volume	0	1	0	8	9	33	270	132	6	441	201	65	82	9	357	24	306	54	8	392	1199
% App. Total	0	11.1	0	88.9		7.5	61.2	29.9	1.4		56.3	18.2	23	2.5		6.1	78.1	13.8	2		
PHF	.000	.250	.000	.667	.750	.825	.865	.846	.300	.835	.882	.855	.820	.450	.884	.429	.850	.675	.500	.852	.911





# Connecticut Counts LLC

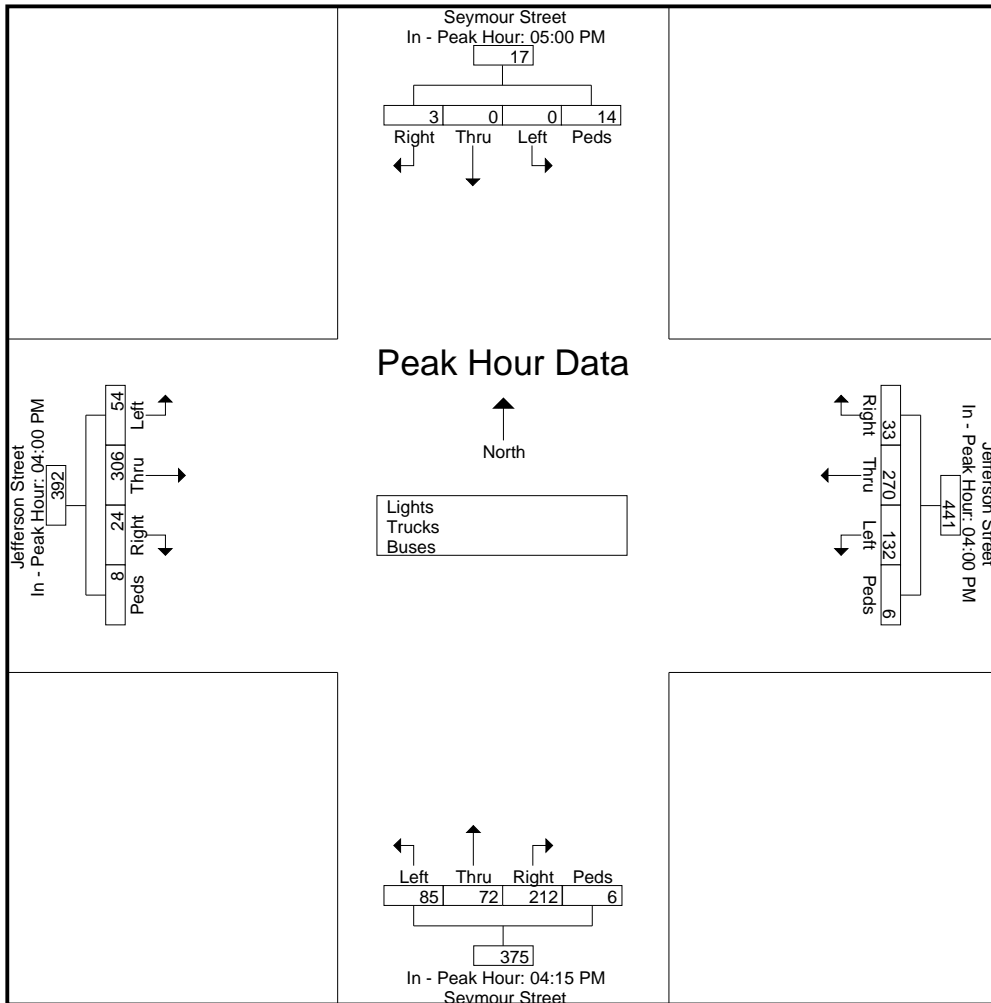
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23038  
Site Code : 23038  
Start Date : 5/12/2022  
Page No : 3

Start Time	Seymour Street From North					Jefferson Street From East					Seymour Street From South					Jefferson Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	05:00 PM					04:00 PM					04:15 PM					04:00 PM				
+0 mins.	1	0	0	5	6	10	78	39	5	132	48	17	16	0	81	3	90	20	0	113
+15 mins.	2	0	0	2	4	8	62	28	0	98	54	19	25	3	101	0	71	9	2	82
+30 mins.	0	0	0	1	1	8	69	34	0	111	57	17	22	1	97	14	86	11	4	115
+45 mins.	0	0	0	6	6	7	61	31	1	100	53	19	22	2	96	7	59	14	2	82
Total Volume	3	0	0	14	17	33	270	132	6	441	212	72	85	6	375	24	306	54	8	392
% App. Total	17.6	0	0	82.4		7.5	61.2	29.9	1.4		56.5	19.2	22.7	1.6		6.1	78.1	13.8	2	
PHF	.375	.000	.000	.583	.708	.825	.865	.846	.300	.835	.930	.947	.850	.500	.928	.429	.850	.675	.500	.852



# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

Retreat Avenue at Seymour Street  
Hartford, Connecticut

File Name : 23031  
Site Code : 23031  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Seymour Street From North					Retreat Avenue From East					Parking Lot Dr From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	8	0	8	1	17	39	57	13	8	117	4	1	4	2	11	11	54	10	2	77	222
07:15 AM	22	1	16	1	40	54	66	15	6	141	7	0	1	1	9	18	46	22	10	96	286
07:30 AM	25	0	46	0	71	45	60	31	9	145	5	0	4	1	10	23	61	21	3	108	334
07:45 AM	20	0	10	2	32	43	59	30	10	142	5	1	3	0	9	27	30	21	13	91	274
Total	75	1	80	4	160	181	242	89	33	545	21	2	12	4	39	79	191	74	28	372	1116
08:00 AM	14	2	10	0	26	48	58	35	5	146	2	1	4	0	7	15	45	12	11	83	262
08:15 AM	10	1	15	2	28	37	59	27	8	131	8	0	4	1	13	18	46	13	8	85	257
08:30 AM	9	2	10	0	21	27	64	18	9	118	5	1	3	1	10	14	57	10	4	85	234
08:45 AM	6	1	6	0	13	19	56	21	8	104	4	0	1	0	5	17	34	13	1	65	187
Total	39	6	41	2	88	131	237	101	30	499	19	2	12	2	35	64	182	48	24	318	940
Grand Total	114	7	121	6	248	312	479	190	63	1044	40	4	24	6	74	143	373	122	52	690	2056
Apprch %	46	2.8	48.8	2.4		29.9	45.9	18.2	6		54.1	5.4	32.4	8.1		20.7	54.1	17.7	7.5		
Total %	5.5	0.3	5.9	0.3	12.1	15.2	23.3	9.2	3.1	50.8	1.9	0.2	1.2	0.3	3.6	7	18.1	5.9	2.5	33.6	
Lights	113	7	120	6	246	311	423	189	63	986	39	4	23	6	72	140	347	119	52	658	1962
% Lights	99.1	100	99.2	100	99.2	99.7	88.3	99.5	100	94.4	97.5	100	95.8	100	97.3	97.9	93	97.5	100	95.4	95.4
Trucks	1	0	1	0	2	1	5	0	0	6	0	0	0	0	0	0	1	2	0	3	11
% Trucks	0.9	0	0.8	0	0.8	0.3	1	0	0	0.6	0	0	0	0	0	0	0.3	1.6	0	0.4	0.5
Buses	0	0	0	0	0	0	51	1	0	52	1	0	1	0	2	3	25	1	0	29	83
% Buses	0	0	0	0	0	0	10.6	0.5	0	5	2.5	0	4.2	0	2.7	2.1	6.7	0.8	0	4.2	4

# Connecticut Counts LLC

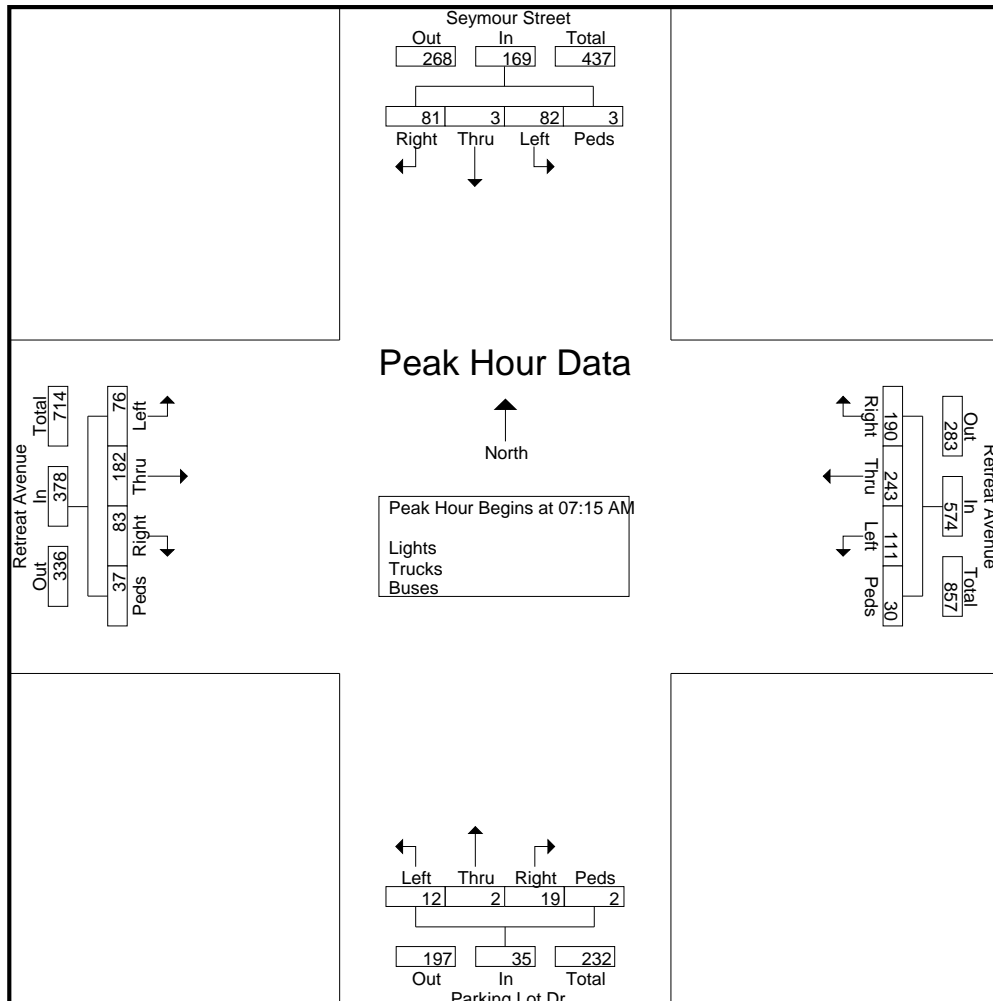
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23031  
 Site Code : 23031  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Seymour Street From North					Retreat Avenue From East					Parking Lot Dr From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:15 AM

07:15 AM	22	1	16	1	40	54	66	15	6	141	7	0	1	1	9	18	46	22	10	96	286
07:30 AM	25	0	46	0	71	45	60	31	9	145	5	0	4	1	10	23	61	21	3	108	334
07:45 AM	20	0	10	2	32	43	59	30	10	142	5	1	3	0	9	27	30	21	13	91	274
08:00 AM	14	2	10	0	26	48	58	35	5	146	2	1	4	0	7	15	45	12	11	83	262
Total Volume	81	3	82	3	169	190	243	111	30	574	19	2	12	2	35	83	182	76	37	378	1156
% App. Total	47.9	1.8	48.5	1.8		33.1	42.3	19.3	5.2		54.3	5.7	34.3	5.7		22	48.1	20.1	9.8		
PHF	.810	.375	.446	.375	.595	.880	.920	.793	.750	.983	.679	.500	.750	.500	.875	.769	.746	.864	.712	.875	.865



# Connecticut Counts LLC

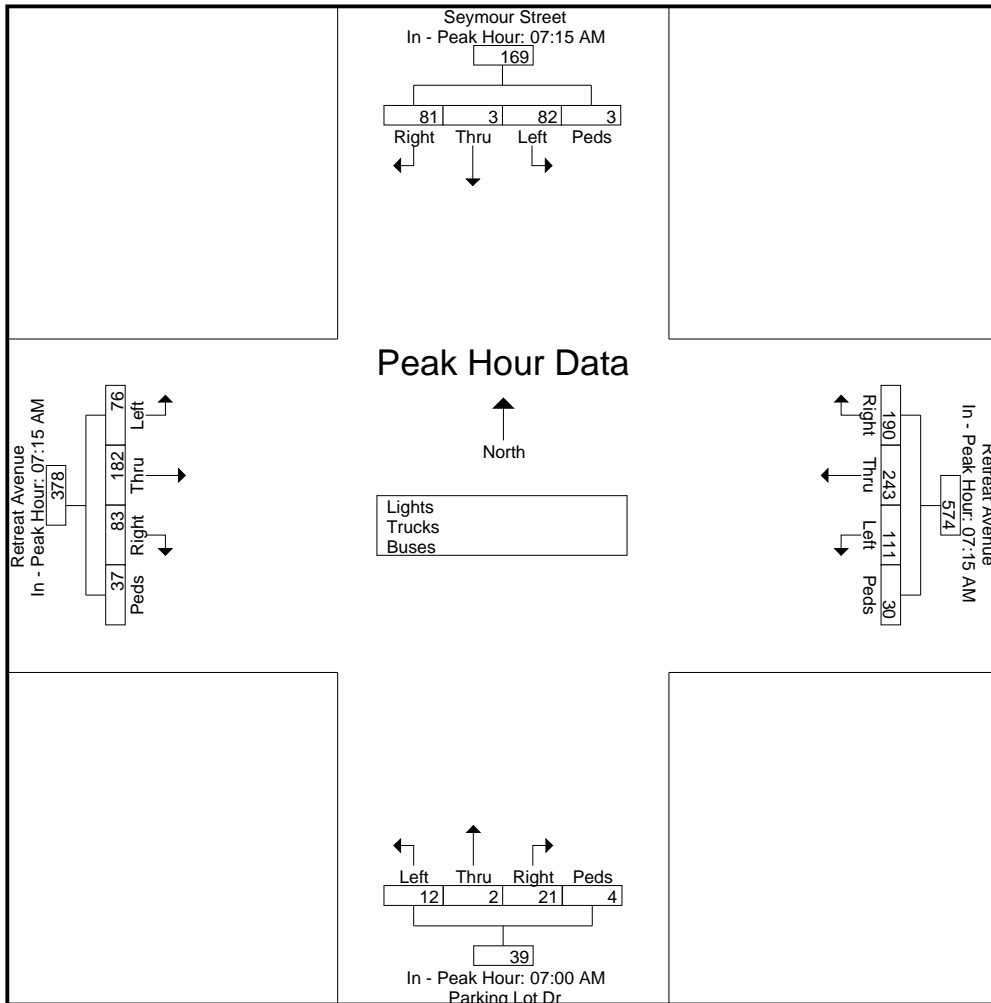
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23031  
 Site Code : 23031  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Seymour Street From North					Retreat Avenue From East					Parking Lot Dr From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:00 AM					07:15 AM				
+0 mins.	22	1	16	1	40	54	66	15	6	141	4	1	4	2	11	18	46	22	10	96
+15 mins.	25	0	46	0	71	45	60	31	9	145	7	0	1	1	9	23	61	21	3	108
+30 mins.	20	0	10	2	32	43	59	30	10	142	5	0	4	1	10	27	30	21	13	91
+45 mins.	14	2	10	0	26	48	58	35	5	146	5	1	3	0	9	15	45	12	11	83
Total Volume	81	3	82	3	169	190	243	111	30	574	21	2	12	4	39	83	182	76	37	378
% App. Total	47.9	1.8	48.5	1.8		33.1	42.3	19.3	5.2		53.8	5.1	30.8	10.3		22	48.1	20.1	9.8	
PHF	.810	.375	.446	.375	.595	.880	.920	.793	.750	.983	.750	.500	.750	.500	.886	.769	.746	.864	.712	.875



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Retreat Avenue at Seymour Street  
Hartford, Connecticut

File Name : 23032  
Site Code : 23032  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Seymour Street From North					Retreat Avenue From East					Parking Lot Dr From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	17	1	34	1	53	13	79	7	3	102	23	0	12	2	37	9	66	10	2	87	279
04:15 PM	12	1	23	0	36	2	95	7	6	110	17	0	12	1	30	9	74	16	3	102	278
04:30 PM	17	0	36	0	53	11	94	5	8	118	22	0	9	2	33	13	65	13	3	94	298
04:45 PM	16	0	25	1	42	7	67	8	6	88	26	0	23	2	51	12	56	13	6	87	268
Total	62	2	118	2	184	33	335	27	23	418	88	0	56	7	151	43	261	52	14	370	1123
05:00 PM	11	1	27	0	39	8	74	5	3	90	17	0	20	0	37	8	49	11	2	70	236
05:15 PM	16	0	14	3	33	5	56	4	8	73	12	0	15	2	29	4	46	5	2	57	192
05:30 PM	13	1	22	0	36	8	54	11	4	77	8	0	14	2	24	6	46	8	1	61	198
05:45 PM	13	2	15	0	30	6	50	5	6	67	11	1	9	0	21	6	41	5	0	52	170
Total	53	4	78	3	138	27	234	25	21	307	48	1	58	4	111	24	182	29	5	240	796
Grand Total	115	6	196	5	322	60	569	52	44	725	136	1	114	11	262	67	443	81	19	610	1919
Apprch %	35.7	1.9	60.9	1.6		8.3	78.5	7.2	6.1		51.9	0.4	43.5	4.2		11	72.6	13.3	3.1		
Total %	6	0.3	10.2	0.3	16.8	3.1	29.7	2.7	2.3	37.8	7.1	0.1	5.9	0.6	13.7	3.5	23.1	4.2	1	31.8	
Lights	115	6	196	5	322	60	538	52	44	694	136	1	114	11	262	67	420	81	19	587	1865
% Lights	100	100	100	100	100	100	94.6	100	100	95.7	100	100	100	100	100	100	94.8	100	100	96.2	97.2
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	23	0	0	23	54
% Buses	0	0	0	0	0	0	5.4	0	0	4.3	0	0	0	0	0	0	5.2	0	0	3.8	2.8

# Connecticut Counts LLC

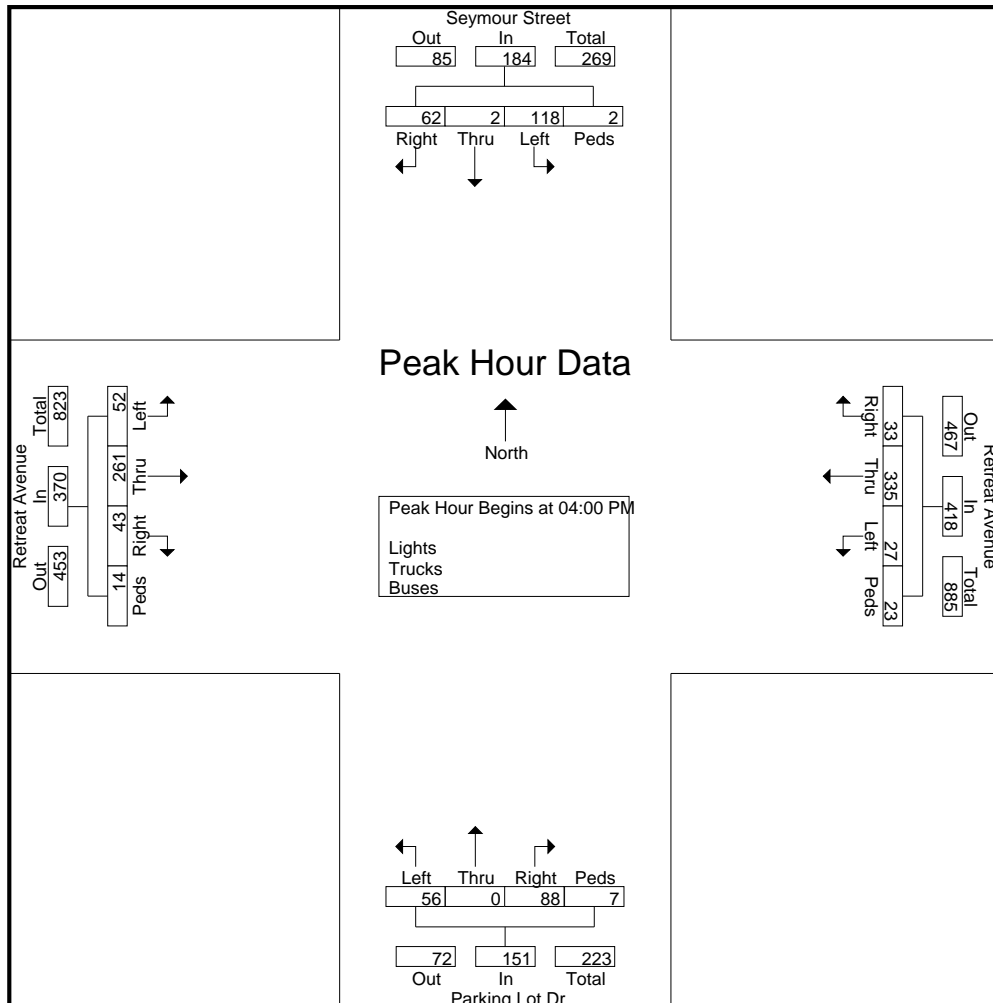
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23032  
Site Code : 23032  
Start Date : 5/12/2022  
Page No : 2

Start Time	Seymour Street From North					Retreat Avenue From East					Parking Lot Dr From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	17	1	34	1	53	13	79	7	3	102	23	0	12	2	37	9	66	10	2	87	279
04:15 PM	12	1	23	0	36	2	95	7	6	110	17	0	12	1	30	9	74	16	3	102	278
04:30 PM	17	0	36	0	53	11	94	5	8	118	22	0	9	2	33	13	65	13	3	94	298
04:45 PM	16	0	25	1	42	7	67	8	6	88	26	0	23	2	51	12	56	13	6	87	268
Total Volume	62	2	118	2	184	33	335	27	23	418	88	0	56	7	151	43	261	52	14	370	1123
% App. Total	33.7	1.1	64.1	1.1		7.9	80.1	6.5	5.5		58.3	0	37.1	4.6		11.6	70.5	14.1	3.8		
PHF	.912	.500	.819	.500	.868	.635	.882	.844	.719	.886	.846	.000	.609	.875	.740	.827	.882	.813	.583	.907	.942



# Connecticut Counts LLC

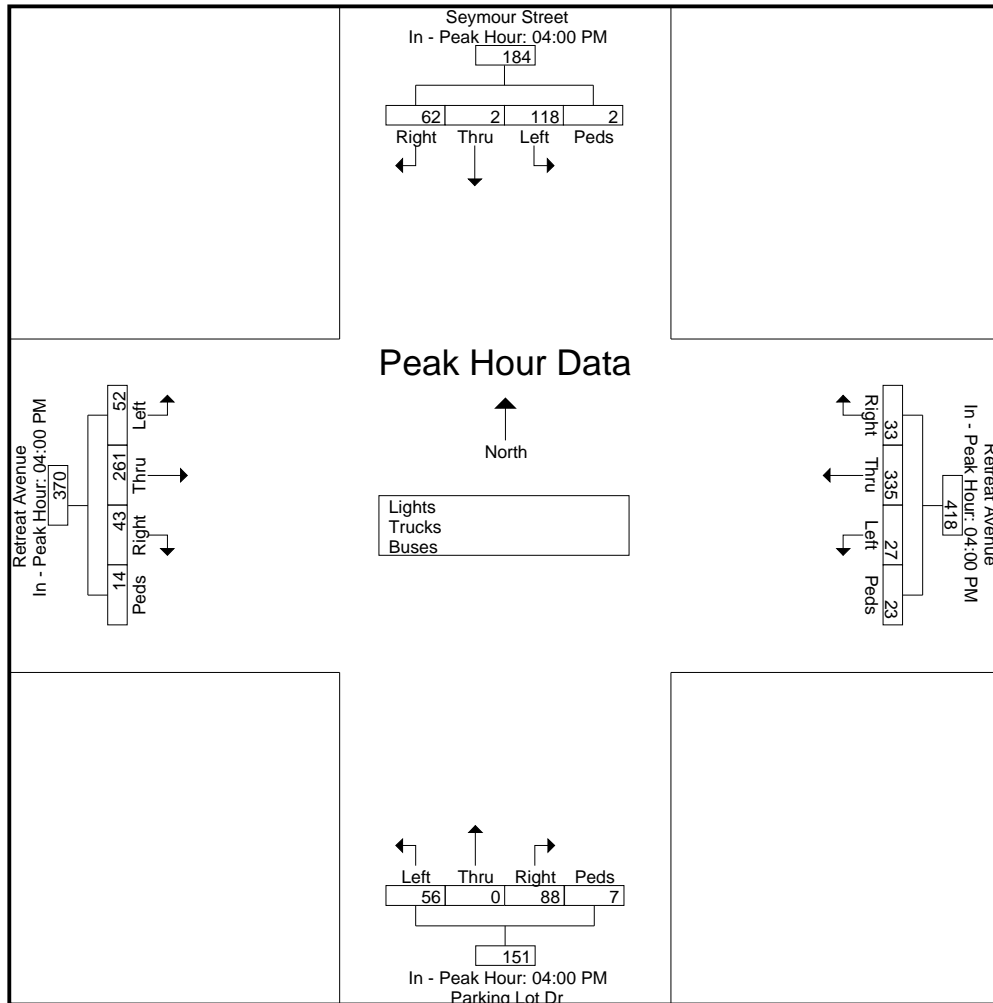
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23032  
 Site Code : 23032  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Seymour Street From North					Retreat Avenue From East					Parking Lot Dr From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:00 PM					04:00 PM				
+0 mins.	17	1	34	1	53	13	79	7	3	102	23	0	12	2	37	9	66	10	2	87
+15 mins.	12	1	23	0	36	2	95	7	6	110	17	0	12	1	30	9	74	16	3	102
+30 mins.	17	0	36	0	53	11	94	5	8	118	22	0	9	2	33	13	65	13	3	94
+45 mins.	16	0	25	1	42	7	67	8	6	88	26	0	23	2	51	12	56	13	6	87
Total Volume	62	2	118	2	184	33	335	27	23	418	88	0	56	7	151	43	261	52	14	370
% App. Total	33.7	1.1	64.1	1.1		7.9	80.1	6.5	5.5		58.3	0	37.1	4.6		11.6	70.5	14.1	3.8	
PHF	.912	.500	.819	.500	.868	.635	.882	.844	.719	.886	.846	.000	.609	.875	.740	.827	.882	.813	.583	.907



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Maple Ave at Retreat Avenue  
Hartford, Connecticut

File Name : 23033  
Site Code : 23033  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Maple Avenue From North					From East					Maple Avenue From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	105	44	0	1	150	0	0	0	0	0	0	2	0	1	3	2	0	81	0	83	236
07:15 AM	133	41	0	0	174	0	0	0	0	0	0	1	0	0	1	0	0	86	0	86	261
07:30 AM	146	58	0	0	204	0	0	0	0	0	0	6	0	1	7	6	0	138	1	145	356
07:45 AM	125	62	0	0	187	0	0	0	0	0	0	3	0	2	5	2	0	121	0	123	315
Total	509	205	0	1	715	0	0	0	0	0	0	12	0	4	16	10	0	426	1	437	1168
08:00 AM	126	51	0	0	177	0	0	0	0	0	0	0	0	0	0	6	0	97	0	103	280
08:15 AM	108	52	0	0	160	0	0	0	0	0	0	1	0	0	1	5	0	121	0	126	287
08:30 AM	109	68	0	0	177	0	0	0	0	0	0	0	0	0	0	6	0	109	0	115	292
08:45 AM	85	65	0	0	150	0	0	0	0	0	0	2	0	0	2	4	0	84	1	89	241
Total	428	236	0	0	664	0	0	0	0	0	0	3	0	0	3	21	0	411	1	433	1100
Grand Total	937	441	0	1	1379	0	0	0	0	0	0	15	0	4	19	31	0	837	2	870	2268
Apprch %	67.9	32	0	0.1		0	0	0	0		0	78.9	0	21.1		3.6	0	96.2	0.2		
Total %	41.3	19.4	0	0	60.8	0	0	0	0	0	0	0.7	0	0.2	0.8	1.4	0	36.9	0.1	38.4	
Lights	891	398	0	1	1290	0	0	0	0	0	0	14	0	4	18	29	0	782	2	813	2121
% Lights	95.1	90.2	0	100	93.5	0	0	0	0	0	0	93.3	0	100	94.7	93.5	0	93.4	100	93.4	93.5
Trucks	3	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	10
% Trucks	0.3	0.5	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0.6	0.4
Buses	43	41	0	0	84	0	0	0	0	0	0	1	0	0	1	2	0	50	0	52	137
% Buses	4.6	9.3	0	0	6.1	0	0	0	0	0	0	6.7	0	0	5.3	6.5	0	6	0	6	6



# Connecticut Counts LLC

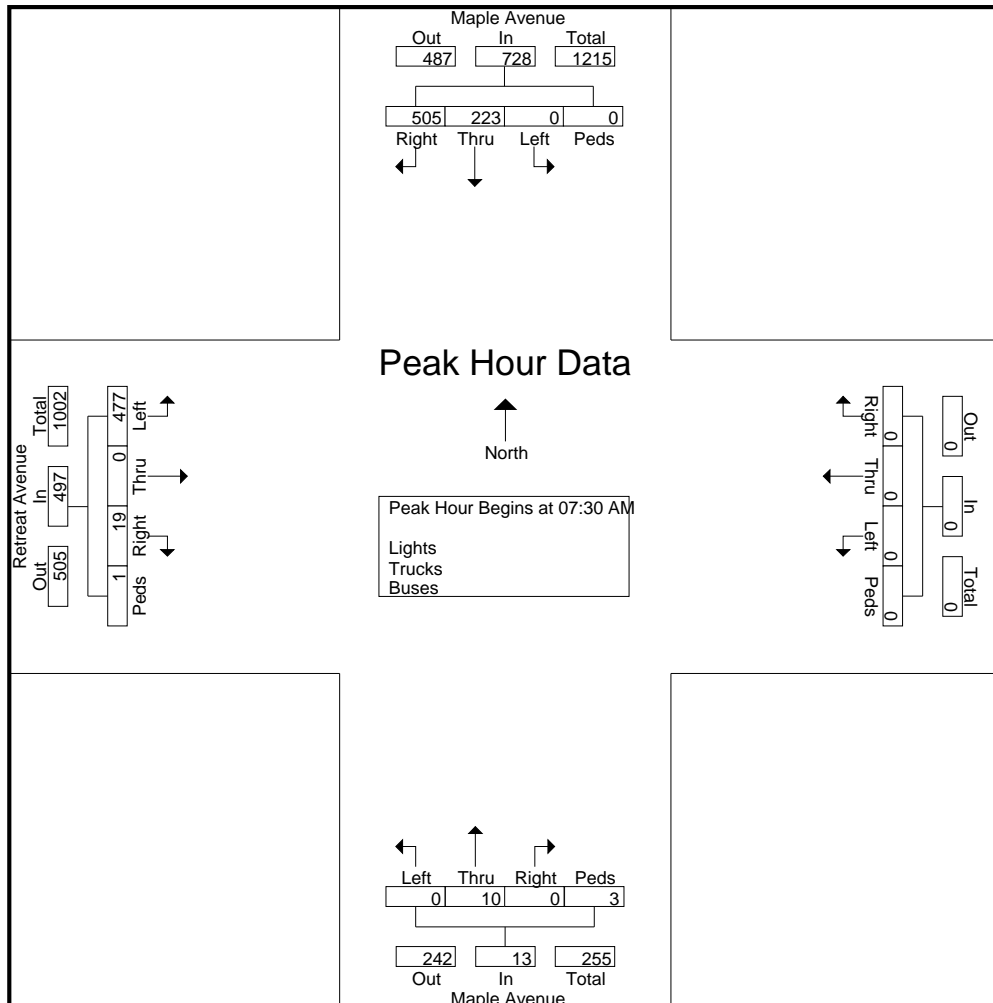
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23033  
Site Code : 23033  
Start Date : 5/12/2022  
Page No : 2

Start Time	Maple Avenue From North					From East					Maple Avenue From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	146	58	0	0	204	0	0	0	0	0	0	6	0	1	7	6	0	138	1	145	356
07:45 AM	125	62	0	0	187	0	0	0	0	0	0	3	0	2	5	2	0	121	0	123	315
08:00 AM	126	51	0	0	177	0	0	0	0	0	0	0	0	0	0	6	0	97	0	103	280
08:15 AM	108	52	0	0	160	0	0	0	0	0	0	1	0	0	1	5	0	121	0	126	287
Total Volume	505	223	0	0	728	0	0	0	0	0	0	10	0	3	13	19	0	477	1	497	1238
% App. Total	69.4	30.6	0	0		0	0	0	0		0	76.9	0	23.1		3.8	0	96	0.2		
PHF	.865	.899	.000	.000	.892	.000	.000	.000	.000	.000	.000	.417	.000	.375	.464	.792	.000	.864	.250	.857	.869



# Connecticut Counts LLC

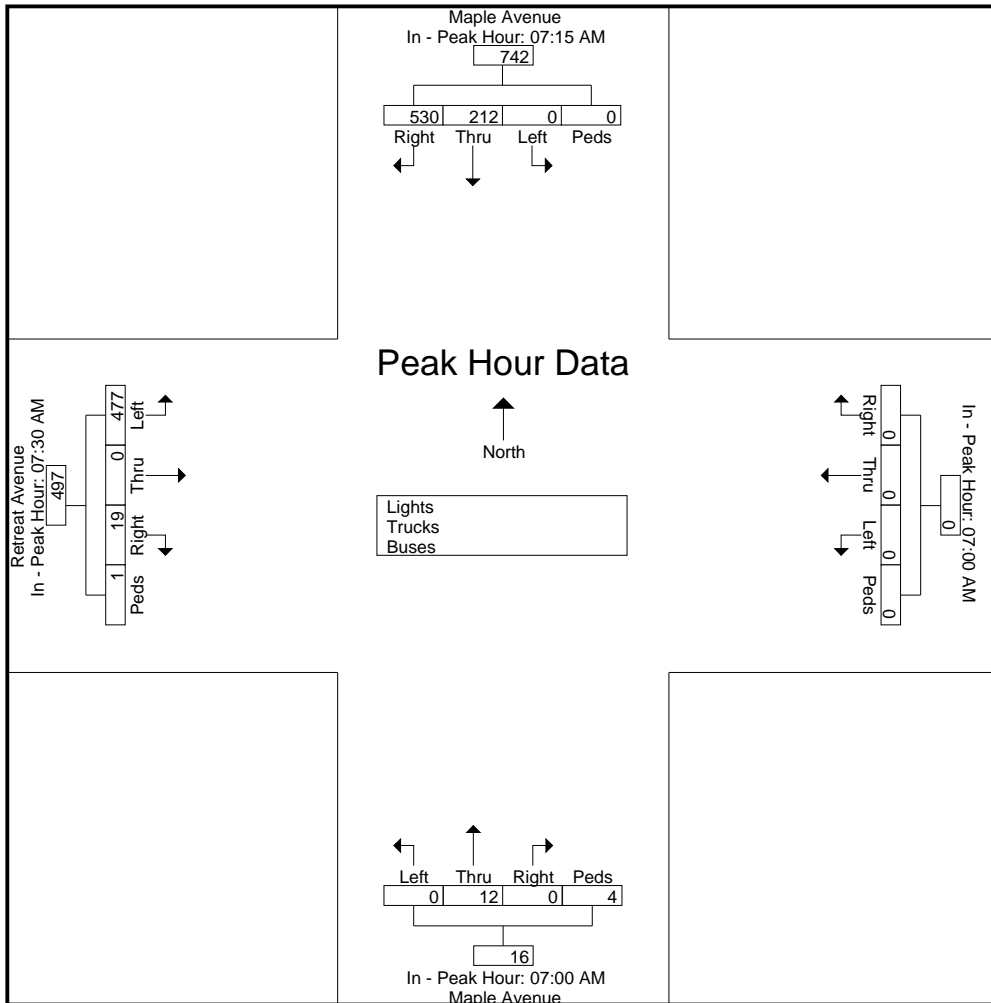
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23033  
 Site Code : 23033  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Maple Avenue From North					From East					Maple Avenue From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:00 AM					07:00 AM					07:30 AM				
+0 mins.	133	41	0	0	174	0	0	0	0	0	0	2	0	1	3	6	0	138	1	145
+15 mins.	146	58	0	0	204	0	0	0	0	0	0	1	0	0	1	2	0	121	0	123
+30 mins.	125	62	0	0	187	0	0	0	0	0	0	6	0	1	7	6	0	97	0	103
+45 mins.	126	51	0	0	177	0	0	0	0	0	0	3	0	2	5	5	0	121	0	126
Total Volume	530	212	0	0	742	0	0	0	0	0	0	12	0	4	16	19	0	477	1	497
% App. Total	71.4	28.6	0	0		0	0	0	0		0	75	0	25		3.8	0	96	0.2	
PHF	.908	.855	.000	.000	.909	.000	.000	.000	.000	.000	.000	.500	.000	.500	.571	.792	.000	.864	.250	.857



**Maple ave at Retreat Ave - TMC**

Wed Mar 11, 2020

Full Length (7:30 AM-9:30 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760701, Location: 41.754699, -72.676865

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US

Leg Direction	Maple Avenue Southbound					Maple Avenue Northbound					Retreat Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
Time																
2020-03-11 7:30AM	117	69	0	<b>186</b>	1	102	3	0	<b>105</b>	2	5	88	0	<b>93</b>	0	<b>384</b>
7:45AM	132	59	0	<b>191</b>	0	120	3	0	<b>123</b>	0	3	75	0	<b>78</b>	1	<b>392</b>
Hourly Total	249	128	0	<b>377</b>	1	222	6	0	<b>228</b>	2	8	163	0	<b>171</b>	1	<b>776</b>
8:00AM	133	73	0	<b>206</b>	0	146	4	0	<b>150</b>	1	3	60	0	<b>63</b>	2	<b>419</b>
8:15AM	132	57	0	<b>189</b>	0	139	6	0	<b>145</b>	0	2	46	0	<b>48</b>	0	<b>382</b>
8:30AM	87	52	0	<b>139</b>	0	115	6	0	<b>121</b>	1	4	48	0	<b>52</b>	3	<b>312</b>
8:45AM	107	73	0	<b>180</b>	2	125	6	0	<b>131</b>	1	7	43	0	<b>50</b>	2	<b>361</b>
Hourly Total	459	255	0	<b>714</b>	2	525	22	0	<b>547</b>	3	16	197	0	<b>213</b>	7	<b>1474</b>
9:00AM	73	75	0	<b>148</b>	0	85	6	0	<b>91</b>	2	4	35	0	<b>39</b>	4	<b>278</b>
9:15AM	65	64	0	<b>129</b>	0	88	2	0	<b>90</b>	4	7	38	0	<b>45</b>	5	<b>264</b>
Hourly Total	138	139	0	<b>277</b>	0	173	8	0	<b>181</b>	6	11	73	0	<b>84</b>	9	<b>542</b>
<b>Total</b>	<b>846</b>	<b>522</b>	<b>0</b>	<b>1368</b>	<b>3</b>	<b>920</b>	<b>36</b>	<b>0</b>	<b>956</b>	<b>11</b>	<b>35</b>	<b>433</b>	<b>0</b>	<b>468</b>	<b>17</b>	<b>2792</b>
<b>% Approach</b>	61.8%	38.2%	0%	-	-	96.2%	3.8%	0%	-	-	7.5%	92.5%	0%	-	-	-
<b>% Total</b>	30.3%	18.7%	0%	<b>49.0%</b>	-	33.0%	1.3%	0%	<b>34.2%</b>	-	1.3%	15.5%	0%	<b>16.8%</b>	-	-
<b>Lights</b>	799	483	0	<b>1282</b>	-	873	34	0	<b>907</b>	-	35	410	0	<b>445</b>	-	2634
<b>% Lights</b>	94.4%	92.5%	0%	<b>93.7%</b>	-	94.9%	94.4%	0%	<b>94.9%</b>	-	100%	94.7%	0%	<b>95.1%</b>	-	94.3%
<b>Articulated Trucks and Single-Unit Trucks</b>	13	3	0	<b>16</b>	-	8	1	0	<b>9</b>	-	0	2	0	<b>2</b>	-	27
<b>% Articulated Trucks and Single-Unit Trucks</b>	1.5%	0.6%	0%	<b>1.2%</b>	-	0.9%	2.8%	0%	<b>0.9%</b>	-	0%	0.5%	0%	<b>0.4%</b>	-	1.0%
<b>Buses</b>	34	36	0	<b>70</b>	-	39	1	0	<b>40</b>	-	0	21	0	<b>21</b>	-	131
<b>% Buses</b>	4.0%	6.9%	0%	<b>5.1%</b>	-	4.2%	2.8%	0%	<b>4.2%</b>	-	0%	4.8%	0%	<b>4.5%</b>	-	4.7%
Pedestrians	-	-	-	-	3	-	-	-	-	11	-	-	-	-	16	-
<b>% Pedestrians</b>	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	94.1%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	5.9%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Maple ave at Retreat Ave - TMC**

Wed Mar 11, 2020

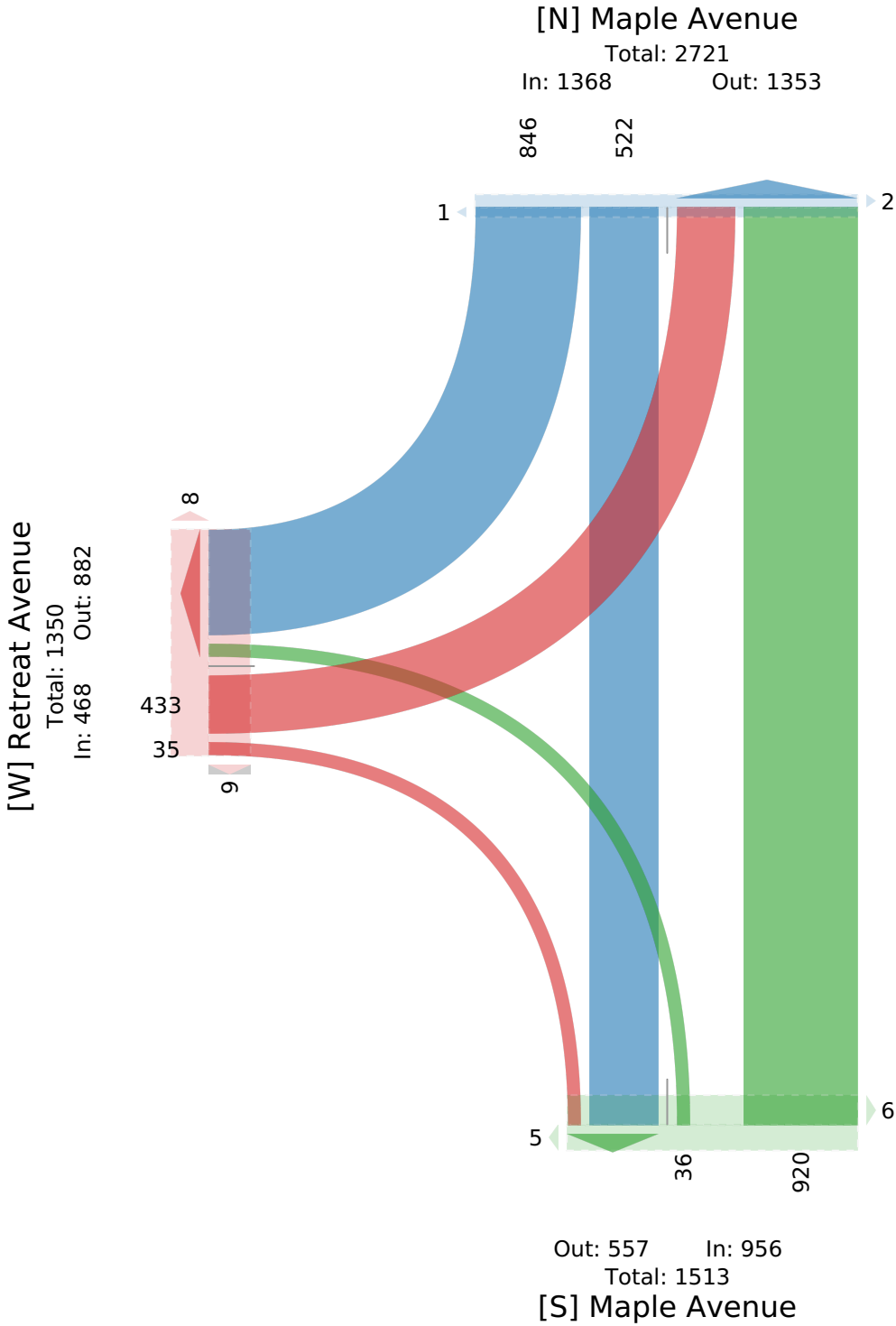
Full Length (7:30 AM-9:30 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760701, Location: 41.754699, -72.676865

Provided by: Connecticut Counts LLC  
63 Sugar Maple Lane,  
Kensington, CT, 12345, US



**Maple ave at Retreat Ave - TMC**

Wed Mar 11, 2020

AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760701, Location: 41.754699, -72.676865

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US

Leg Direction	Maple Avenue Southbound					Maple Avenue Northbound					Retreat Avenue Eastbound					Int
	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	
Time																
2020-03-11 7:30AM	117	69	0	<b>186</b>	1	102	3	0	<b>105</b>	2	5	88	0	<b>93</b>	0	<b>384</b>
7:45AM	132	59	0	<b>191</b>	0	120	3	0	<b>123</b>	0	3	75	0	<b>78</b>	1	<b>392</b>
8:00AM	133	73	0	<b>206</b>	0	146	4	0	<b>150</b>	1	3	60	0	<b>63</b>	2	<b>419</b>
8:15AM	132	57	0	<b>189</b>	0	139	6	0	<b>145</b>	0	2	46	0	<b>48</b>	0	<b>382</b>
<b>Total</b>	514	258	0	<b>772</b>	1	507	16	0	<b>523</b>	3	13	269	0	<b>282</b>	3	<b>1577</b>
<b>% Approach</b>	66.6%	33.4%	0%	-	-	96.9%	3.1%	0%	-	-	4.6%	95.4%	0%	-	-	-
<b>% Total</b>	32.6%	16.4%	0%	<b>49.0%</b>	-	32.1%	1.0%	0%	<b>33.2%</b>	-	0.8%	17.1%	0%	<b>17.9%</b>	-	-
<b>PHF</b>	0.966	0.884	-	<b>0.937</b>	-	0.868	0.667	-	<b>0.872</b>	-	0.650	0.764	-	<b>0.758</b>	-	0.941
<b>Lights</b>	486	230	0	<b>716</b>	-	480	16	0	<b>496</b>	-	13	259	0	<b>272</b>	-	1484
<b>% Lights</b>	94.6%	89.1%	0%	<b>92.7%</b>	-	94.7%	100%	0%	<b>94.8%</b>	-	100%	96.3%	0%	<b>96.5%</b>	-	94.1%
<b>Articulated Trucks and Single-Unit Trucks</b>	4	3	0	<b>7</b>	-	3	0	0	<b>3</b>	-	0	1	0	<b>1</b>	-	11
<b>% Articulated Trucks and Single-Unit Trucks</b>	0.8%	1.2%	0%	<b>0.9%</b>	-	0.6%	0%	0%	<b>0.6%</b>	-	0%	0.4%	0%	<b>0.4%</b>	-	0.7%
<b>Buses</b>	24	25	0	<b>49</b>	-	24	0	0	<b>24</b>	-	0	9	0	<b>9</b>	-	82
<b>% Buses</b>	4.7%	9.7%	0%	<b>6.3%</b>	-	4.7%	0%	0%	<b>4.6%</b>	-	0%	3.3%	0%	<b>3.2%</b>	-	5.2%
Pedestrians	-	-	-	-	1	-	-	-	-	3	-	-	-	-	3	
% Pedestrians	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Maple ave at Retreat Ave - TMC**

Wed Mar 11, 2020

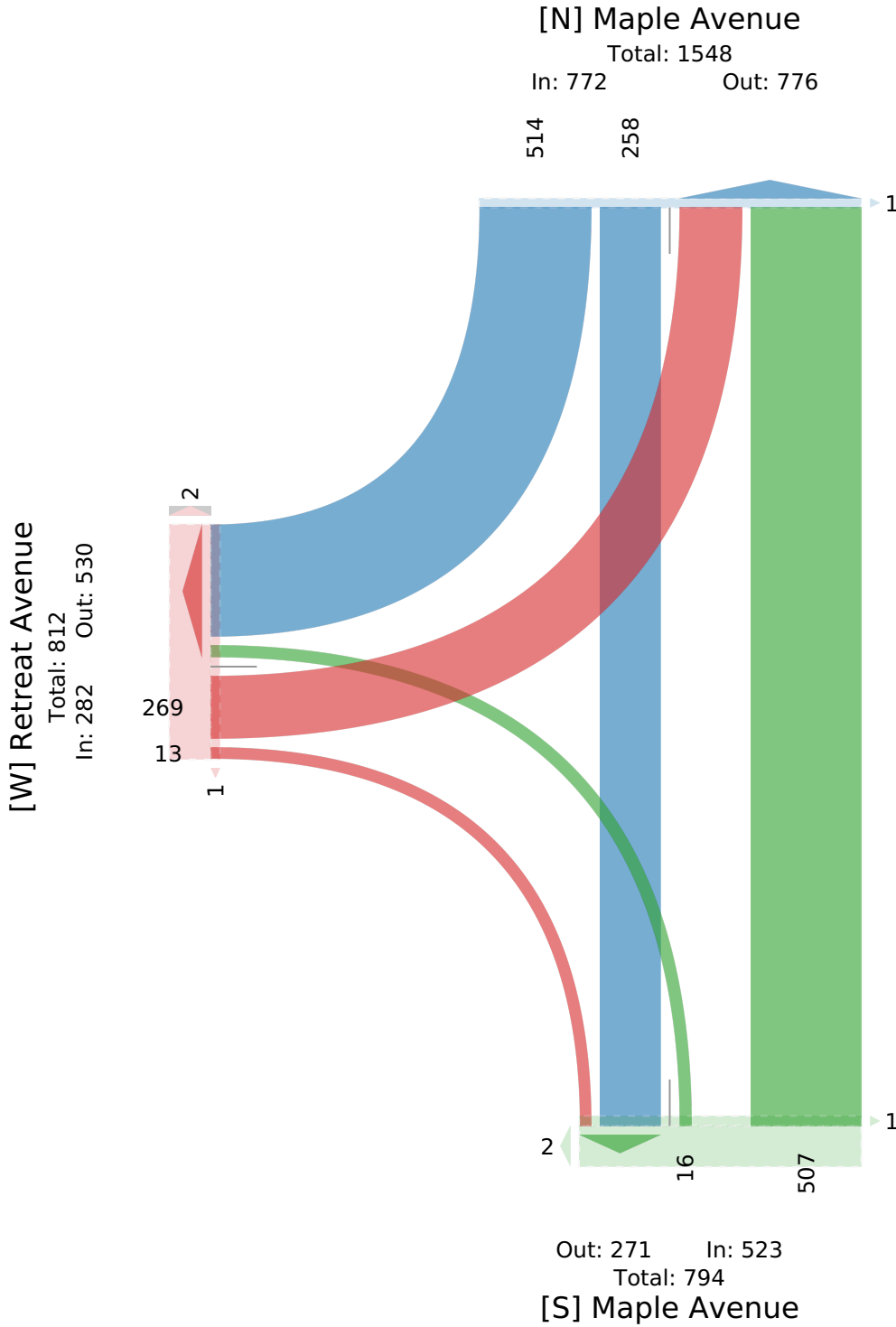
AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760701, Location: 41.754699, -72.676865

Provided by: Connecticut Counts LLC  
63 Sugar Maple Lane,  
Kensington, CT, 12345, US



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Maple Ave at Retreat Avenue  
Hartford, Connecticut

File Name : 23034  
Site Code : 23034  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Maple Avenue From North					From East					Maple Avenue From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	61	104	0	2	167	0	0	0	0	0	0	96	5	4	105	11	0	119	2	132	404
04:15 PM	77	120	1	3	201	0	0	0	1	1	0	93	4	2	99	5	0	109	2	116	417
04:30 PM	57	113	0	0	170	0	0	0	0	0	0	96	7	0	103	6	0	130	1	137	410
04:45 PM	61	125	0	1	187	0	0	0	0	0	0	117	5	0	122	2	0	113	1	116	425
Total	256	462	1	6	725	0	0	0	1	1	0	402	21	6	429	24	0	471	6	501	1656
05:00 PM	53	144	0	0	197	0	0	0	0	0	0	111	3	2	116	0	0	92	0	92	405
05:15 PM	43	122	0	0	165	0	0	0	0	0	0	93	6	0	99	5	0	81	0	86	350
05:30 PM	65	116	0	0	181	0	0	0	0	0	0	103	0	3	106	1	0	67	0	68	355
05:45 PM	47	88	0	0	135	0	0	0	1	1	0	87	9	0	96	1	0	61	0	62	294
Total	208	470	0	0	678	0	0	0	1	1	0	394	18	5	417	7	0	301	0	308	1404
Grand Total	464	932	1	6	1403	0	0	0	2	2	0	796	39	11	846	31	0	772	6	809	3060
Apprch %	33.1	66.4	0.1	0.4		0	0	0	100		0	94.1	4.6	1.3		3.8	0	95.4	0.7		
Total %	15.2	30.5	0	0.2	45.8	0	0	0	0.1	0.1	0	26	1.3	0.4	27.6	1	0	25.2	0.2	26.4	
Lights	435	903	1	6	1345	0	0	0	2	2	0	764	38	11	813	29	0	751	4	784	2944
% Lights	93.8	96.9	100	100	95.9	0	0	0	100	100	0	96	97.4	100	96.1	93.5	0	97.3	66.7	96.9	96.2
Trucks	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4
% Trucks	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	33.3	0.2	0.1
Buses	29	27	0	0	56	0	0	0	0	0	0	32	1	0	33	2	0	21	0	23	112
% Buses	6.2	2.9	0	0	4	0	0	0	0	0	0	4	2.6	0	3.9	6.5	0	2.7	0	2.8	3.7

# Connecticut Counts LLC

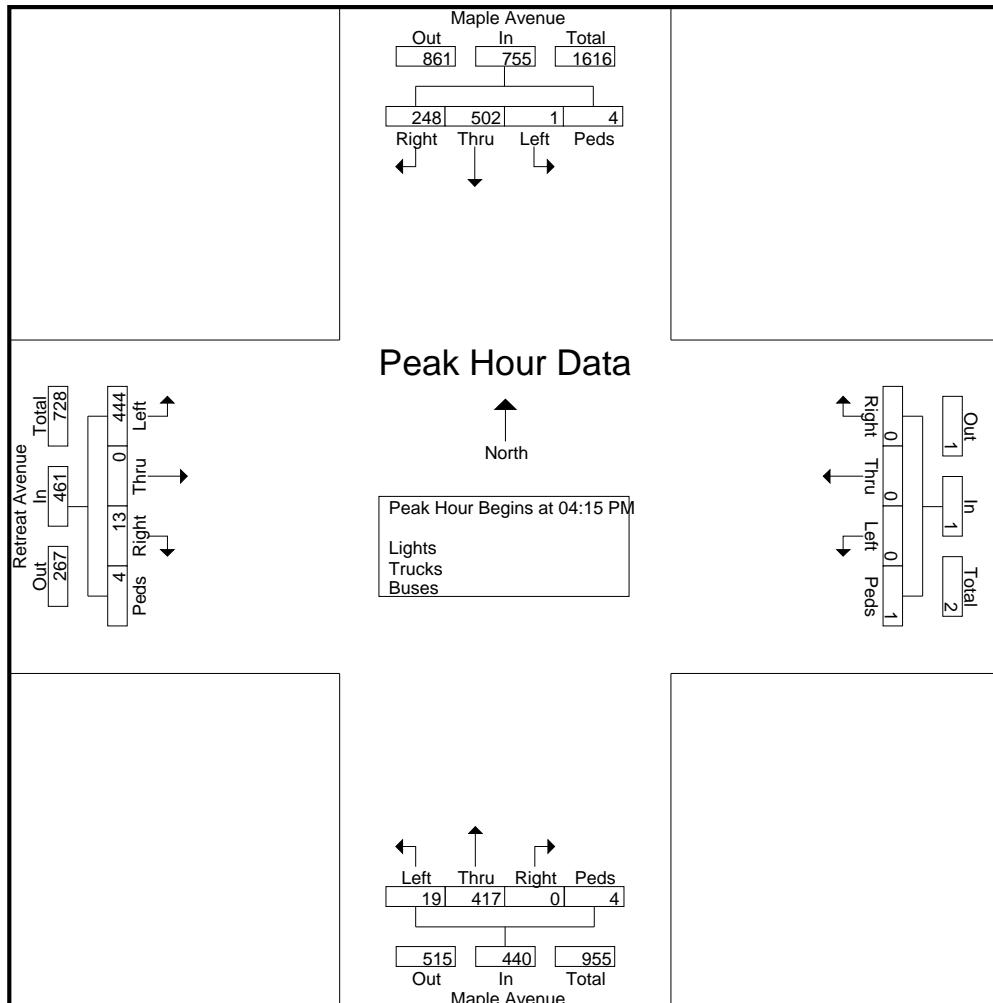
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23034  
Site Code : 23034  
Start Date : 5/12/2022  
Page No : 2

Start Time	Maple Avenue From North					From East					Maple Avenue From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	77	120	1	3	201	0	0	0	1	1	0	93	4	2	99	5	0	109	2	116	417
04:30 PM	57	113	0	0	170	0	0	0	0	0	0	96	7	0	103	6	0	130	1	137	410
04:45 PM	61	125	0	1	187	0	0	0	0	0	0	117	5	0	122	2	0	113	1	116	425
05:00 PM	53	144	0	0	197	0	0	0	0	0	0	111	3	2	116	0	0	92	0	92	405
Total Volume	248	502	1	4	755	0	0	0	1	1	0	417	19	4	440	13	0	444	4	461	1657
% App. Total	32.8	66.5	0.1	0.5		0	0	0	100		0	94.8	4.3	0.9		2.8	0	96.3	0.9		
PHF	.805	.872	.250	.333	.939	.000	.000	.000	.250	.250	.000	.891	.679	.500	.902	.542	.000	.854	.500	.841	.975





# Connecticut Counts LLC

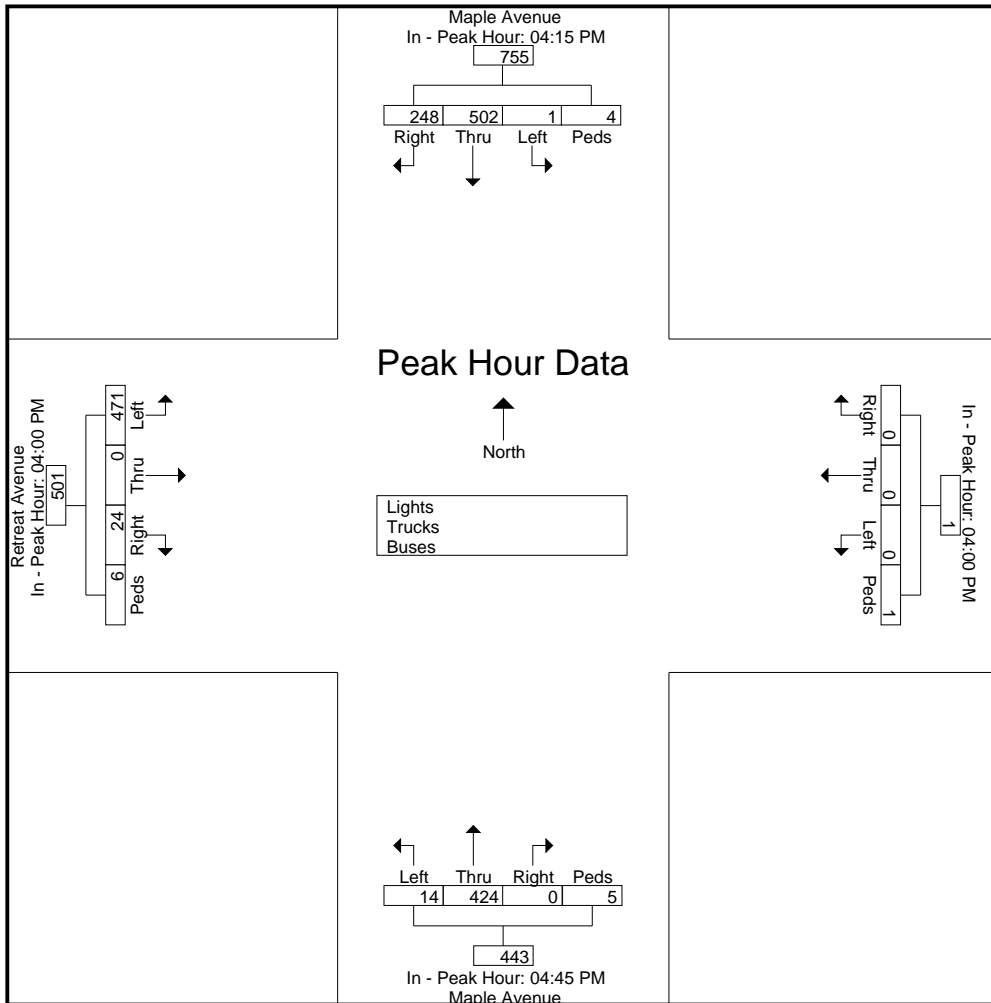
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23034  
 Site Code : 23034  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Maple Avenue From North					From East					Maple Avenue From South					Retreat Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:15 PM					04:00 PM					04:45 PM					04:00 PM				
+0 mins.	77	120	1	3	201	0	0	0	0	0	0	117	5	0	122	11	0	119	2	132
+15 mins.	57	113	0	0	170	0	0	0	1	1	0	111	3	2	116	5	0	109	2	116
+30 mins.	61	125	0	1	187	0	0	0	0	0	0	93	6	0	99	6	0	130	1	137
+45 mins.	53	144	0	0	197	0	0	0	0	0	0	103	0	3	106	2	0	113	1	116
Total Volume	248	502	1	4	755	0	0	0	1	1	0	424	14	5	443	24	0	471	6	501
% App. Total	32.8	66.5	0.1	0.5		0	0	0	100		0	95.7	3.2	1.1		4.8	0	94	1.2	
PHF	.805	.872	.250	.333	.939	.000	.000	.000	.250	.250	.000	.906	.583	.417	.908	.545	.000	.906	.750	.914



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Main/Maple at Jefferson/Wyllys/Congress  
Hartford, Connecticut

File Name : 23035  
Site Code : 23035  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Congress St

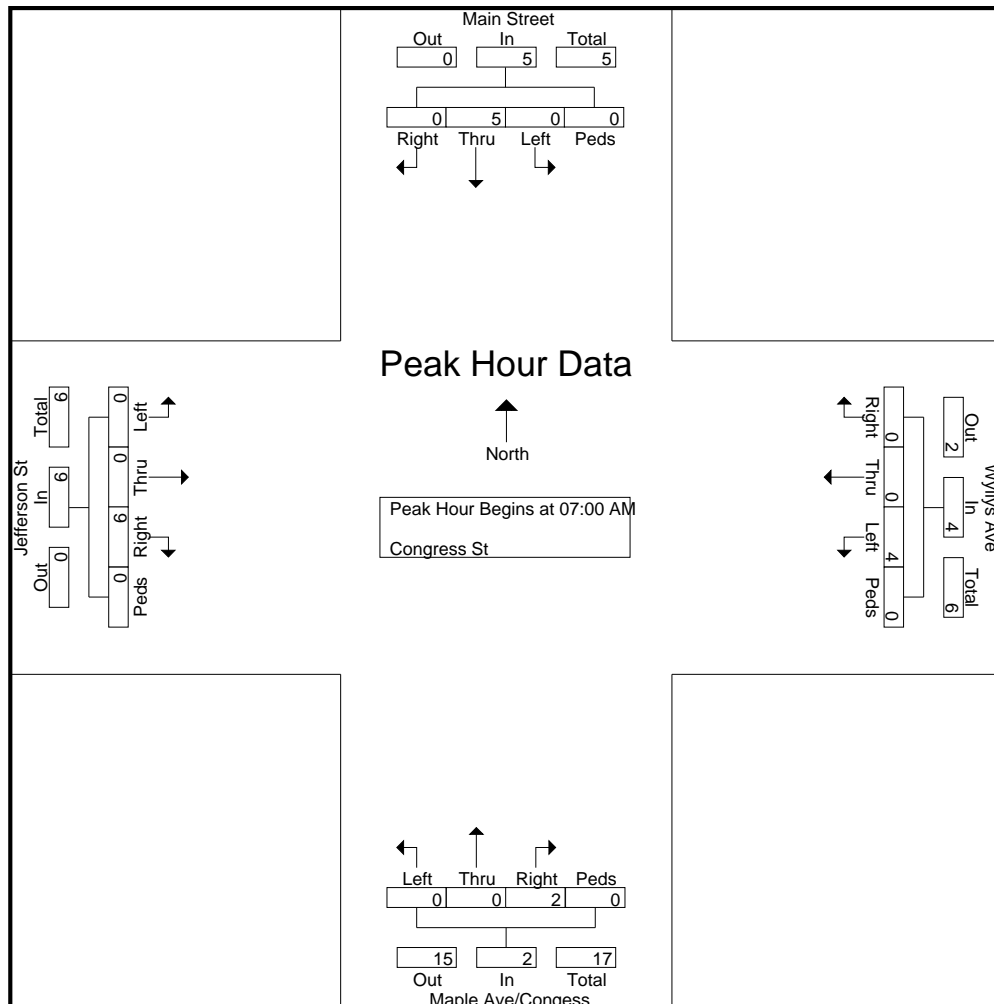
Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congress From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	3
07:15 AM	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	5
07:30 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	1	0	0	0	1	3
07:45 AM	0	2	0	0	2	0	0	1	0	1	1	0	0	0	1	2	0	0	0	2	6
Total	0	5	0	0	5	0	0	4	0	4	2	0	0	0	2	6	0	0	0	6	17
*** BREAK ***																					
08:15 AM	0	1	0	0	1	0	0	1	0	1	2	0	0	0	2	1	0	0	0	1	5
08:30 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	6
08:45 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	0	5	0	0	5	0	0	2	0	2	3	0	0	0	3	2	1	0	0	3	13
Grand Total	0	10	0	0	10	0	0	6	0	6	5	0	0	0	5	8	1	0	0	9	30
Apprch %	0	100	0	0		0	0	100	0		100	0	0	0		88.9	11.1	0	0		
Total %	0	33.3	0	0	33.3	0	0	20	0	20	16.7	0	0	0	16.7	26.7	3.3	0	0	30	

# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23035  
Site Code : 23035  
Start Date : 5/12/2022  
Page No : 2

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	3
07:15 AM	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	5
07:30 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	1	0	0	0	1	3
07:45 AM	0	2	0	0	2	0	0	1	0	1	1	0	0	0	1	2	0	0	0	2	6
Total Volume	0	5	0	0	5	0	0	4	0	4	2	0	0	0	2	6	0	0	0	6	17
% App. Total	0	100	0	0		0	0	100	0		100	0	0	0		100	0	0	0		
PHF	.000	.417	.000	.000	.417	.000	.000	1.00	.000	1.00	.500	.000	.000	.000	.500	.750	.000	.000	.000	.750	.708



# Connecticut Counts LLC

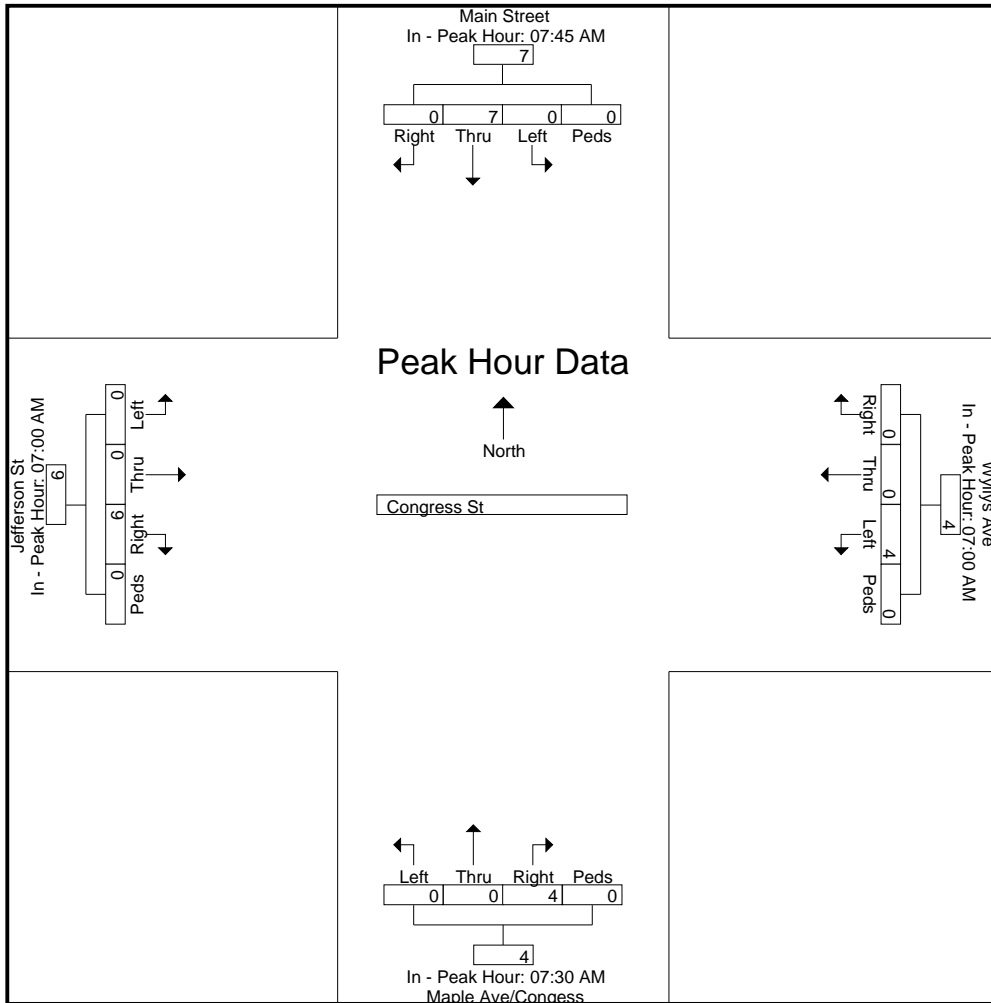
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23035  
Site Code : 23035  
Start Date : 5/12/2022  
Page No : 3

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	07:45 AM					07:00 AM					07:30 AM					07:00 AM				
+0 mins.	0	2	0	0	2	0	0	1	0	1	1	0	0	0	1	2	0	0	0	2
+15 mins.	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	1	0	0	0	1
+30 mins.	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1
+45 mins.	0	4	0	0	4	0	0	1	0	1	2	0	0	0	2	2	0	0	0	2
Total Volume	0	7	0	0	7	0	0	4	0	4	4	0	0	0	4	6	0	0	0	6
% App. Total	0	100	0	0		0	0	100	0		100	0	0	0		100	0	0	0	
PHF	.000	.438	.000	.000	.438	.000	.000	1.000	.000	1.000	.500	.000	.000	.000	.500	.750	.000	.000	.000	.750



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Main/Maple at Jefferson/Wyllys/Congress  
Hartford, Connecticut

File Name : 23035  
Site Code : 23035  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Main Int

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congress From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	7	52	1	1	61	5	44	75	1	125	24	36	9	1	70	20	19	2	0	41	297
07:15 AM	12	52	3	0	67	4	73	84	3	164	44	40	5	1	90	22	12	1	1	36	357
07:30 AM	13	82	1	1	97	3	86	90	1	180	67	62	3	1	133	37	32	5	0	74	484
07:45 AM	10	79	2	2	93	6	83	79	2	170	51	52	10	3	116	39	39	5	2	85	464
Total	42	265	7	4	318	18	286	328	7	639	186	190	27	6	409	118	102	13	3	236	1602
08:00 AM	16	62	1	5	84	3	66	79	4	152	42	53	14	5	114	33	31	4	3	71	421
08:15 AM	7	56	0	0	63	8	68	70	1	147	48	54	9	2	113	36	27	3	1	67	390
08:30 AM	8	62	1	0	71	8	81	89	0	178	55	48	11	0	114	38	31	10	0	79	442
08:45 AM	7	61	2	2	72	12	64	59	0	135	28	36	9	3	76	29	33	7	1	70	353
Total	38	241	4	7	290	31	279	297	5	612	173	191	43	10	417	136	122	24	5	287	1606
Grand Total	80	506	11	11	608	49	565	625	12	1251	359	381	70	16	826	254	224	37	8	523	3208
Apprch %	13.2	83.2	1.8	1.8		3.9	45.2	50	1		43.5	46.1	8.5	1.9		48.6	42.8	7.1	1.5		
Total %	2.5	15.8	0.3	0.3	19	1.5	17.6	19.5	0.4	39	11.2	11.9	2.2	0.5	25.7	7.9	7	1.2	0.2	16.3	

# Connecticut Counts LLC

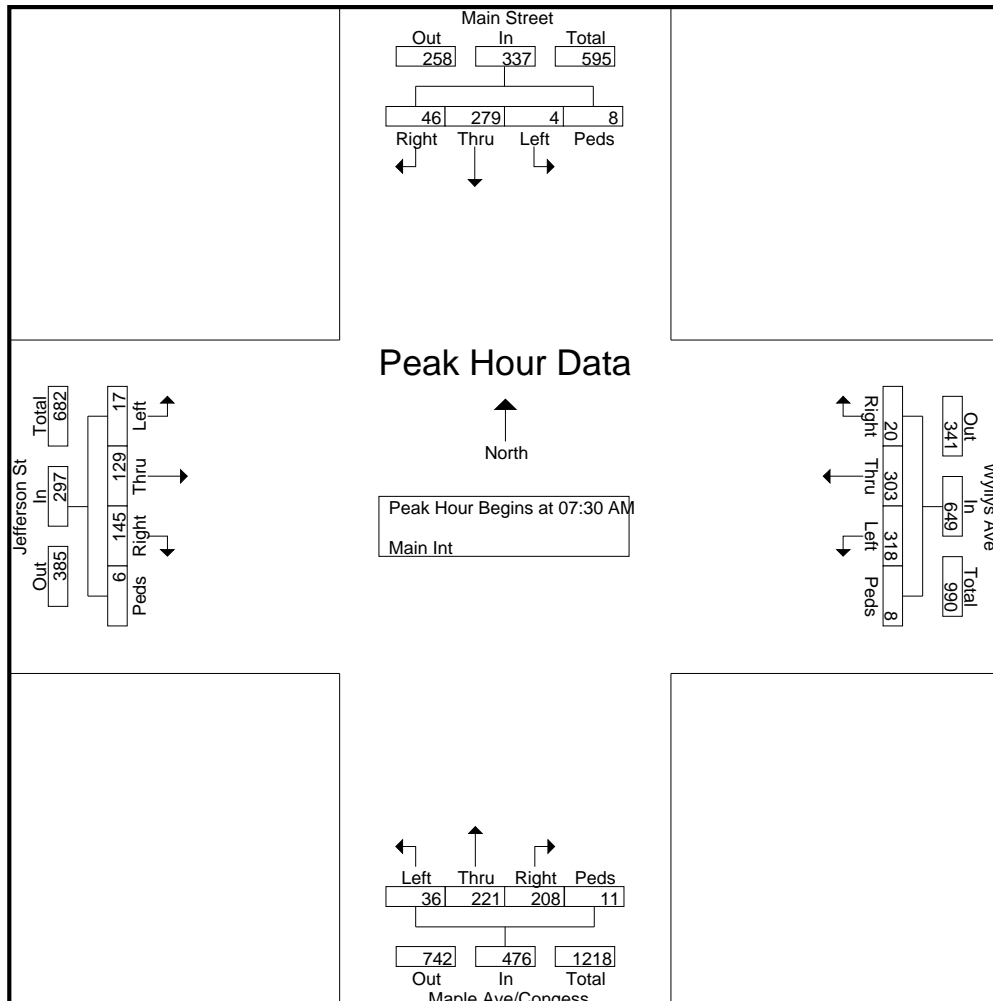
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23035  
Site Code : 23035  
Start Date : 5/12/2022  
Page No : 2

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	13	82	1	1	97	3	86	90	1	180	67	62	3	1	133	37	32	5	0	74	484
07:45 AM	10	79	2	2	93	6	83	79	2	170	51	52	10	3	116	39	39	5	2	85	464
08:00 AM	16	62	1	5	84	3	66	79	4	152	42	53	14	5	114	33	31	4	3	71	421
08:15 AM	7	56	0	0	63	8	68	70	1	147	48	54	9	2	113	36	27	3	1	67	390
Total Volume	46	279	4	8	337	20	303	318	8	649	208	221	36	11	476	145	129	17	6	297	1759
% App. Total	13.6	82.8	1.2	2.4		3.1	46.7	49	1.2		43.7	46.4	7.6	2.3		48.8	43.4	5.7	2		
PHF	.719	.851	.500	.400	.869	.625	.881	.883	.500	.901	.776	.891	.643	.550	.895	.929	.827	.850	.500	.874	.909



# Connecticut Counts LLC

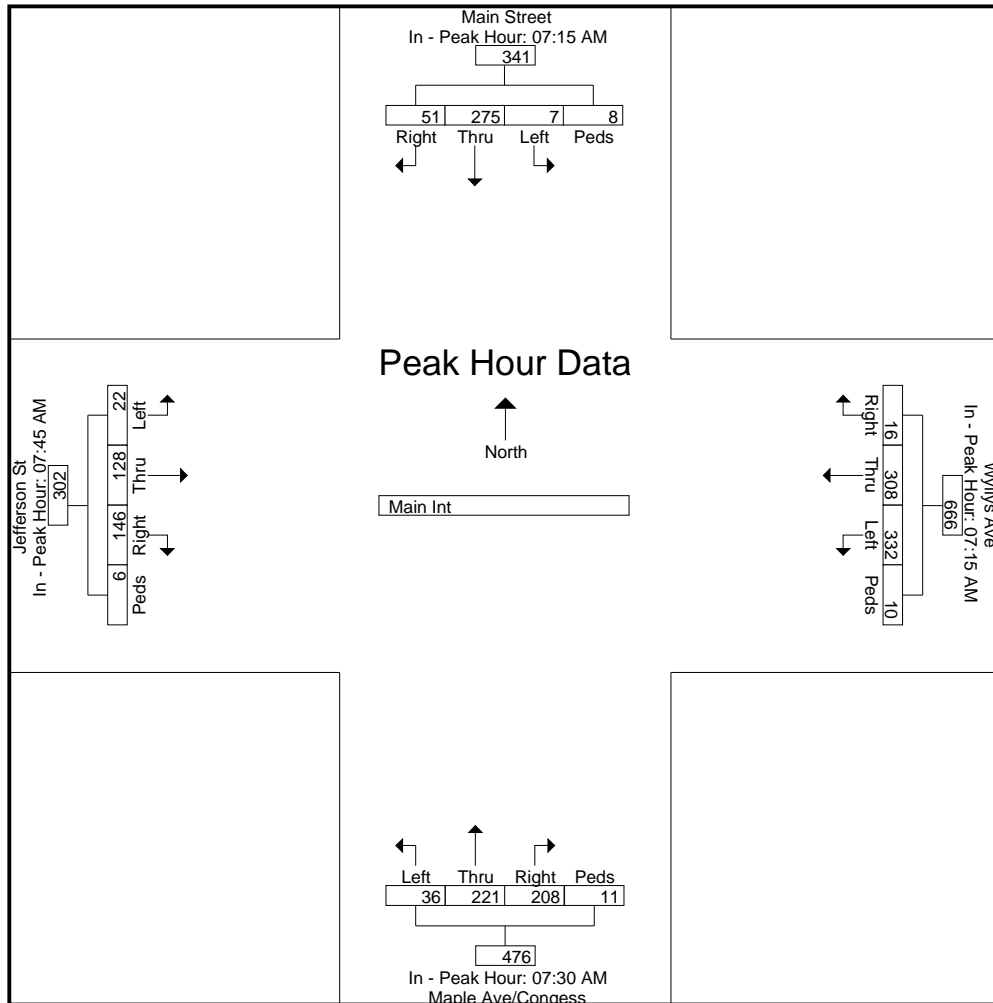
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23035  
 Site Code : 23035  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:30 AM					07:45 AM				
+0 mins.	12	52	3	0	67	4	73	84	3	164	67	62	3	1	133	39	39	5	2	85
+15 mins.	13	82	1	1	97	3	86	90	1	180	51	52	10	3	116	33	31	4	3	71
+30 mins.	10	79	2	2	93	6	83	79	2	170	42	53	14	5	114	36	27	3	1	67
+45 mins.	16	62	1	5	84	3	66	79	4	152	48	54	9	2	113	38	31	10	0	79
Total Volume	51	275	7	8	341	16	308	332	10	666	208	221	36	11	476	146	128	22	6	302
% App. Total	15	80.6	2.1	2.3		2.4	46.2	49.8	1.5		43.7	46.4	7.6	2.3		48.3	42.4	7.3	2	
PHF	.797	.838	.583	.400	.879	.667	.895	.922	.625	.925	.776	.891	.643	.550	.895	.936	.821	.550	.500	.888



Main St/Maple at Jefferson St - TMC

Wed Mar 11, 2020

Full Length (7:30 AM-9:30 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760200, Location: 41.755403, -72.676512

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US

Leg Direction	Main St Southbound								Jefferson St Westbound								Congress St Northwestbound	
	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*	App	Ped*		
2020-03-11 7:30AM	10	49	0	0	0	59	0	5	67	91	1	0	164	0	0	3		
7:45AM	6	67	0	0	0	73	1	7	69	89	0	0	165	1	0	4		
Hourly Total	16	116	0	0	0	132	1	12	136	180	1	0	329	1	0	7		
8:00AM	10	55	0	2	0	67	2	9	57	103	0	0	169	0	0	2		
8:15AM	11	47	0	1	0	59	0	5	81	93	0	0	179	0	0	3		
8:30AM	14	34	1	1	0	50	0	9	42	79	1	0	131	0	0	0		
8:45AM	7	49	0	2	0	58	0	9	68	98	1	0	176	0	0	2		
Hourly Total	42	185	1	6	0	234	2	32	248	373	2	0	655	0	0	7		
9:00AM	4	53	0	3	0	60	1	11	57	65	0	0	133	0	0	3		
9:15AM	10	35	3	5	0	53	1	9	68	65	0	0	142	0	0	0		
Hourly Total	14	88	3	8	0	113	2	20	125	130	0	0	275	0	0	3		
<b>Total</b>	72	389	4	14	0	479	5	64	509	683	3	0	1259	1	0	17		
<b>% Approach</b>	15.0%	81.2%	0.8%	2.9%	0%	-	-	5.1%	40.4%	54.2%	0.2%	0%	-	-	-	-		
<b>% Total</b>	2.0%	10.8%	0.1%	0.4%	0%	13.4%	-	1.8%	14.2%	19.0%	0.1%	0%	35.1%	-	0%	-		
<b>Lights</b>	62	342	4	14	0	422	-	63	486	659	3	0	1211	-	0	-		
<b>% Lights</b>	86.1%	87.9%	100%	100%	0%	88.1%	-	98.4%	95.5%	96.5%	100%	0%	96.2%	-	-	-		
<b>Articulated Trucks and Single-Unit Trucks</b>	4	5	0	0	0	9	-	0	6	5	0	0	11	-	0	-		
<b>% Articulated Trucks and Single-Unit Trucks</b>	5.6%	1.3%	0%	0%	0%	1.9%	-	0%	1.2%	0.7%	0%	0%	0.9%	-	-	-		
<b>Buses</b>	6	42	0	0	0	48	-	1	17	19	0	0	37	-	0	-		
<b>% Buses</b>	8.3%	10.8%	0%	0%	0%	10.0%	-	1.6%	3.3%	2.8%	0%	0%	2.9%	-	-	-		
Pedestrians	-	-	-	-	-	-	5	-	-	-	-	-	-	1	-	17		
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	100%		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	0%		

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn



Main St/Maple at Jefferson St - TMC

Wed Mar 11, 2020

Full Length (7:30 AM-9:30 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760200, Location: 41.755403, -72.676512

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US

Leg Direction	Maple Ave Northbound							Wyllys St Eastbound							
Time	HR	R	T	L	U	App	Ped*	R	BR	T	L	U	App	Ped*	Int
2020-03-11 7:30AM	1	85	64	18	0	168	1	38	3	25	6	0	72	0	463
7:45AM	0	83	64	26	0	173	3	33	1	39	5	0	78	1	489
Hourly Total	1	168	128	44	0	341	4	71	4	64	11	0	150	1	952
8:00AM	0	75	99	28	0	202	3	54	2	27	3	0	86	1	524
8:15AM	0	46	82	30	0	158	4	39	3	34	5	0	81	1	477
8:30AM	1	50	79	23	0	153	3	27	4	40	4	0	75	1	409
8:45AM	3	51	79	26	0	159	5	36	3	25	5	0	69	1	462
Hourly Total	4	222	339	107	0	672	15	156	12	126	17	0	311	4	1872
9:00AM	1	34	73	16	0	124	1	35	2	31	5	0	73	2	390
9:15AM	2	36	61	25	0	124	2	32	0	21	2	0	55	2	374
Hourly Total	3	70	134	41	0	248	3	67	2	52	7	0	128	4	764
<b>Total</b>	8	460	601	192	0	1261	22	294	18	242	35	0	589	9	3588
<b>% Approach</b>	0.6%	36.5%	47.7%	15.2%	0%	-	-	49.9%	3.1%	41.1%	5.9%	0%	-	-	-
<b>% Total</b>	0.2%	12.8%	16.8%	5.4%	0%	35.1%	-	8.2%	0.5%	6.7%	1.0%	0%	16.4%	-	-
<b>Lights</b>	7	441	555	186	0	1189	-	278	15	221	31	0	545	-	3367
<b>% Lights</b>	87.5%	95.9%	92.3%	96.9%	0%	94.3%	-	94.6%	83.3%	91.3%	88.6%	0%	92.5%	-	93.8%
<b>Articulated Trucks and Single-Unit Trucks</b>	0	4	5	2	0	11	-	6	1	4	0	0	11	-	42
<b>% Articulated Trucks and Single-Unit Trucks</b>	0%	0.9%	0.8%	1.0%	0%	0.9%	-	2.0%	5.6%	1.7%	0%	0%	1.9%	-	1.2%
<b>Buses</b>	1	15	41	4	0	61	-	10	2	17	4	0	33	-	179
<b>% Buses</b>	12.5%	3.3%	6.8%	2.1%	0%	4.8%	-	3.4%	11.1%	7.0%	11.4%	0%	5.6%	-	5.0%
Pedestrians	-	-	-	-	-	-	22	-	-	-	-	-	-	-	9
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%

\* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Main St/Maple at Jefferson St - TMC**

Wed Mar 11, 2020

Full Length (7:30 AM-9:30 AM)

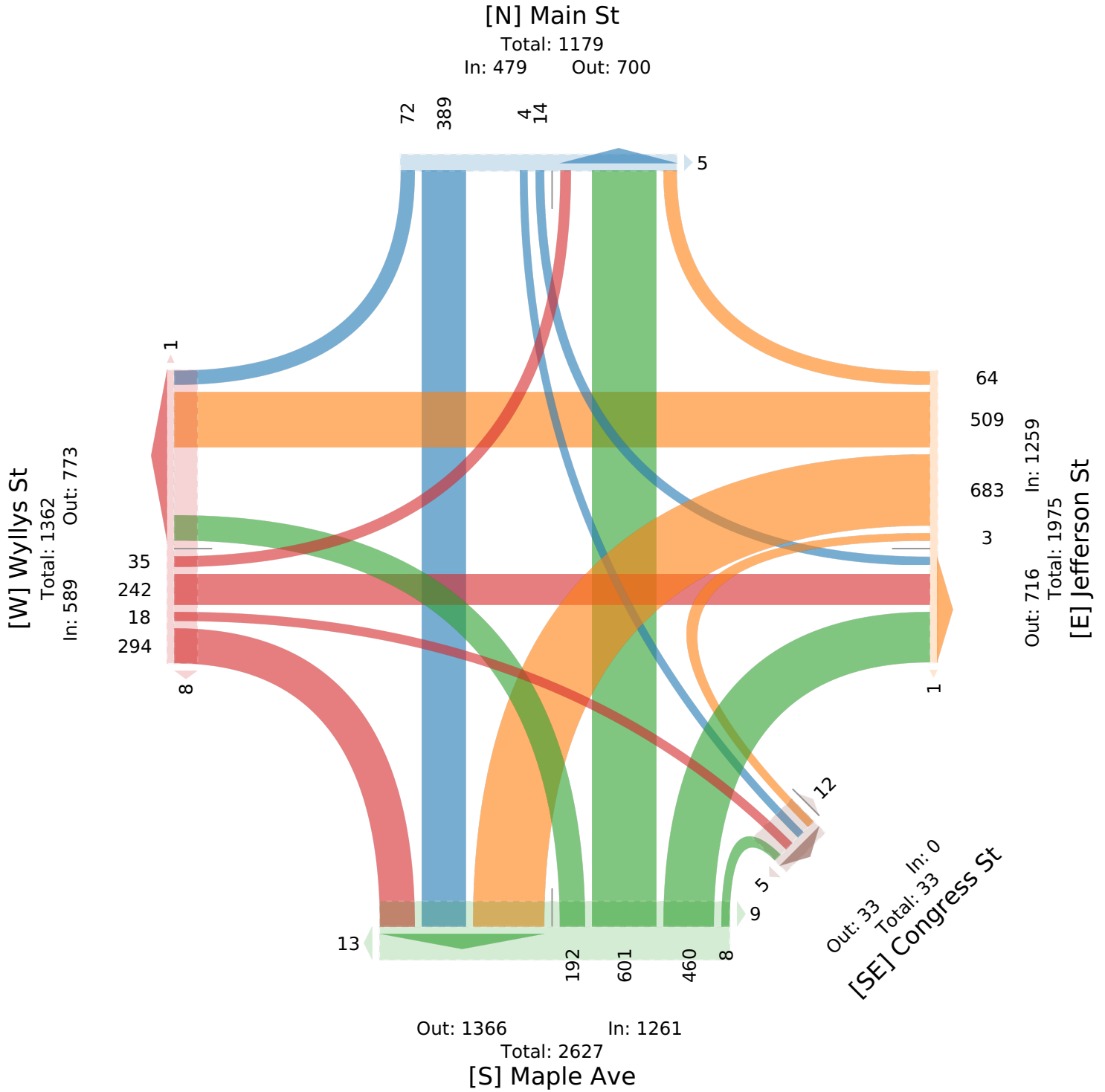
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760200, Location: 41.755403, -72.676512

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US



Main St/Maple at Jefferson St - TMC

Wed Mar 11, 2020

AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760200, Location: 41.755403, -72.676512

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US

Leg Direction	Main St Southbound							Jefferson St Westbound							Congress St Northwestbound	
	R	T	BL	L	U	App	Ped*	R	T	L	HL	U	App	Ped*	App	Ped*
2020-03-11 7:30AM	10	49	0	0	0	59	0	5	67	91	1	0	164	0	0	3
7:45AM	6	67	0	0	0	73	1	7	69	89	0	0	165	1	0	4
8:00AM	10	55	0	2	0	67	2	9	57	103	0	0	169	0	0	2
8:15AM	11	47	0	1	0	59	0	5	81	93	0	0	179	0	0	3
<b>Total</b>	37	218	0	3	0	258	3	26	274	376	1	0	677	1	0	12
<b>% Approach</b>	14.3%	84.5%	0%	1.2%	0%	-	-	3.8%	40.5%	55.5%	0.1%	0%	-	-	-	-
<b>% Total</b>	1.9%	11.2%	0%	0.2%	0%	13.2%	-	1.3%	14.0%	19.3%	0.1%	0%	34.7%	-	0%	-
<b>PHF</b>	0.841	0.813	-	0.375	-	0.884	-	0.722	0.846	0.913	0.250	-	0.946	-	-	-
<b>Lights</b>	31	190	0	3	0	224	-	25	259	357	1	0	642	-	0	-
<b>% Lights</b>	83.8%	87.2%	0%	100%	0%	86.8%	-	96.2%	94.5%	94.9%	100%	0%	94.8%	-	-	-
<b>Articulated Trucks and Single-Unit Trucks</b>	1	3	0	0	0	4	-	0	4	2	0	0	6	-	0	-
<b>% Articulated Trucks and Single-Unit Trucks</b>	2.7%	1.4%	0%	0%	0%	1.6%	-	0%	1.5%	0.5%	0%	0%	0.9%	-	-	-
<b>Buses</b>	5	25	0	0	0	30	-	1	11	17	0	0	29	-	0	-
<b>% Buses</b>	13.5%	11.5%	0%	0%	0%	11.6%	-	3.8%	4.0%	4.5%	0%	0%	4.3%	-	-	-
Pedestrians	-	-	-	-	-	-	3	-	-	-	-	-	-	1	-	12
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	100%
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	0%

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Main St/Maple at Jefferson St - TMC

Wed Mar 11, 2020

AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760200, Location: 41.755403, -72.676512

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US

Leg Direction	Maple Ave Northbound							Wyllys St Eastbound							Int
	HR	R	T	L	U	App	Ped*	R	BR	T	L	U	App	Ped*	
Time															
2020-03-11 7:30AM	1	85	64	18	0	168	1	38	3	25	6	0	72	0	463
7:45AM	0	83	64	26	0	173	3	33	1	39	5	0	78	1	489
8:00AM	0	75	99	28	0	202	3	54	2	27	3	0	86	1	524
8:15AM	0	46	82	30	0	158	4	39	3	34	5	0	81	1	477
<b>Total</b>	1	289	309	102	0	701	11	164	9	125	19	0	317	3	1953
<b>% Approach</b>	0.1%	41.2%	44.1%	14.6%	0%	-	-	51.7%	2.8%	39.4%	6.0%	0%	-	-	-
<b>% Total</b>	0.1%	14.8%	15.8%	5.2%	0%	35.9%	-	8.4%	0.5%	6.4%	1.0%	0%	16.2%	-	-
<b>PHF</b>	0.250	0.850	0.780	0.850	-	0.868	-	0.759	0.750	0.801	0.792	-	0.922	-	0.932
<b>Lights</b>	0	280	285	98	0	663	-	155	7	115	16	0	293	-	1822
<b>% Lights</b>	0%	96.9%	92.2%	96.1%	0%	94.6%	-	94.5%	77.8%	92.0%	84.2%	0%	92.4%	-	93.3%
<b>Articulated Trucks and Single-Unit Trucks</b>	0	2	2	0	0	4	-	2	1	1	0	0	4	-	18
<b>% Articulated Trucks and Single-Unit Trucks</b>	0%	0.7%	0.6%	0%	0%	0.6%	-	1.2%	11.1%	0.8%	0%	0%	1.3%	-	0.9%
<b>Buses</b>	1	7	22	4	0	34	-	7	1	9	3	0	20	-	113
<b>% Buses</b>	100%	2.4%	7.1%	3.9%	0%	4.9%	-	4.3%	11.1%	7.2%	15.8%	0%	6.3%	-	5.8%
<b>Pedestrians</b>	-	-	-	-	-	-	11	-	-	-	-	-	-	3	-
<b>% Pedestrians</b>	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
<b>% Bicycles on Crosswalk</b>	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Main St/Maple at Jefferson St - TMC**

Wed Mar 11, 2020

AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

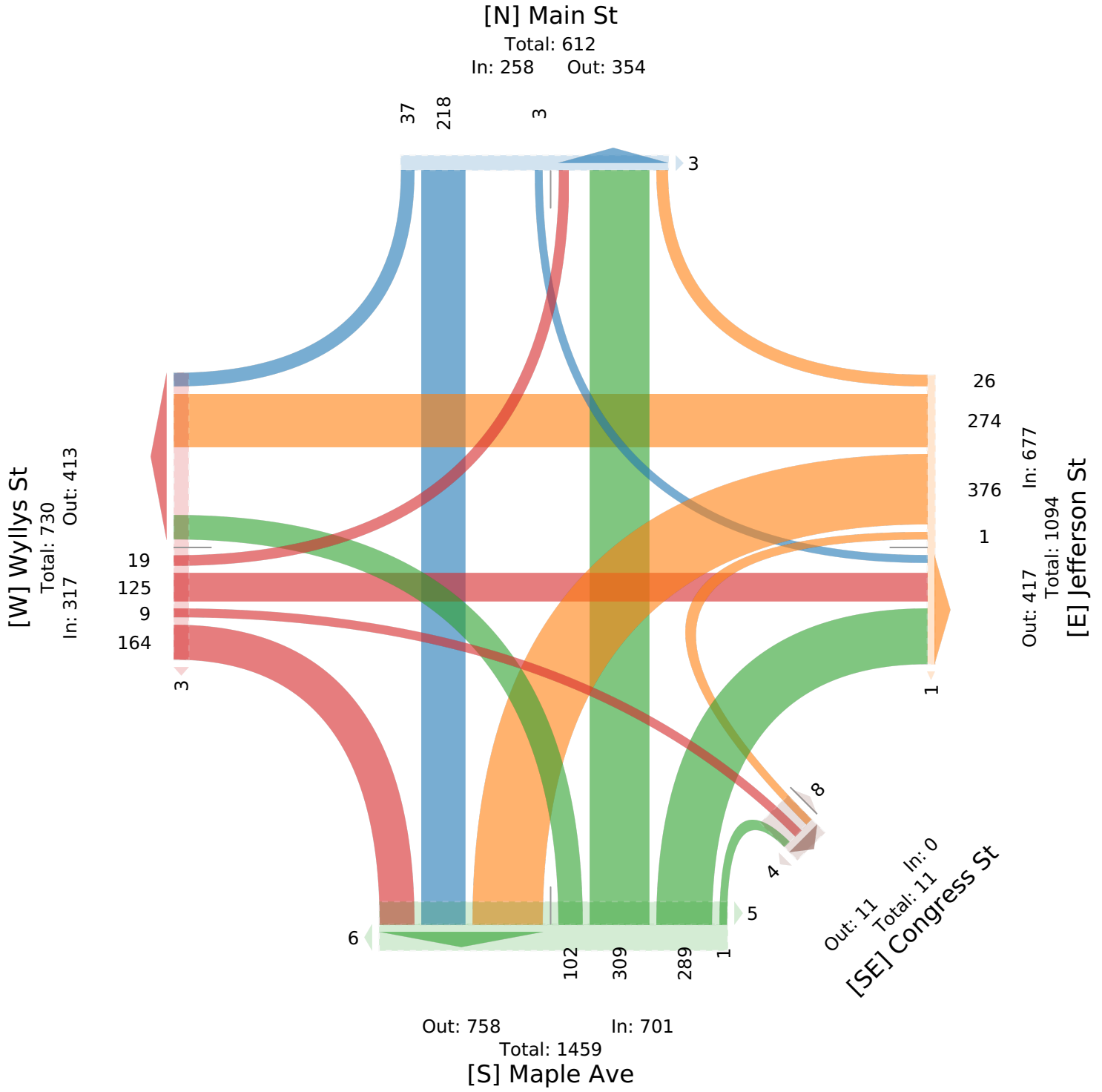
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 760200, Location: 41.755403, -72.676512

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,  
Kensington, CT, 12345, US



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Main/Maple at Jefferson/Wyllys/Congress  
Hartford, Connecticut

File Name : 23036  
Site Code : 23036  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Congress St

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congress From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	1	0	0	1	0	0	1	0	1	2	0	0	0	2	7	0	0	0	7	11
04:15 PM	0	5	1	0	6	0	0	1	3	4	1	0	0	2	3	4	0	0	0	4	17
04:30 PM	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	2	0	0	0	2	6
04:45 PM	0	2	0	0	2	0	0	1	0	1	2	0	0	0	2	4	0	0	0	4	9
Total	0	9	1	0	10	0	0	5	3	8	6	0	0	2	8	17	0	0	0	17	43
05:00 PM	0	3	0	0	3	0	0	5	1	6	2	0	0	2	4	2	0	0	0	2	15
05:15 PM	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	2	0	0	0	2	6
05:30 PM	0	1	0	0	1	0	0	1	0	1	2	0	0	1	3	2	0	0	0	2	7
05:45 PM	0	3	0	0	3	0	0	1	0	1	2	0	0	0	2	1	0	0	0	1	7
Total	0	9	0	0	9	0	0	9	1	10	6	0	0	3	9	7	0	0	0	7	35
Grand Total	0	18	1	0	19	0	0	14	4	18	12	0	0	5	17	24	0	0	0	24	78
Apprch %	0	94.7	5.3	0		0	0	77.8	22.2		70.6	0	0	29.4		100	0	0	0		
Total %	0	23.1	1.3	0	24.4	0	0	17.9	5.1	23.1	15.4	0	0	6.4	21.8	30.8	0	0	0	30.8	

# Connecticut Counts LLC

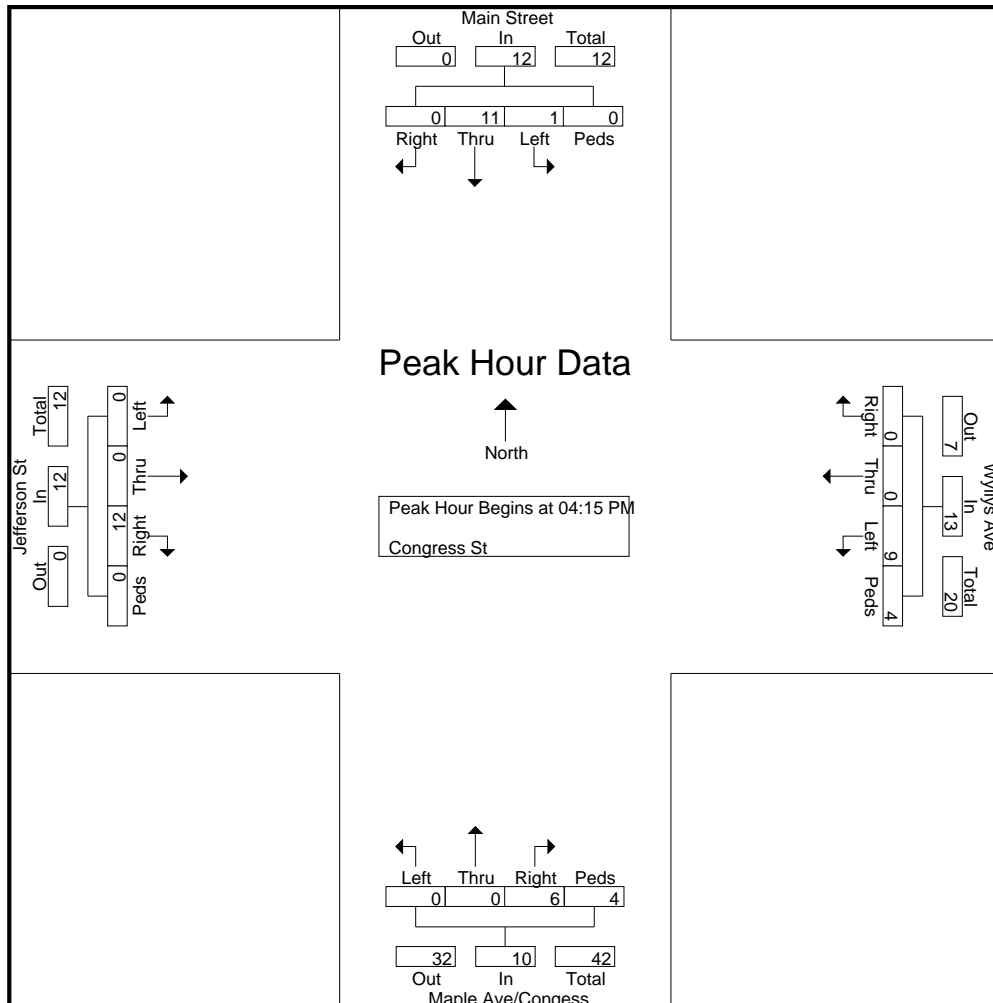
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23036  
 Site Code : 23036  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	0	5	1	0	6	0	0	1	3	4	1	0	0	2	3	4	0	0	0	4	17
04:30 PM	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	2	0	0	0	2	6
04:45 PM	0	2	0	0	2	0	0	1	0	1	2	0	0	0	2	4	0	0	0	4	9
05:00 PM	0	3	0	0	3	0	0	5	1	6	2	0	0	2	4	2	0	0	0	2	15
Total Volume	0	11	1	0	12	0	0	9	4	13	6	0	0	4	10	12	0	0	0	12	47
% App. Total	0	91.7	8.3	0		0	0	69.2	30.8		60	0	0	40		100	0	0	0		
PHF	.000	.550	.250	.000	.500	.000	.000	.450	.333	.542	.750	.000	.000	.500	.625	.750	.000	.000	.000	.750	.691



# Connecticut Counts LLC

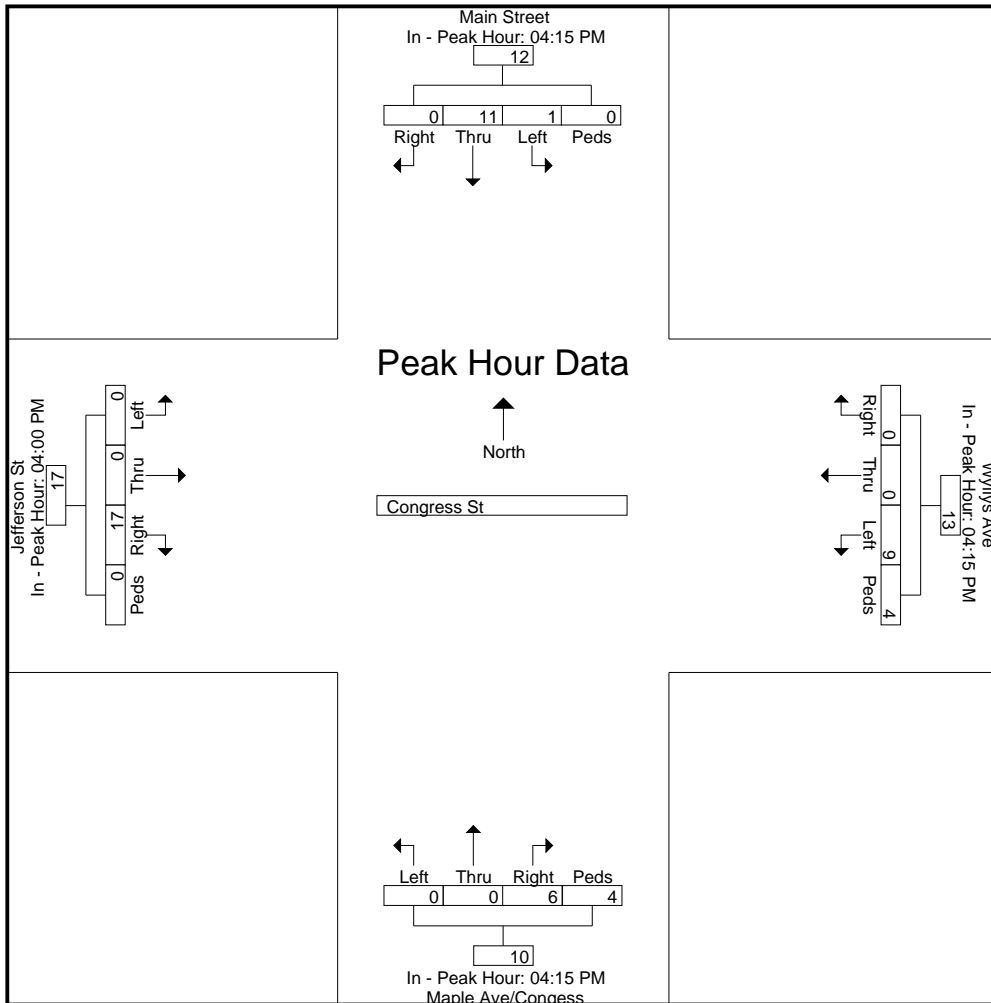
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23036  
 Site Code : 23036  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congress From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:15 PM					04:15 PM					04:15 PM					04:00 PM				
+0 mins.	0	5	1	0	6	0	0	1	3	4	1	0	0	2	3	7	0	0	0	7
+15 mins.	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	4	0	0	0	4
+30 mins.	0	2	0	0	2	0	0	1	0	1	2	0	0	0	2	2	0	0	0	2
+45 mins.	0	3	0	0	3	0	0	5	1	6	2	0	0	2	4	4	0	0	0	4
Total Volume	0	11	1	0	12	0	0	9	4	13	6	0	0	4	10	17	0	0	0	17
% App. Total	0	91.7	8.3	0		0	0	69.2	30.8		60	0	0	40		100	0	0	0	
PHF	.000	.550	.250	.000	.500	.000	.000	.450	.333	.542	.750	.000	.000	.500	.625	.607	.000	.000	.000	.607





**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Main/Maple at Jefferson/Wyllys/Congress  
Hartford, Connecticut

File Name : 23036  
Site Code : 23036  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Main Int

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congress From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	8	59	2	1	70	8	64	54	0	126	65	112	20	5	202	45	79	10	2	136	534
04:15 PM	12	77	3	0	92	6	31	49	0	86	69	127	19	2	217	38	68	4	0	110	505
04:30 PM	9	55	8	0	72	17	58	62	2	139	90	127	18	3	238	43	57	15	2	117	566
04:45 PM	7	74	1	0	82	20	42	79	0	141	79	107	28	4	218	37	61	12	1	111	552
Total	36	265	14	1	316	51	195	244	2	492	303	473	85	14	875	163	265	41	5	474	2157
05:00 PM	4	84	2	3	93	8	61	59	2	130	66	132	26	2	226	54	60	7	1	122	571
05:15 PM	4	58	2	2	66	10	54	80	0	144	59	105	19	7	190	34	58	7	1	100	500
05:30 PM	4	74	2	1	81	15	39	72	1	127	74	103	22	2	201	28	54	10	0	92	501
05:45 PM	3	54	3	0	60	11	59	58	1	129	57	73	18	1	149	33	43	8	0	84	422
Total	15	270	9	6	300	44	213	269	4	530	256	413	85	12	766	149	215	32	2	398	1994
Grand Total	51	535	23	7	616	95	408	513	6	1022	559	886	170	26	1641	312	480	73	7	872	4151
Apprch %	8.3	86.9	3.7	1.1		9.3	39.9	50.2	0.6		34.1	54	10.4	1.6		35.8	55	8.4	0.8		
Total %	1.2	12.9	0.6	0.2	14.8	2.3	9.8	12.4	0.1	24.6	13.5	21.3	4.1	0.6	39.5	7.5	11.6	1.8	0.2	21	

# Connecticut Counts LLC

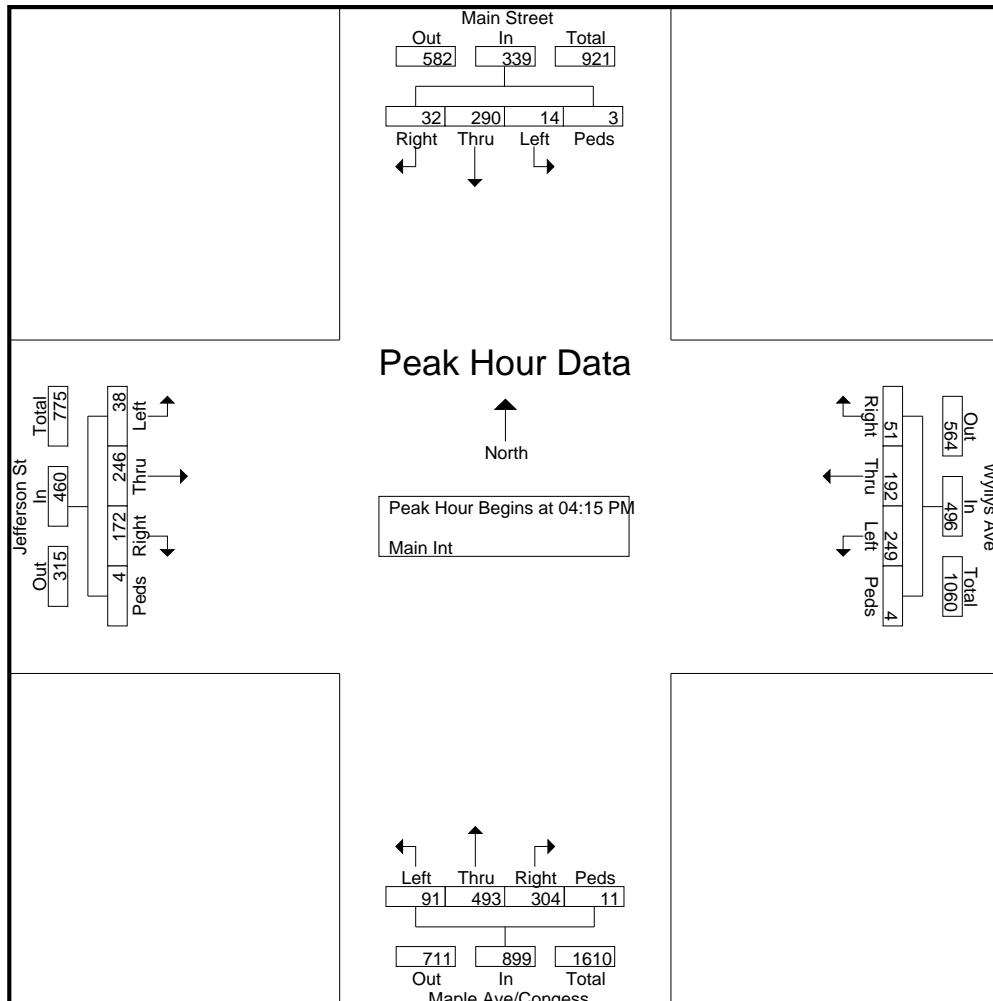
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23036  
 Site Code : 23036  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	12	77	3	0	92	6	31	49	0	86	69	127	19	2	217	38	68	4	0	110	505
04:30 PM	9	55	8	0	72	17	58	62	2	139	90	127	18	3	238	43	57	15	2	117	566
04:45 PM	7	74	1	0	82	20	42	79	0	141	79	107	28	4	218	37	61	12	1	111	552
05:00 PM	4	84	2	3	93	8	61	59	2	130	66	132	26	2	226	54	60	7	1	122	571
Total Volume	32	290	14	3	339	51	192	249	4	496	304	493	91	11	899	172	246	38	4	460	2194
% App. Total	9.4	85.5	4.1	0.9		10.3	38.7	50.2	0.8		33.8	54.8	10.1	1.2		37.4	53.5	8.3	0.9		
PHF	.667	.863	.438	.250	.911	.638	.787	.788	.500	.879	.844	.934	.813	.688	.944	.796	.904	.633	.500	.943	.961



# Connecticut Counts LLC

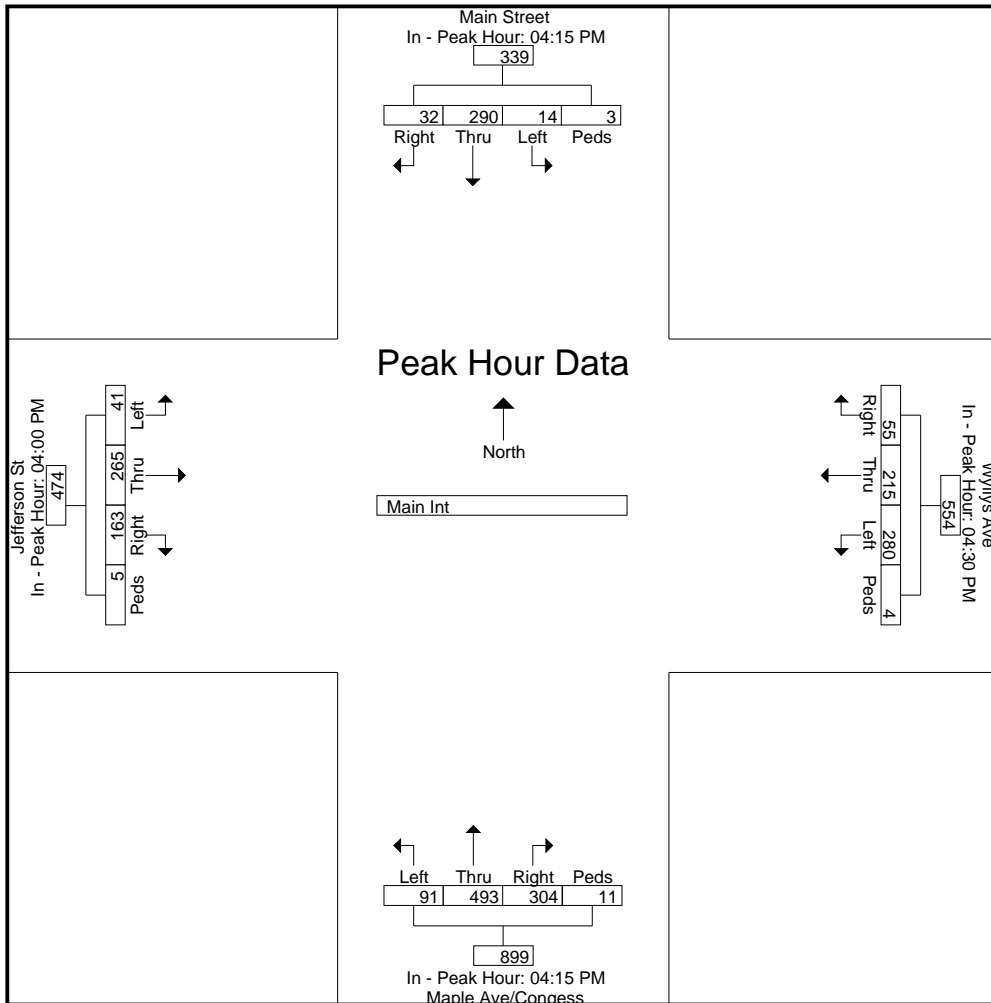
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23036  
 Site Code : 23036  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Main Street From North					Wyllys Ave From East					Maple Ave/Congess From South					Jefferson St From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:15 PM					04:30 PM					04:15 PM					04:00 PM				
+0 mins.	12	77	3	0	92	17	58	62	2	139	69	127	19	2	217	45	79	10	2	136
+15 mins.	9	55	8	0	72	20	42	79	0	141	90	127	18	3	238	38	68	4	0	110
+30 mins.	7	74	1	0	82	8	61	59	2	130	79	107	28	4	218	43	57	15	2	117
+45 mins.	4	84	2	3	93	10	54	80	0	144	66	132	26	2	226	37	61	12	1	111
Total Volume	32	290	14	3	339	55	215	280	4	554	304	493	91	11	899	163	265	41	5	474
% App. Total	9.4	85.5	4.1	0.9		9.9	38.8	50.5	0.7		33.8	54.8	10.1	1.2		34.4	55.9	8.6	1.1	
PHF	.667	.863	.438	.250	.911	.688	.881	.875	.500	.962	.844	.934	.813	.688	.944	.906	.839	.683	.625	.871



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Wyllys St at Main St/Wethersfield Ave  
Hartford, Connecticut

File Name : 23039  
Site Code : 23039  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - buses

Start Time	Main Street From North					Wyllys Avenue From East					Wethersfield Avenue From South					Wyllys Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	14	2	0	16	4	116	7	3	130	34	45	14	4	97	2	41	10	5	58	301
07:15 AM	0	29	4	0	33	3	138	11	3	155	22	48	24	1	95	5	56	0	5	66	349
07:30 AM	1	35	4	0	40	13	143	13	3	172	37	49	32	2	120	9	96	2	17	124	456
07:45 AM	2	39	6	1	48	3	134	3	0	140	30	44	33	1	108	9	77	1	6	93	389
Total	3	117	16	1	137	23	531	34	9	597	123	186	103	8	420	25	270	13	33	341	1495
08:00 AM	1	51	7	0	59	8	136	8	6	158	40	55	15	2	112	15	64	0	19	98	427
08:15 AM	0	51	14	0	65	4	120	21	2	147	34	67	38	1	140	10	50	1	6	67	419
08:30 AM	1	51	9	0	61	8	127	17	5	157	30	57	39	1	127	12	79	0	10	101	446
08:45 AM	2	38	8	0	48	5	103	20	2	130	26	70	37	2	135	15	55	2	3	75	388
Total	4	191	38	0	233	25	486	66	15	592	130	249	129	6	514	52	248	3	38	341	1680
Grand Total	7	308	54	1	370	48	1017	100	24	1189	253	435	232	14	934	77	518	16	71	682	3175
Apprch %	1.9	83.2	14.6	0.3		4	85.5	8.4	2		27.1	46.6	24.8	1.5		11.3	76	2.3	10.4		
Total %	0.2	9.7	1.7	0	11.7	1.5	32	3.1	0.8	37.4	8	13.7	7.3	0.4	29.4	2.4	16.3	0.5	2.2	21.5	
Lights	7	285	46	1	339	47	985	98	24	1154	232	400	221	14	867	71	499	15	71	656	3016
% Lights	100	92.5	85.2	100	91.6	97.9	96.9	98	100	97.1	91.7	92	95.3	100	92.8	92.2	96.3	93.8	100	96.2	95
Trucks	0	1	2	0	3	0	8	1	0	9	1	5	3	0	9	1	3	0	0	4	25
% Trucks	0	0.3	3.7	0	0.8	0	0.8	1	0	0.8	0.4	1.1	1.3	0	1	1.3	0.6	0	0	0.6	0.8
buses	0	22	6	0	28	1	24	1	0	26	20	30	8	0	58	5	16	1	0	22	134
% buses	0	7.1	11.1	0	7.6	2.1	2.4	1	0	2.2	7.9	6.9	3.4	0	6.2	6.5	3.1	6.2	0	3.2	4.2

# Connecticut Counts LLC

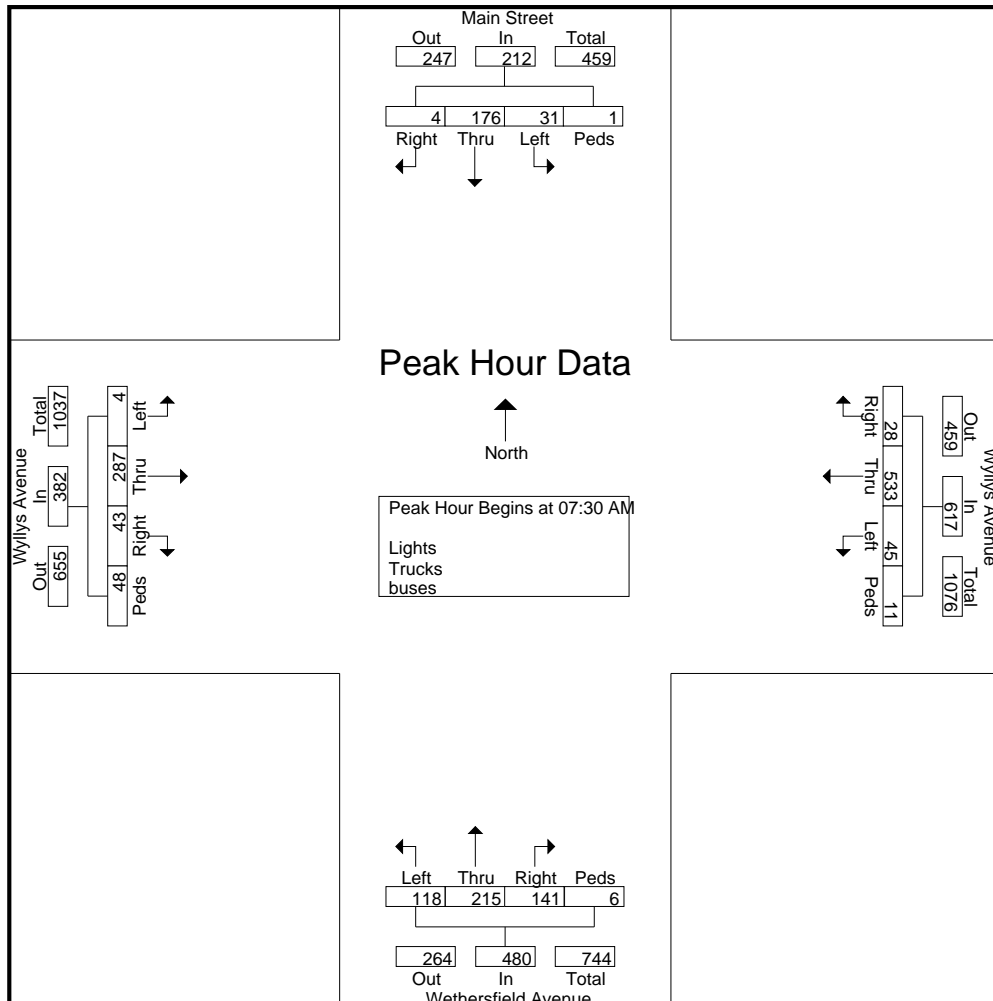
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23039  
 Site Code : 23039  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Main Street From North					Wyllys Avenue From East					Wethersfield Avenue From South					Wyllys Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	1	35	4	0	40	13	143	13	3	172	37	49	32	2	120	9	96	2	17	124	456
07:45 AM	2	39	6	1	48	3	134	3	0	140	30	44	33	1	108	9	77	1	6	93	389
08:00 AM	1	51	7	0	59	8	136	8	6	158	40	55	15	2	112	15	64	0	19	98	427
08:15 AM	0	51	14	0	65	4	120	21	2	147	34	67	38	1	140	10	50	1	6	67	419
Total Volume	4	176	31	1	212	28	533	45	11	617	141	215	118	6	480	43	287	4	48	382	1691
% App. Total	1.9	83	14.6	0.5		4.5	86.4	7.3	1.8		29.4	44.8	24.6	1.2		11.3	75.1	1	12.6		
PHF	.500	.863	.554	.250	.815	.538	.932	.536	.458	.897	.881	.802	.776	.750	.857	.717	.747	.500	.632	.770	.927



# Connecticut Counts LLC

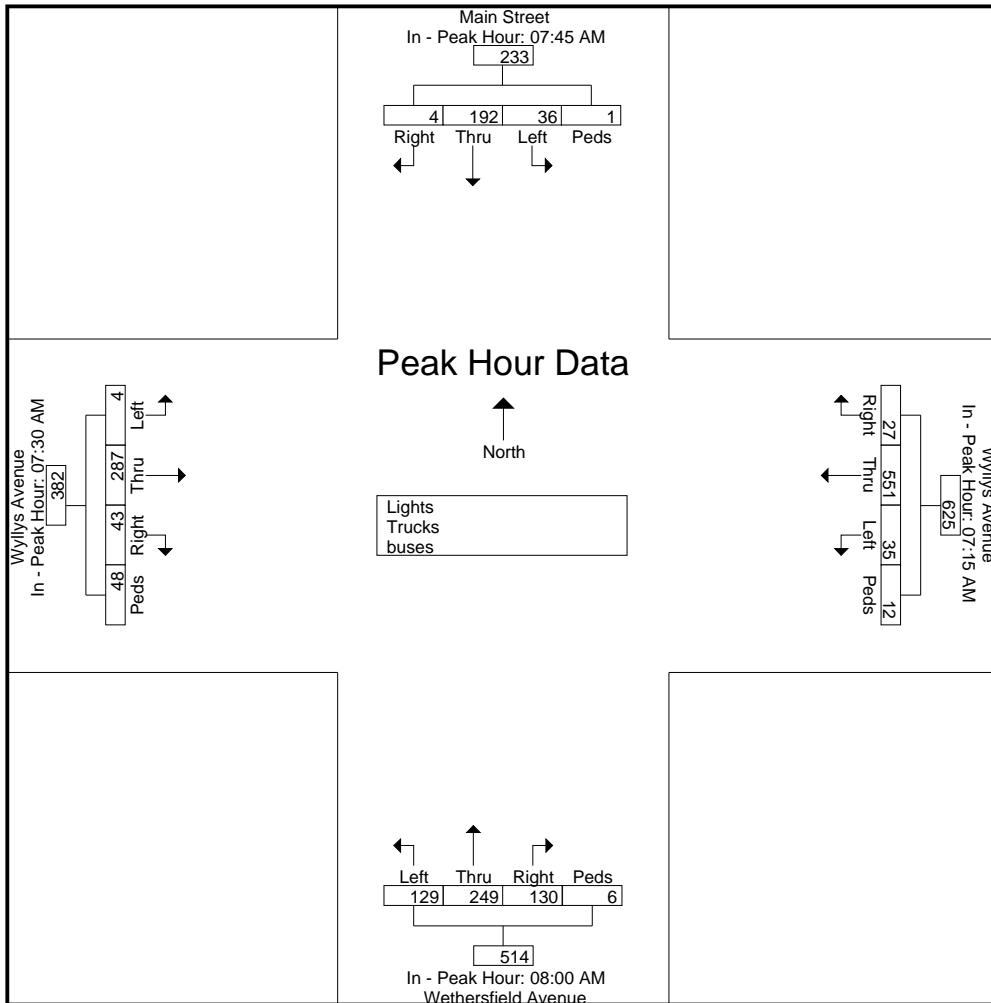
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23039  
Site Code : 23039  
Start Date : 5/12/2022  
Page No : 3

Start Time	Main Street From North					Wyllys Avenue From East					Wethersfield Avenue From South					Wyllys Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	07:45 AM					07:15 AM					08:00 AM					07:30 AM				
+0 mins.	2	39	6	1	48	3	138	11	3	155	40	55	15	2	112	9	96	2	17	124
+15 mins.	1	51	7	0	59	13	143	13	3	172	34	67	38	1	140	9	77	1	6	93
+30 mins.	0	51	14	0	65	3	134	3	0	140	30	57	39	1	127	15	64	0	19	98
+45 mins.	1	51	9	0	61	8	136	8	6	158	26	70	37	2	135	10	50	1	6	67
Total Volume	4	192	36	1	233	27	551	35	12	625	130	249	129	6	514	43	287	4	48	382
% App. Total	1.7	82.4	15.5	0.4		4.3	88.2	5.6	1.9		25.3	48.4	25.1	1.2		11.3	75.1	1	12.6	
PHF	.500	.941	.643	.250	.896	.519	.963	.673	.500	.908	.813	.889	.827	.750	.918	.717	.747	.500	.632	.770



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Wyllys St at Main St/Wethersfield Ave  
Hartford, Connecticut

File Name : 23040  
Site Code : 23040  
Start Date : 5/12/2022  
Page No : 1

Groups Printed- Lights - Trucks - buses

Start Time	Main Street From North					Wyllys Avenue From East					Wethersfield Avenue From South					Wyllys Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	3	55	7	2	67	5	101	22	2	130	29	74	35	1	139	23	141	0	10	174	510
04:15 PM	2	73	12	0	87	4	82	27	1	114	36	56	30	3	125	16	109	3	17	145	471
04:30 PM	1	42	9	0	52	4	88	22	3	117	46	71	31	4	152	18	163	3	17	201	522
04:45 PM	2	61	7	1	71	3	114	29	3	149	38	56	40	3	137	12	113	2	16	143	500
Total	8	231	35	3	277	16	385	100	9	510	149	257	136	11	553	69	526	8	60	663	2003
05:00 PM	4	48	9	0	61	6	88	22	2	118	36	58	37	8	139	14	127	0	7	148	466
05:15 PM	2	75	7	2	86	6	114	29	7	156	31	59	31	1	122	25	106	2	15	148	512
05:30 PM	3	75	7	3	88	3	89	13	2	107	36	58	42	10	146	23	95	1	15	134	475
05:45 PM	2	47	7	0	56	4	91	27	0	122	26	40	32	2	100	16	93	4	18	131	409
Total	11	245	30	5	291	19	382	91	11	503	129	215	142	21	507	78	421	7	55	561	1862
Grand Total	19	476	65	8	568	35	767	191	20	1013	278	472	278	32	1060	147	947	15	115	1224	3865
Apprch %	3.3	83.8	11.4	1.4		3.5	75.7	18.9	2		26.2	44.5	26.2	3		12	77.4	1.2	9.4		
Total %	0.5	12.3	1.7	0.2	14.7	0.9	19.8	4.9	0.5	26.2	7.2	12.2	7.2	0.8	27.4	3.8	24.5	0.4	3	31.7	
Lights	19	462	62	8	551	34	756	190	20	1000	269	459	275	28	1031	144	931	14	113	1202	3784
% Lights	100	97.1	95.4	100	97	97.1	98.6	99.5	100	98.7	96.8	97.2	98.9	87.5	97.3	98	98.3	93.3	98.3	98.2	97.9
Trucks	0	1	0	0	1	0	2	0	0	2	1	0	0	4	5	1	2	1	2	6	14
% Trucks	0	0.2	0	0	0.2	0	0.3	0	0	0.2	0.4	0	0	12.5	0.5	0.7	0.2	6.7	1.7	0.5	0.4
buses	0	13	3	0	16	1	9	1	0	11	8	13	3	0	24	2	14	0	0	16	67
% buses	0	2.7	4.6	0	2.8	2.9	1.2	0.5	0	1.1	2.9	2.8	1.1	0	2.3	1.4	1.5	0	0	1.3	1.7

# Connecticut Counts LLC

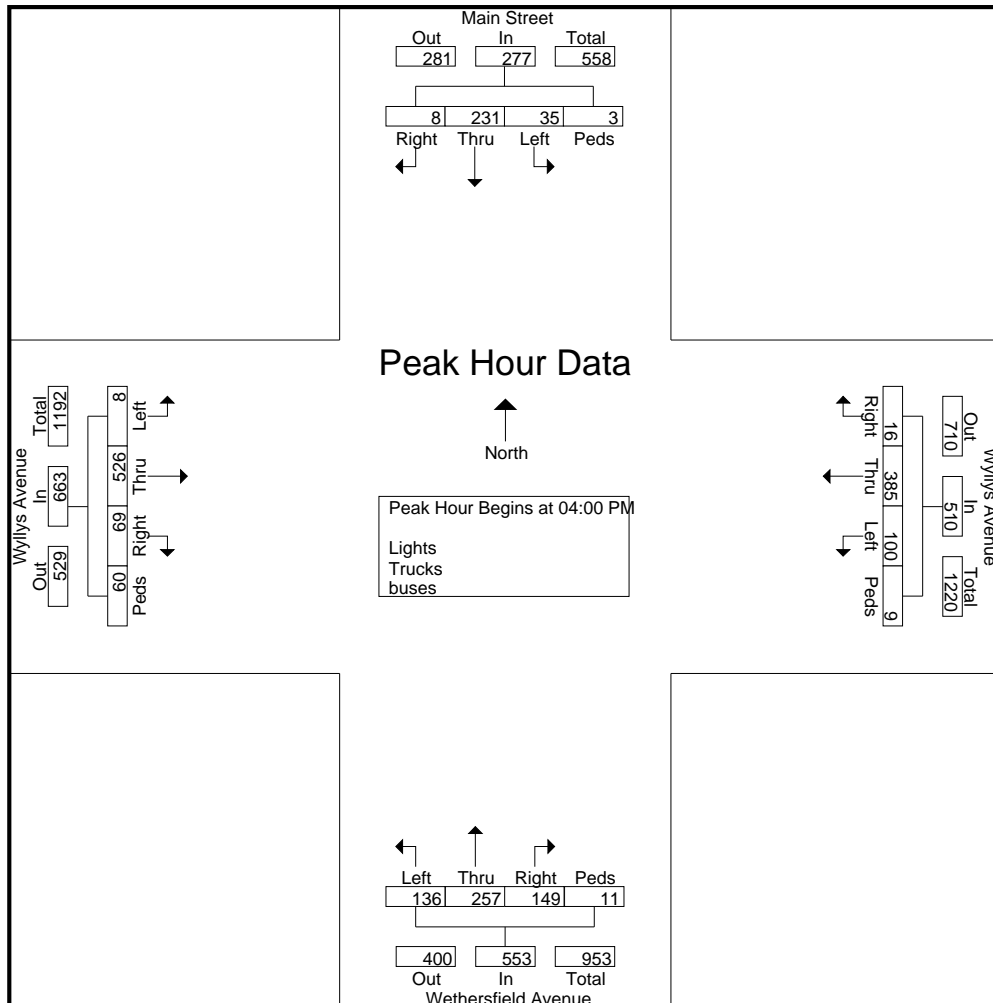
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23040  
 Site Code : 23040  
 Start Date : 5/12/2022  
 Page No : 2

Start Time	Main Street From North					Wyllys Avenue From East					Wethersfield Avenue From South					Wyllys Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	3	55	7	2	67	5	101	22	2	130	29	74	35	1	139	23	141	0	10	174	510
04:15 PM	2	73	12	0	87	4	82	27	1	114	36	56	30	3	125	16	109	3	17	145	471
04:30 PM	1	42	9	0	52	4	88	22	3	117	46	71	31	4	152	18	163	3	17	201	522
04:45 PM	2	61	7	1	71	3	114	29	3	149	38	56	40	3	137	12	113	2	16	143	500
Total Volume	8	231	35	3	277	16	385	100	9	510	149	257	136	11	553	69	526	8	60	663	2003
% App. Total	2.9	83.4	12.6	1.1		3.1	75.5	19.6	1.8		26.9	46.5	24.6	2		10.4	79.3	1.2	9		
PHF	.667	.791	.729	.375	.796	.800	.844	.862	.750	.856	.810	.868	.850	.688	.910	.750	.807	.667	.882	.825	.959





# Connecticut Counts LLC

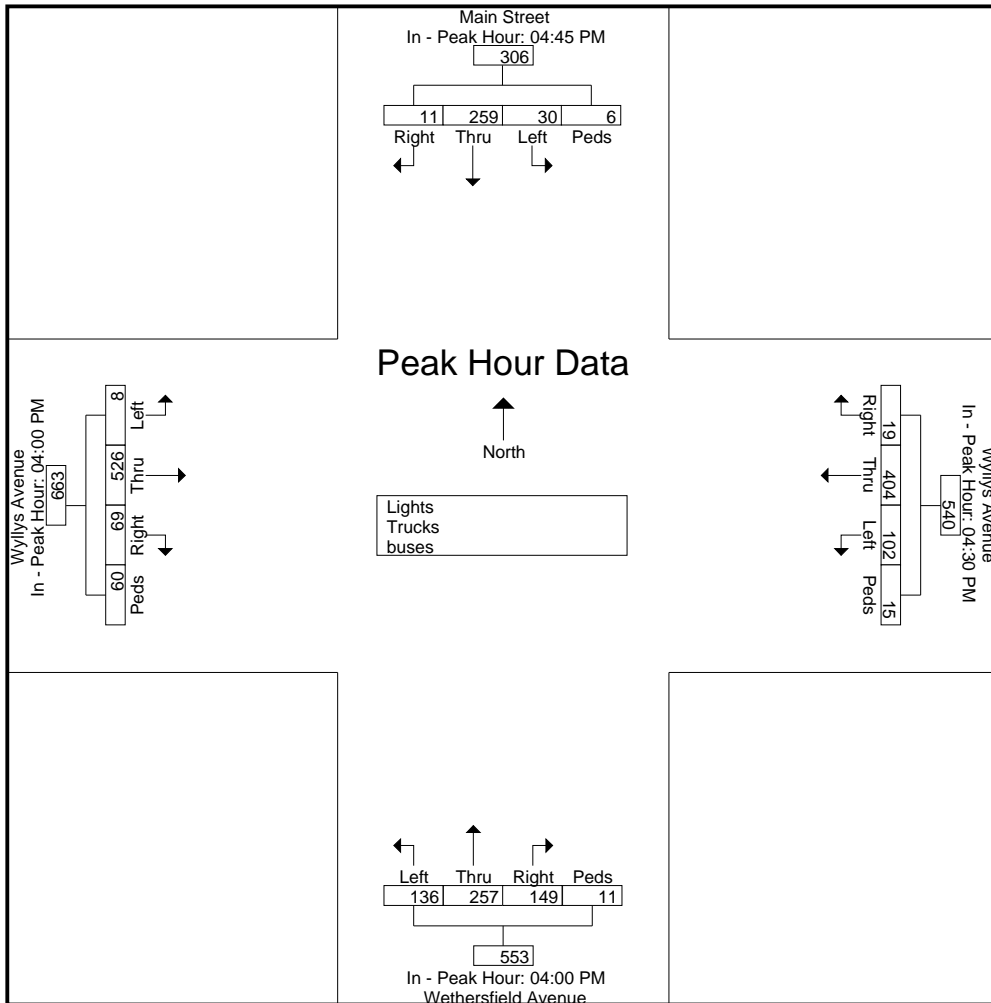
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23040  
 Site Code : 23040  
 Start Date : 5/12/2022  
 Page No : 3

Start Time	Main Street From North					Wyllys Avenue From East					Wethersfield Avenue From South					Wyllys Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:30 PM					04:00 PM					04:00 PM				
+0 mins.	2	61	7	1	71	4	88	22	3	117	29	74	35	1	139	23	141	0	10	174
+15 mins.	4	48	9	0	61	3	114	29	3	149	36	56	30	3	125	16	109	3	17	145
+30 mins.	2	75	7	2	86	6	88	22	2	118	46	71	31	4	152	18	163	3	17	201
+45 mins.	3	75	7	3	88	6	114	29	7	156	38	56	40	3	137	12	113	2	16	143
Total Volume	11	259	30	6	306	19	404	102	15	540	149	257	136	11	553	69	526	8	60	663
% App. Total	3.6	84.6	9.8	2		3.5	74.8	18.9	2.8		26.9	46.5	24.6	2		10.4	79.3	1.2	9	
PHF	.688	.863	.833	.500	.869	.792	.886	.879	.536	.865	.810	.868	.850	.688	.910	.750	.807	.667	.882	.825



## **Appendix F**

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### Crash Data Records

### Uconn Crash Data

Connecticut Children's Medical Center  
Hartford, Connecticut  
January 1, 2019 - December 31, 2021

Date Of Crash	Time of Crash	Severity	No. Of Veh.	No. Of Non-Motorists	Town	Mileage	Roadway	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
<b>01) Washington Street at Jefferson Street</b>														
1/19/2019	19:54:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Dry	None	None
3/9/2019	16:15:00	Possible Injury	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Daylight	Dry	None	None
3/22/2019	8:53:00	PDO	2	0	Hartford	0.59	WASHINGTON ST		Front to rear	Rain	Daylight	Wet	None	None
4/13/2019	5:26:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dawn	Wet	None	None
5/6/2019	8:30:00	Suspected Minor Injury	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Rain	Daylight	Dry	None	None
5/25/2019	19:36:00	PDO	2	0	Hartford	0.57	WASHINGTON ST		Front to rear	Clear	Daylight	Dry	None	None
6/2/2019	16:54:00	Possible Injury	3	0	Hartford	0.3	JEFFERSON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
6/8/2019	18:11:00	Suspected Minor Injury	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Front to rear	Clear	Daylight	Dry	None	None
6/8/2019	21:30:00	Possible Injury	3	0	Hartford	0.56	Washington St	Jefferson St	Front to rear	Clear	Dark-Lighted	Dry	None	None
6/25/2019	17:43:00	Possible Injury	2	0	Hartford	0.51	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
6/29/2019	7:29:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Daylight	Dry	None	None
7/18/2019	18:50:00	PDO	1	0	Hartford	0.36	JEFFERSON ST		Not Applicable	Clear	Daylight	Dry	None	None
7/22/2019	14:17:00	PDO	2	0	Hartford	0.53	WASHINGTON ST		Sideswipe, same direction	Cloudy	Daylight	Dry	None	None
8/4/2019	5:44:00	Suspected Minor Injury	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Front to front	Clear	Daylight	Dry	None	None
9/23/2019	19:29:00	Possible Injury	1	1	Hartford	0.31	JEFFERSON ST	WASHINGTON	Not Applicable	Clear	Dark-Lighted	Dry	None	None
9/24/2019	13:42:00	Suspected Minor Injury	2	0	Hartford	0.35	JEFFERSON ST		Front to rear	Clear	Daylight	Dry	None	None
9/27/2019	13:00:00	Suspected Minor Injury	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Sideswipe, opposite direction	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
10/17/2019	9:34:00	Possible Injury	2	0	Hartford	0.57	WASHINGTON ST		Front to rear	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
11/10/2019	17:08:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Front to front	Clear	Dark-Lighted	Dry	None	None
11/25/2019	15:14:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Sideswipe, opposite direction	Clear	Daylight	Dry	None	None
12/4/2019	12:00:00	PDO	2	0	Hartford	0.51	WASHINGTON ST		Sideswipe, same direction	Cloudy	Daylight	Wet	None	None
12/10/2019	17:39:00	PDO	2	0	Hartford	0.28	JEFFERSON ST		Sideswipe, same direction	Rain	Dark-Lighted	Wet	None	None
12/13/2019	17:59:00	Suspected Minor Injury	2	0	Hartford	0.53	WASHINGTON ST		Angle	Rain	Dark-Lighted	Wet	None	None
12/19/2019	10:39:00	PDO	2	0	Hartford	0.55	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
12/23/2019	23:57:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Dry	None	None
1/7/2020	19:15:00	PDO	2	0	Hartford	0.55	WASHINGTON ST		Angle	Clear	Dark-Lighted	Dry	None	None
2/11/2020	21:31:00	PDO	2	0	Hartford	0.59	Washington St		Angle	Clear	Dark-Lighted	Dry	None	None
2/12/2020	22:44:00	Possible Injury	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Dry	None	None
2/19/2020	21:19:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Dry	None	None
2/26/2020	21:10:00	Suspected Minor Injury	1	1	Hartford	0.53	WASHINGTON ST		Not Applicable	Clear	Dark-Lighted	Dry	None	None
4/27/2020	14:20:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Cloudy	Daylight	Wet	None	None
6/29/2020	22:07:00	PDO	1	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Not Applicable	Clear	Dark-Lighted	Dry	None	Unknown
8/17/2020	9:46:00	Possible Injury	2	0	Hartford	0.58	WASHINGTON ST		Angle	Clear	Daylight	Dry	None	None
8/21/2020	18:09:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Daylight	Dry	None	None
9/27/2020	22:21:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Dry	None	None
10/12/2020	18:09:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Dry	None	None
10/12/2020	22:16:00	PDO	2	0	Hartford	0.61	WASHINGTON ST		Front to rear	Clear	Dark-Lighted	Dry	None	None
11/9/2020	6:30:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Daylight	Dry	None	None
11/20/2020	20:57:00	PDO	2	0	Hartford	0.53	WASHINGTON ST		Angle	Clear	Dark-Lighted	Dry	None	None
12/4/2020	17:10:00	Possible Injury	2	0	Hartford	0.54	WASHINGTON ST		Angle	Clear	Dark-Lighted	Dry	None	Backup Due to Regular Congestion
12/22/2020	2:57:00	PDO	3	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Dark-Lighted	Ice / Frost	None	None
1/9/2021	11:49:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Angle	Clear	Daylight	Dry	None	None
1/9/2021	14:50:00	Possible Injury	2	0	Hartford	0.53	WASHINGTON ST		Front to rear	Clear	Daylight	Dry	None	None
1/15/2021	23:29:00	Possible Injury	2	0	Hartford	0.55	WASHINGTON ST		Angle	Clear	Dark-Unknown Lighting	Dry	None	None
2/10/2021	6:29:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Daylight	Wet	None	None
3/7/2021	17:50:00	PDO	2	0	Hartford	0.3	JEFFERSON ST		Front to rear	Clear	Dusk	Dry	None	None
4/2/2021	14:37:00	PDO	2	0	Hartford	0.56	WASHINGTON ST	JEFFERSON ST	Angle	Clear	Daylight	Dry	None	None
<b>02) Washington Street at Zwieback Street</b>														
1/23/2019	14:51:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Angle	Clear	Daylight	Wet	None	None
7/24/2019	8:07:00	Possible Injury	1	1	Hartford	0.5	WASHINGTON ST	MADISON ST	Not Applicable	Clear	Daylight	Dry	None	None
9/18/2019	18:22:00	Suspected Minor Injury	2	0	Hartford	0.47	WASHINGTON ST	SEYMOUR ST	Angle	Rain	Dark-Lighted	Wet	None	None
12/21/2019	21:07:00	Suspected Serious Injury	1	1	Hartford	0.47	WASHINGTON ST	ZWIEBACK ST	Not Applicable	Clear	Dark-Lighted	Dry	None	None
12/22/2019	15:37:00	PDO	2	0	Hartford	0.5	WASHINGTON ST		Front to rear	Clear	Daylight	Dry	None	None
1/20/2020	8:15:00	PDO	2	0	Hartford	0.48	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
1/20/2020	19:42:00	PDO	2	0	Hartford	0.47	WASHINGTON ST		Angle	Clear	Dark-Lighted	Ice / Frost	None	None
2/6/2020	16:10:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Angle	Rain	Daylight	Wet	None	None
2/20/2020	19:57:00	Possible Injury	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
3/1/2020	0:36:00	Suspected Minor Injury	3	0	Hartford	0.48	WASHINGTON ST		Sideswipe, opposite direction	Clear	Dark-Lighted	Dry	None	None
4/22/2020	13:17:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Angle	Clear	Daylight	Dry	None	None
5/21/2020	21:28:00	PDO	1	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Not Applicable	Clear	Dark-Lighted	Dry	Other	None
7/11/2020	11:56:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Sideswipe, opposite direction	Clear	Daylight	Dry	None	None
7/24/2020	8:11:00	PDO	2	0	Hartford	0.46	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
7/27/2020	17:25:00	PDO	2	0	Hartford	0.48	WASHINGTON ST		Front to front	Clear	Daylight	Dry	None	None
8/27/2020	16:09:00	PDO	2	0	Hartford	0.46	WASHINGTON ST		Sideswipe, same direction	Rain	Daylight	Wet	None	None

Date Of Crash	Time of Crash	Severity	No. Of Veh.	No. Of Non-Motorists	Town	Mileage	Roadway	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
9/1/2020	10:54:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
12/18/2020	6:45:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Front to rear	Clear	Daylight	Snow	None	Road Surface Condition (wet, icy, snow, slush, etc.)
12/19/2020	6:30:00	PDO	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Sideswipe, opposite direction	Clear	Dawn	Snow	Other	Road Surface Condition (wet, icy, snow, slush, etc.)
2/4/2021	12:42:00	PDO	2	0	Hartford	0.45	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/9/2021	6:55:00	Suspected Minor Injury	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Angle	Clear	Daylight	Dry	None	None
4/8/2021	7:18:00	Suspected Minor Injury	2	0	Hartford	0.5	WASHINGTON ST	MADISON ST	Angle	Clear	Daylight	Dry	None	None
<b>03) Washington Street at Lincoln Street</b>														
3/27/2019	12:48:00	Suspected Serious Injury	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Other	Clear	Daylight	Dry	None	None
4/20/2019	15:27:00	PDO	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Angle	Cloudy	Daylight	Dry	None	None
5/11/2019	13:36:00	PDO	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
5/13/2019	16:39:00	Possible Injury	2	0	Hartford	0.39	WASHINGTON ST		Front to rear	Rain	Daylight	Wet	None	None
8/8/2019	15:55:00	PDO	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Other	Clear	Daylight	Dry	None	None
9/12/2019	20:57:00	PDO	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Angle	Clear	Dusk	Dry	None	None
9/23/2019	19:17:00	Possible Injury	3	0	Hartford	0.4	WASHINGTON ST		Front to rear	Clear	Dark-Lighted	Dry	None	None
12/13/2019	22:32:00	PDO	2	0	Hartford	0.42	WASHINGTON ST		Front to rear	Rain	Dark-Lighted	Wet	None	None
12/29/2019	15:15:00	PDO	2	0	Hartford	0.43	WASHINGTON ST	LINCOLN ST	Front to rear	Clear	Daylight	Dry	None	None
7/27/2020	3:00:00	PDO	2	0	Hartford	0.04	LINCOLN ST		Angle	Clear	Dark-Lighted	Dry	None	None
12/30/2020	8:43:00	PDO	2	0	Hartford	0.39	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
1/10/2021	22:36:00	PDO	2	0	Hartford	0.4	WASHINGTON ST		Front to rear	Clear	Dark-Lighted	Dry	None	None
<b>04) Washington Street at Allen Place</b>														
3/1/2019	7:59:00	Suspected Minor Injury	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Angle	Clear	Daylight	Wet	None	Road Surface Condition (wet, icy, snow, slush, etc.)
4/22/2019	8:16:00	PDO	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Sideswipe, same direction	Clear	Daylight	Dry	None	None
7/4/2019	4:20:00	PDO	3	0	Hartford	0.38	WASHINGTON ST		Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
8/10/2019	20:16:00	PDO	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
11/26/2019	15:20:00	PDO	2	0	Hartford	0.33	WASHINGTON ST		Not Applicable	Clear	Daylight	Dry	None	None
3/8/2020	13:20:00	PDO	3	0	Hartford	0.01	ALLEN PL		Front to rear	Clear	Daylight	Dry	None	None
3/31/2020	13:29:00	Possible Injury	2	0	Hartford	0.36	WASHINGTON ST		Sideswipe, opposite direction	Clear	Daylight	Dry	None	None
4/14/2020	20:00:00	PDO	2	0	Hartford	0.04	ALLEN PL		Front to rear	Clear	Dark-Lighted	Wet	None	None
8/6/2020	15:04:00	Possible Injury	2	0	Hartford	0.37	WASHINGTON ST		Front to rear	Clear	Daylight	Dry	None	None
8/19/2020	11:56:00	Possible Injury	2	0	Hartford	0.34	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
9/4/2020	11:30:00	PDO	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Angle	Clear	Daylight	Dry	None	None
9/19/2020	22:44:00	PDO	2	0	Hartford	0.37	WASHINGTON ST		Front to rear	Clear	Dark-Lighted	Dry	None	None
10/23/2020	12:26:00	Possible Injury	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Front to rear	Cloudy	Daylight	Dry	None	Backup Due to Regular Congestion
11/13/2020	8:14:00	Suspected Minor Injury	3	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Angle	Cloudy	Daylight	Wet	Weather Conditions	None
12/8/2020	8:39:00	PDO	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Sideswipe, same direction	Clear	Daylight	Dry	None	None
12/28/2020	14:57:00	PDO	2	0	Hartford	0.35	WASHINGTON ST	ALLEN PL	Front to front	Clear	Daylight	Dry	None	None
<b>05) Washington Street at Vernon Street and Retreat Avenue</b>														
1/23/2019	18:38:00	Possible Injury	2	0	Hartford	0.27	WASHINGTON ST		Front to rear	Clear	Dark-Not Lighted	Dry	None	None
2/3/2019	2:18:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Front to rear	Clear	Dark-Lighted	Dry	None	Backup Due to Regular Congestion
4/19/2019	16:20:00	Suspected Minor Injury	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Angle	Clear	Daylight	Dry	None	Backup Due to Prior Crash
5/1/2019	20:10:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Front to rear	Cloudy	Dark-Lighted	Dry	None	None
5/30/2019	1:17:00	PDO	1	0	Hartford	0	RETREAT AV	VERNON ST NO 2	Not Applicable	Clear	Dark-Lighted	Wet	None	None
6/20/2019	15:43:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Front to front	Clear	Daylight	Dry	None	None
7/13/2019	23:06:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Angle	Clear	Dark-Lighted	Dry	None	None
8/19/2019	7:57:00	PDO	2	0	Hartford	0.23	WASHINGTON ST		Other	Clear	Daylight	Dry	None	None
9/3/2019	21:25:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Angle	Clear	Dark-Lighted	Dry	None	None
9/20/2019	17:10:00	Suspected Minor Injury	1	1	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Not Applicable	Clear	Daylight	Dry	None	None
10/1/2019	16:55:00	PDO	2	0	Hartford	0.01	VERNON ST NO 2		Front to rear	Clear	Daylight	Dry	None	None
10/2/2019	20:07:00	PDO	2	0	Hartford	0.02	RETREAT AV	WASHINGTON ST	Front to rear	Rain	Dusk	Wet	None	None
10/3/2019	9:17:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Angle	Clear	Daylight	Dry	None	None
10/11/2019	15:38:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Sideswipe, same direction	Clear	Daylight	Dry	None	None
11/27/2019	11:44:00	Suspected Minor Injury	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Front to rear	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
11/30/2019	18:41:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Sideswipe, same direction	Clear	Dark-Unknown Lighting	Dry	None	None
12/23/2019	17:40:00	Possible Injury	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Angle	Clear	Dark-Lighted	Dry	None	None
1/3/2020	15:36:00	Possible Injury	2	0	Hartford	0.24	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/1/2020	14:29:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Angle	Cloudy	Daylight	Dry	None	None
5/17/2020	4:01:00	Fatal Injury	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Angle	Cloudy	Dark-Lighted	Dry	None	None
8/14/2020	22:54:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
9/3/2020	6:58:00	Possible Injury	2	0	Hartford	0.03	RETREAT AV		Front to rear	Cloudy	Daylight	Wet	Weather Conditions	Backup Due to Regular Congestion
9/26/2020	18:26:00	Suspected Minor Injury	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Other	Clear	Daylight	Dry	None	None
10/2/2020	1:14:00	Possible Injury	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Angle	Clear	Dark-Lighted	Dry	Weather Conditions	None
10/22/2020	22:53:00	Suspected Minor Injury	3	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Front to front	Clear	Dark-Lighted	Dry	None	None
11/24/2020	8:56:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Angle	Clear	Daylight	Dry	Glare	None
1/25/2021	8:18:00	Possible Injury	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/6/2021	14:00:00	Possible Injury	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Other	Clear	Daylight	Dry	None	None
3/9/2021	17:24:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	VERNON ST NO 2	Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
3/29/2021	7:27:00	PDO	2	0	Hartford	0.27	WASHINGTON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/29/2021	13:50:00	PDO	2	0	Hartford	0.28	WASHINGTON ST	RETREAT AV	Angle	Clear	Daylight	Dry	Unknown	Unknown
<b>06) Seymour Street at Jefferson Street</b>														
1/6/2019	1:57:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Sideswipe, same direction	Clear	Dark-Unknown Lighting	Ice / Frost	None	None

Date Of Crash	Time of Crash	Severity	No. Of		Town	Mileage	Roadway	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
			Veh.	Motorists										
3/1/2019	13:44:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/5/2019	13:57:00	Suspected Minor Injury	2	0	Hartford	0.06	JEFFERSON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
5/20/2019	6:46:00	PDO	2	0	Hartford	0.26	JEFFERSON ST		Angle	Clear	Daylight	Dry	None	None
5/23/2019	20:05:00	Possible Injury	2	0	Hartford	0.22	Jefferson St	Seymour St	Angle	Clear	Dark-Lighted	Dry	None	None
6/13/2019	15:28:00	PDO	2	0	Hartford	0.2	Jefferson St		Sideswipe, same direction	Clear	Daylight	Dry	None	None
6/21/2019	16:30:00	PDO	2	0	Hartford	0.21	JEFFERSON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
7/19/2019	11:26:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Front to rear	Clear	Daylight	Dry	None	None
7/20/2019	11:18:00	Possible Injury	2	0	Hartford	0.19	JEFFERSON ST		Angle	Clear	Daylight	Dry	None	None
8/6/2019	11:30:00	PDO	2	0	Hartford	0.24	JEFFERSON ST		Front to rear	Clear	Daylight	Dry	None	None
8/13/2019	7:01:00	PDO	2	0	Hartford	0.25	JEFFERSON ST		Front to rear	Clear	Daylight	Dry	None	None
9/20/2019	16:34:00	Possible Injury	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
10/3/2019	7:46:00	Possible Injury	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Front to rear	Cloudy	Daylight	Dry	None	None
11/26/2019	8:52:00	PDO	2	0	Hartford	0.21	JEFFERSON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
12/9/2019	11:37:00	PDO	2	0	Hartford	0.16	JEFFERSON ST		Sideswipe, same direction	Cloudy	Daylight	Wet	None	Backup Due to Regular Congestion
12/9/2019	17:38:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Sideswipe, same direction	Rain	Dark-Not Lighted	Wet	None	None
12/18/2019	10:48:00	PDO	4	0	Hartford	0.25	JEFFERSON ST		Front to front	Clear	Daylight	Wet	Weather Conditions	Backup Due to Regular Congestion
12/21/2019	18:56:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
12/27/2019	17:50:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Angle	Clear	Dark-Not Lighted	Dry	None	None
1/7/2020	6:52:00	PDO	2	0	Hartford	0.21	JEFFERSON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/23/2020	23:45:00	PDO	2	0	Hartford	0.1	SEYMOUR ST		Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
4/11/2020	12:36:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Angle	Clear	Daylight	Dry	None	None
6/21/2020	16:30:00	PDO	2	0	Hartford	0.12	SEYMOUR ST		Other	Clear	Daylight	Dry	None	None
7/29/2020	17:49:00	Possible Injury	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Angle	Clear	Daylight	Dry	None	None
9/6/2020	10:31:00	PDO	3	0	Hartford	0.18	JEFFERSON ST		Front to rear	Clear	Daylight	Dry	None	Other
10/1/2020	6:43:00	PDO	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Front to rear	Clear	Daylight	Dry	None	None
10/30/2020	9:01:00	PDO	1	0	Hartford	0.26	JEFFERSON ST		Not Applicable	Rain	Daylight	Wet	Weather Conditions	None
1/26/2021	0:00:00	PDO	2	0	Hartford	0.23	JEFFERSON ST		Front to front	Snow	Dark-Unknown Lighting	Snow	Weather Conditions	Road Surface Condition (wet, icy, snow, slush, etc.)
2/25/2021	10:14:00	PDO	2	0	Hartford	0.21	JEFFERSON ST		Front to front	Clear	Daylight	Dry	None	None
3/15/2021	16:22:00	Possible Injury	2	0	Hartford	0.22	JEFFERSON ST	SEYMOUR ST	Angle	Clear	Daylight	Dry	None	None
3/25/2021	15:11:00	PDO	2	0	Hartford	0.2	JEFFERSON ST		Front to rear	Clear	Daylight	Dry	None	None
4/1/2021	12:10:00	PDO	2	0	Hartford	0.05	SEYMOUR ST		Front to rear	Cloudy	Daylight	Wet	None	None
4/18/2021	21:13:00	PDO	2	0	Hartford	0.17	JEFFERSON ST		Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
<b>07) Seymour Street at Retreat Avenue</b>														
1/3/2019	7:49:00	Possible Injury	2	0	Hartford		31 SEYMOUR ST		Front to front	Clear	Daylight	Dry	None	None
1/20/2019	19:59:00	PDO	2	0	Hartford	0.12	RETREAT AV		Front to rear	Clear	Dark-Lighted	Ice / Frost	Weather Conditions	Road Surface Condition (wet, icy, snow, slush, etc.)
4/23/2019	15:47:00	PDO	2	0	Hartford	0.15	RETREAT AV		Angle	Clear	Daylight	Dry	None	None
6/3/2019	15:54:00	PDO	2	0	Hartford	0.17	RETREAT AV	ESSEX ST	Angle	Clear	Daylight	Dry	None	None
6/8/2019	5:57:00	Suspected Minor Injury	1	1	Hartford	0.17	RETREAT AV	Essex Street	Not Applicable	Clear	Daylight	Dry	None	None
7/27/2019	12:40:00	PDO	1	0	Hartford	0.1	RETREAT AV		Not Applicable	Rain	Daylight	Wet	None	None
1/19/2020	7:36:00	Possible Injury	2	0	Hartford	0	ESSEX ST		Front to front	Clear	Daylight	Wet	None	None
11/12/2020	10:59:00	PDO	2	0	Hartford	0.17	RETREAT AV	ESSEX ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
12/30/2020	19:22:00	PDO	1	0	Hartford	0.14	RETREAT AV		Not Applicable	Clear	Dark-Lighted	Dry	None	None
3/9/2021	0:26:00	PDO	2	0	Hartford	0.15	Seymour Street		Angle	Clear	Dark-Lighted	Dry	None	None
5/6/2021	7:20:00	PDO	2	0	Hartford	0.11	RETREAT AV		Angle	Clear	Daylight	Dry	None	None
<b>08) Maple Avenue at Retreat Avenue</b>														
1/30/2019	9:25:00	PDO	2	0	Hartford	2.2	MAPLE AV		Front to rear	Clear	Daylight	Snow	Weather Conditions	Road Surface Condition (wet, icy, snow, slush, etc.)
2/8/2019	8:34:00	PDO	2	0	Hartford	2.17	MAPLE AV	RETREAT AV	Sideswipe, same direction	Rain	Daylight	Wet	None	None
2/22/2019	11:19:00	PDO	3	0	Hartford	0.4	RETREAT AV		Front to rear	Clear	Daylight	Dry	None	None
3/28/2019	23:02:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Front to rear	Cloudy	Dark-Lighted	Wet	None	None
4/6/2019	15:40:00	PDO	2	0	Hartford	0.41	RETREAT AV	MAPLE	Angle	Clear	Daylight	Dry	None	None
4/8/2019	13:31:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Front to rear	Rain	Daylight	Wet	None	None
4/17/2019	10:00:00	PDO	2	0	Hartford	2.14	MAPLE AV		Sideswipe, same direction	Clear	Daylight	Dry	None	None
6/2/2019	22:09:00	PDO	1	0	Hartford	2.19	MAPLE AV		Not Applicable	Rain	Dark-Lighted	Wet	Weather Conditions	None
7/12/2019	14:49:00	PDO	2	0	Hartford	0.4	RETREAT AV		Angle	Clear	Daylight	Dry	None	None
8/1/2019	11:20:00	PDO	4	0	Hartford	2.12	MAPLE AV		Sideswipe, same direction	Clear	Daylight	Dry	None	None
9/17/2019	15:20:00	PDO	2	0	Hartford	2.17	MAPLE AV	RETREAT	Sideswipe, same direction	Clear	Daylight	Dry	None	None
11/28/2019	15:16:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
12/5/2019	13:15:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/25/2020	15:00:00	Possible Injury	2	0	Hartford	2.15	MAPLE AV		Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/27/2020	23:41:00	Possible Injury	3	0	Hartford	2.19	MAPLE AV		Front to rear	Clear	Dark-Lighted	Dry	None	None
5/16/2020	1:33:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Front to rear	Rain	Dark-Lighted	Wet	None	None
6/7/2020	20:24:00	PDO	2	0	Hartford	2.19	MAPLE AV		Front to rear	Clear	Dark-Lighted	Dry	None	None
7/2/2020	12:00:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Angle	Clear	Daylight	Dry	None	None
10/26/2020	12:58:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Front to rear	Cloudy	Daylight	Dry	None	None
11/27/2020	9:25:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Angle	Cloudy	Daylight	Wet	None	None
12/15/2020	18:42:00	PDO	2	0	Hartford	0.4	RETREAT AV	MAPLE AV	Front to rear	Clear	Dark-Lighted	Dry	None	None
1/19/2021	10:04:00	PDO	2	0	Hartford	2.16	MAPLE AV	RETREAT AV	Sideswipe, same direction	Clear	Daylight	Dry	None	None
1/25/2021	14:41:00	Possible Injury	2	0	Hartford	2.16	MAPLE AV	RETREAT AVE	Angle	Clear	Daylight	Dry	None	None
2/9/2021	17:19:00	PDO	2	0	Hartford	0.38	RETREAT AV		Sideswipe, opposite direction	Clear	Daylight	Wet	None	None
4/8/2021	15:23:00	PDO	2	0	Hartford	2.15	MAPLE AV		Front to rear	Clear	Daylight	Dry	None	None

Date Of Crash	Time of Crash	Severity	No. Of		Town	Mileage	Roadway	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
			Veh.	Motorists										
4/13/2021	9:14:00	PDO	2	0	Hartford	2.19	MAPLE AV		Front to rear	Clear	Daylight	Dry	None	None
5/14/2021	13:09:00	PDO	2	0	Hartford	2.17	MAPLE AV	RETREAT AVE	Front to rear	Clear	Daylight	Dry	None	None
5/15/2021	21:26:00	PDO	2	0	Hartford	0	MAIN ST NO 2	MAPLE AV	Front to rear	Clear	Dark-Lighted	Dry	None	None
9/5/2021	0:41:00	Fatal Injury	1	1	Hartford	2.16	MAPLE AV		Not Applicable	Clear	Dark-Lighted	Dry	None	None
<b>09) Main Street at Jefferson Street/Wyllys Street/Maple Avenue/Congress Street</b>														
1/30/2019	12:42:00	PDO	2	0	Hartford	0.01	WYLLYS ST		Front to rear	Clear	Daylight	Wet	None	None
1/31/2019	17:15:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
2/1/2019	19:10:00	Possible Injury	2	0	Hartford	0	WYLLYS ST	MAPLE AV	Front to rear	Clear	Dark-Lighted	Dry	None	None
2/9/2019	13:30:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/18/2019	18:38:00	PDO	2	0	Hartford	0	MAIN ST NO 2	MAPLE AV	Angle	Clear	Dusk	Dry	None	None
3/21/2019	13:25:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
4/22/2019	19:36:00	PDO	2	0	Hartford	0	MAIN ST NO 2	WYLLYS ST	Sideswipe, same direction	Rain	Dark-Lighted	Wet	None	None
4/23/2019	9:27:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Front to rear	Clear	Daylight	Dry	None	None
5/10/2019	14:17:00	Possible Injury	2	0	Hartford	0	MAIN ST NO 2	MAPLE	Front to rear	Clear	Daylight	Dry	None	None
6/16/2019	21:15:00	PDO	2	0	Hartford	0.01	JEFFERSON ST		Angle	Clear	Dark-Lighted	Wet	None	None
7/26/2019	8:38:00	PDO	2	0	Hartford	2.23	MAPLE AV	Jefferson St	Angle	Clear	Daylight	Dry	None	None
8/1/2019	13:54:00	Possible Injury	1	0	Hartford	0.02	JEFFERSON ST		Not Applicable	Clear	Daylight	Dry	None	None
11/19/2019	22:55:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
12/16/2019	10:54:00	PDO	2	0	Hartford	2.23	MAPLE AV	CONGRESS ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/8/2020	19:52:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
2/19/2020	10:55:00	Suspected Minor Injury	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Angle	Clear	Daylight	Dry	None	None
2/19/2020	15:46:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Not Applicable	Clear	Dark-Lighted	Dry	None	None
2/19/2020	20:05:00	Possible Injury	1	2	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/26/2020	17:01:00	PDO	3	0	Hartford	0.03	JEFFERSON ST		Other	Clear	Daylight	Dry	None	None
7/6/2020	15:23:00	Suspected Minor Injury	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Angle	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
7/22/2020	8:17:00	Suspected Minor Injury	2	0	Hartford	2.21	MAPLE AV		Front to rear	Clear	Daylight	Dry	None	None
7/30/2020	8:22:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Front to rear	Clear	Daylight	Dry	None	None
8/25/2020	12:35:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Front to rear	Clear	Daylight	Dry	None	None
8/26/2020	14:50:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Sideswipe, same direction	Clear	Daylight	Dry	None	None
10/24/2020	19:40:00	Possible Injury	1	1	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Not Applicable	Clear	Dark-Lighted	Dry	None	None
11/6/2020	14:01:00	PDO	2	0	Hartford	0.02	MAIN ST NO 2		Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/18/2021	7:51:00	PDO	2	0	Hartford	0	MAIN ST NO 2	WYLLYS ST	Sideswipe, opposite direction	Clear	Daylight	Ice / Frost	None	Road Surface Condition (wet, icy, snow, slush, etc.)
2/23/2021	20:03:00	Suspected Minor Injury	2	0	Hartford	2.21	MAPLE AV		Front to rear	Clear	Dark-Lighted	Dry	None	None
3/18/2021	13:09:00	Possible Injury	2	0	Hartford	0.04	JEFFERSON ST		Angle	Cloudy	Daylight	Dry	Other	None
4/24/2021	19:45:00	PDO	2	0	Hartford	0.02	JEFFERSON ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
8/31/2021	21:36:00	PDO	2	0	Hartford	2.23	MAPLE AV	MAIN ST NO 2	Angle	Clear	Dark-Lighted	Dry	None	None
<b>10) Main Street at Wyllys Street and Wethersfield Avenue</b>														
2/5/2019	17:30:00	Suspected Minor Injury	1	1	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Other	Clear	Dark-Lighted	Dry	None	None
2/25/2019	8:38:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/25/2019	12:30:00	PDO	2	0	Hartford	0.01	WETHERSFIELD AV		Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/27/2019	20:49:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Not Applicable	Clear	Dark-Lighted	Wet	None	None
3/25/2019	14:10:00	Possible Injury	1	1	Hartford		Wethersfield Avenue		Not Applicable	Clear	Daylight	Dry	None	None
4/4/2019	17:19:00	PDO	2	0	Hartford	0.09	WYLLYS ST		Front to rear	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
4/12/2019	11:50:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Angle	Cloudy	Daylight	Wet	None	None
4/18/2019	15:24:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Angle	Cloudy	Daylight	Wet	None	None
4/21/2019	11:58:00	Suspected Minor Injury	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Angle	Rain	Daylight	Wet	None	None
5/13/2019	16:14:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Sideswipe, same direction	Rain	Daylight	Wet	None	None
6/9/2019	13:31:00	PDO	2	0	Hartford	0.01	WETHERSFIELD AV		Angle	Clear	Daylight	Dry	None	None
6/22/2019	19:32:00	Suspected Minor Injury	2	0	Hartford	0.09	WYLLYS ST		Front to rear	Clear	Daylight	Dry	None	None
7/15/2019	15:10:00	Possible Injury	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to rear	Clear	Daylight	Dry	None	None
7/29/2019	17:04:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to rear	Clear	Daylight	Dry	None	None
8/4/2019	18:31:00	Suspected Minor Injury	2	0	Hartford	0	MAIN ST NO 3	WETHERSFIELD AV	Front to rear	Clear	Daylight	Dry	None	None
8/20/2019	15:56:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Sideswipe, same direction	Clear	Daylight	Dry	None	None
8/22/2019	4:59:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to front	Clear	Dark-Lighted	Dry	None	None
9/12/2019	8:10:00	PDO	2	0	Hartford	0.05	WYLLYS ST		Sideswipe, same direction	Rain	Daylight	Wet	None	None
9/15/2019	13:02:00	PDO	2	0	Hartford	0.01	MAIN ST NO 3		Angle	Clear	Daylight	Dry	None	None
9/16/2019	15:04:00	PDO	2	0	Hartford	0.06	WYLLYS ST	MAIN ST NO 3	Sideswipe, same direction	Clear	Daylight	Dry	None	None
9/17/2019	8:45:00	PDO	3	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to rear	Clear	Daylight	Dry	None	None
9/26/2019	5:30:00	Possible Injury	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to rear	Clear	Dawn	Dry	None	None
9/26/2019	17:37:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Other	Rain	Daylight	Wet	None	None
10/10/2019	19:05:00	Possible Injury	1	2	Hartford	0.01	WETHERSFIELD AV		Not Applicable	Clear	Dark-Lighted	Dry	None	None
11/20/2019	8:50:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Sideswipe, same direction	Cloudy	Daylight	Wet	None	None
12/1/2019	9:20:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Sideswipe, same direction	Cloudy	Daylight	Dry	None	None
12/21/2019	10:48:00	Possible Injury	2	0	Hartford	0.01	MAIN ST NO 3		Sideswipe, same direction	Clear	Daylight	Dry	None	None
1/2/2020	16:16:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Not Applicable	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
2/16/2020	2:34:00	Possible Injury	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Other	Clear	Dark-Lighted	Dry	None	None
2/21/2020	10:57:00	PDO	2	0	Hartford	0.05	WYLLYS ST		Front to rear	Clear	Daylight	Dry	None	None
4/29/2020	13:50:00	PDO	2	0	Hartford	0.08	WYLLYS ST		Front to rear	Clear	Daylight	Dry	None	Backup Due to Prior Non-Recurring Incident
5/4/2020	1:56:00	Possible Injury	2	0	Hartford	0.01	WETHERSFIELD AV		Angle	Clear	Dark-Lighted	Dry	None	None
6/16/2020	23:12:00	Possible Injury	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Other	Clear	Dark-Lighted	Dry	None	None

Date Of Crash	Time of Crash	Severity	No. Of		Town	Mileage	Intersecting Roadway		Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
			Veh.	Motorists			Roadway	Name						
7/3/2020	23:54:00	PDO	2	0	Hartford	0.01	WETHERSFIELD AV		Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
7/4/2020	1:03:00	PDO	1	0	Hartford	0.04	WYLLYS ST		Not Applicable	Clear	Dark-Lighted	Dry	None	None
7/22/2020	21:45:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Angle	Clear	Dark-Lighted	Dry	None	None
8/7/2020	1:08:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Angle	Clear	Dark-Lighted	Dry	None	None
8/10/2020	8:40:00	PDO	2	0	Hartford	0.06	WYLLYS ST	WETHERSFIELD AV	Angle	Clear	Daylight	Dry	None	None
8/19/2020	6:27:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Other	Clear	Daylight	Dry	None	None
8/21/2020	18:03:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
9/5/2020	20:30:00	Possible Injury	1	1	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Not Applicable	Clear	Dusk	Dry	None	None
10/14/2020	7:45:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Sideswipe, opposite direction	Clear	Daylight	Dry	None	None
10/15/2020	12:23:00	PDO	2	0	Hartford	0.03	WETHERSFIELD AV		Sideswipe, same direction	Clear	Daylight	Dry	None	None
10/21/2020	9:20:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Other	Clear	Daylight	Dry	None	None
10/31/2020	19:34:00	PDO	2	0	Hartford	0.01	WETHERSFIELD AV		Rear to side	Clear	Dark-Lighted	Dry	None	None
11/2/2020	7:32:00	PDO	2	0	Hartford	0.05	WYLLYS ST		Front to front	Clear	Daylight	Dry	None	None
11/21/2020	9:45:00	PDO	2	0	Hartford	0.03	MAIN ST NO 3		Front to rear	Clear	Daylight	Dry	None	None
12/3/2020	1:39:00	PDO	1	0	Hartford	99064	115 Main Street		Not Applicable	Clear	Dark-Lighted	Dry	None	None
12/14/2020	7:00:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Sideswipe, same direction	Clear	Dawn	Dry	None	None
12/14/2020	16:34:00	PDO	2	0	Hartford	0.08	WYLLYS ST		Front to rear	Rain	Dark-Lighted	Wet	None	None
12/18/2020	19:10:00	PDO	2	0	Hartford	0.01	WETHERSFIELD AV		Sideswipe, opposite direction	Clear	Dark-Lighted	Snow	None	None
12/27/2020	13:36:00	Suspected Minor Injury	1	1	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Not Applicable	Clear	Daylight	Dry	Weather Conditions	None
12/31/2020	10:46:00	Possible Injury	3	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Front to rear	Cloudy	Daylight	Wet	None	Backup Due to Regular Congestion
1/14/2021	21:34:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
1/22/2021	13:02:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/16/2021	12:19:00	PDO	2	0	Hartford	0.02	MAIN ST NO 3		Sideswipe, same direction	Clear	Daylight	Dry	None	None
4/14/2021	5:55:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to front	Clear	Dark-Lighted	Dry	None	None
4/24/2021	1:26:00	Possible Injury	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Angle	Clear	Dark-Lighted	Dry	None	None
4/26/2021	22:11:00	PDO	2	0	Hartford	0.04	WYLLYS ST		Sideswipe, opposite direction	Clear	Dark-Lighted	Dry	None	None
5/8/2021	10:24:00	Possible Injury	2	0	Hartford	0.04	WYLLYS ST		Front to rear	Clear	Daylight	Dry	None	None
5/16/2021	13:17:00	Suspected Minor Injury	2	0	Hartford	0	WETHERSFIELD AV	WYLLYS ST	Angle	Clear	Daylight	Dry	None	None
5/23/2021	0:31:00	Suspected Minor Injury	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to rear	Clear	Dark-Lighted	Dry	None	None
10/8/2021	23:47:00	PDO	2	0	Hartford	0	WETHERSFIELD AV	MAIN ST NO 3	Front to rear	Clear	Dark-Lighted	Dry	Unknown	Unknown

PDO - Property Damage Only

## TECHNICAL MEMORANDUM

**FIRST ISSUE:** *Tuesday, December 27, 2023*

**REISSUE:** *Friday, March 03, 2023*

**TO:** *William Agostinucci – CCMT*

**FROM:** *Andrew S. Hill*

**PROJECT:** *Connecticut Children’s Medical Center*

**PROJECT #:** *20-22173.00-3*

**RE:** *Revised Parking Demand Projections*

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DESMAN has developed the attached projection of parking demands associated with proposed expansion of Connecticut Children’s Medical Center (CCMC).

### Background

The classic methodology for assessing the needs of a healthcare institution is to establish the baseline parking occupancy for each major user group serviced by the institution and compare it to a corresponding activity level for the same day. Most healthcare institutions segregate their parking according to user type (i.e. staff, physicians, ER patients and visitors, outpatients, visitors to inpatients and others, etc.) so it is relatively easy to establish the baseline parking occupancy for each population by performing hourly occupancy counts during the course of a typical busy day. The busiest hour of that day is isolated and used to calculate the relationship between parking demand and the driving statistic specific to each population.

For example, the number of cars parked and associated with outpatients at the peak hour is compared with the number of outpatient visits occurring that day; this is expressed as a ratio of the number of parking spaces needed per visit for the day of field surveys (hereafter referred to as the “Survey Day”). For example, if the institution being studied reported a total of 1,000 outpatient visits during the survey day and there were 333 outpatient vehicles inventoried as the peak hour, the ratio would be .333 spaces/daily outpatient visit<sup>1</sup>.

This approach of tying the observed parking occupancy to a particular population or user volume statistic is in common practice in the parking planning industry as the relationship between the two numbers is typically quite stable and predictable over time<sup>2</sup>. Conversely, the relationship between parking demand and a more conventional metric such as square footage in a health care facility can vary drastically depending on the kinds of practices and services contained within the building. For example, Emergency Rooms can program a large number of patients, visitors, physicians and staff into a relatively small amount

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<sup>1</sup> In point of fact, there would be a total of 1,000 cars driven by outpatients or their caretakers during the course of that survey day, but the most accumulated at the busiest hour would be roughly one-third of the total daily volume.

<sup>2</sup> Note: This relationship can change over time if transportation services are introduced and/or withdrawn from the area over time, but the methodology accommodates this by allowing the analyst to increase or decrease the base parking ratio in proportion to the change in modal share.



of square footage where as the same amount of square footage in a Radiology Suite may only contain a fraction of the same number of people. Studies done of practices in medical office buildings have shown that the parking demand exerted by a thriving pediatrics practice can be up to five times that exerted by the same sized mental health services practice. In summary, a methodology that ties parking demand to the activity and/or population that drives it is commonly considered the most accurate and appropriate approach.

Once the ratio between observed parking demand and a driving statistic is established, the planner must consider two factors:

1. What was the level of activity on the Survey Day relative to activity levels during the rest of the year?
2. How will activity levels change in the future?

The first consideration is critical as activity on healthcare campuses can fluctuate substantially over the course of a typical year depending on the services and specialties contained within the institution as well as the geographic location of the facility. General medical/surgical hospitals located in suburbs in the northern United States often see their highest volumes of inpatient admissions and outpatient visits in the winter and spring (January to April) when flu season peaks and more individuals seek to schedule elective procedures after the Christmas holidays but before summer vacation season. Urban facilities with large Emergency or Trauma units report their highest annual volumes on summer evenings, most commonly on weekends, when more accidents and incidents requiring immediate medical attention tend to occur.

For the parking planner, this is an important consideration when designing a parking system. If conditions on the Survey Day were light relative to the rest of the year, the parking system may end up being too small to adequately support the facility in the future; inversely, if the consultant managed to execute observations on the busiest day of the year, the institution may end up investing in expensive parking assets that sit empty and unused on all but a handful of hours, one day per year. Establishing the appropriate activity levels to base projections of future activity levels, and resulting peak hour parking demand, is then critical to ensuring an adequate, but efficient parking system.

Traffic engineers have long grappled with this issue when it comes to designing roadways. A roadway designed to carry an average volume of traffic would be appropriately sized for half the year, but too small the remainder of the year, creating congestion and frustration. Inversely, the same roadway designed to accommodate traffic volumes at 3:00 PM on the Wednesday preceding Thanksgiving (traditionally the busiest travel hour of the year in the United States) would be substantially oversized much of the year, resulting in the loss of land and funds which could be directed to higher, better uses.

Both the traffic and parking planning industries employ an 85<sup>th</sup> percentile standard to establishing baseline volumes upon which to build projections of future need. In a parking study, this may require looking at daily bed census, number of daily outpatient visits, and the number of daily Emergency Room visits for a calendar year. When these are sorted out from lowest to highest volumes, the 85<sup>th</sup> percentile level of activity is typically among the top ten to fifteen busiest days each year. When the planner adopts these conditions as their baseline standard (called "Design Day" conditions) they assure that the resulting infrastructure is adequate to serve the needs of the institution on all but a handful hours, occurring on a handful of days throughout the year, without building dozens or hundreds of parking spaces that might

sit empty, but requiring financing and maintenance, save that single busiest hour of the busiest day of the year.

Once the current Design Day conditions are established, these volumes can be applied to the demand ratios to project parking needs. For an analysis focused on supporting future development, the growth in a particular population can be layered onto the baseline Design Day activity levels to model how many more parking spaces will be needed at the peak hour of a typically busy day on campus.

DESMAN has used this approach in thousands of engagements with healthcare institutions over our almost 50-year history and has recorded the results of those studies (i.e. the developed parking demand ratios) into a proprietary database. DESMAN commonly uses this database to benchmark parking demand ratios developed for a new client to determine if the ratios being calculated are within the general range recorded historically for that particular type of user. If the ratio is outside the range, this cues the DESMAN planner to review their assumptions and methodology to confirm an error was not made during calculations. If no error is found, DESMAN analyzes the operations specific to that institution to determine the nature of the outlier, documents this, and then adds the ratio to the database.

Most healthcare studies are triggered by an expansion or change to an existing facility, so the described methodology is easy to execute. In cases where a completely new facility is being established, DESMAN would commonly study conditions at one or more comparable campuses to develop the base demand ratios and then benchmark those results against comparable facilities in the database as well as our understanding of the new program. However, due to time constraints associated with this assignment, demand ratios have been taken from the database and adjusted to reflect best practices to produce projections.

### **Driving Statistics**

The statistics driving parking demand for the new facility were developed in collaboration with CCMC personnel. These were grouped according to type of operations and included the following assumed factors:

- An average daily bed census of 145 occupied inpatient beds against a total capacity of 187 licensed beds. This is the driving statistic specific to projecting parking demand associated with hospital inpatient activity and general visitor activity.
- A projection for 60,815 annual Emergency Room visits. This is the driving statistic used to project parking demand associated with Emergency Room operations.
- An estimate of 176,427 annual Hospital Outpatient visits specific to the CCMC Hartford campus. This is the driving statistic used to project parking demand associated with general Outpatient activity within the hospital.
- A shared staff equal to 2,323 Full-Time Equivalent (FTE) Hospital employees<sup>3</sup>. This is the driving statistic used to project parking demand associated with Hospital staffing.

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<sup>3</sup> Total reported headcount was 2,602 minus 279 staff physicians and included CCMC staff associated with 282 Washington Street (1,636), 85 Seymour Street (26), Hartford Hospital NICU (159), Hartford Hospital Bone & Joint (51), Hartford 80 Jefferson Street (14) Hartford 122 Jefferson Street (7), Hartford 100 Retreat Avenue (358), and Hartford 10 Columbus Boulevard (351). All these individuals have parking assigned within the existing CCMC leased parking system for staff members.

- 319 Hospital Staff Physicians which includes 279 staff physicians and 40 residents and fellows specific to 282 Washington.

Parking demand ratios for Staff members and Physicians were all based on total population figures, not daily headcounts, and as such were not subject to adjustment from assumed Survey Day (i.e., median) to Design Day (i.e., 85<sup>th</sup> percentile) thresholds.

The driving statistics provided as annual total volumes had to be converted into estimates of daily total activity before being applied to the model. To achieve this, DESMAN estimated average daily visit volumes for Emergency Room and Outpatient visits by dividing the annual projections by 365 days per year and 250 days per year, respectively.

The reported Average Daily Bed Census for inpatients, and the estimated daily Outpatient and Emergency Room visits derived by dividing annual projections by 250 days/year and 365 days/year respectively represented median (50<sup>th</sup> percentile) levels of activity. Parking industry best practice recommends that activity levels equivalent to 85<sup>th</sup> percentile level of activity are used in designing parking systems. When expanding an existing facility, the easiest manner to determine the difference between median and 85<sup>th</sup> percentile levels of activities is to review historical records, which will quantify the variance. These records were not available for this project. In lieu of that approach, DESMAN developed an estimate of required adjustments through an alternate methodology.

DESMAN developed assumptions regarding the variance between Median and Design Day activity levels for daily bed census, Outpatient and Emergency Room visits by reviewing the number of valet vehicles processed each day at CCMC between 10/1/2021 and 11/30/22. This statistic was determined to be a reasonably proxy for overall patient and visitor activity in lieu of daily statistics for average daily bed census, total daily outpatient visits, and/or total daily Emergency Room visits for a one-year cycle, which were unavailable.

DESMAN's analysis found that within the 14-month span, average daily valet vehicle volumes were 154 vehicles per day and the peak level of activity was 225 vehicles per day<sup>4</sup>. The 85<sup>th</sup> percentile daily volume within this period was 186 vehicles per day<sup>5</sup>, a value 21% greater than the average. Within this range, which represented a total of 297 operating days, only 42 days<sup>6</sup> experienced activity levels greater than 85<sup>th</sup> percentile, but less than the peak. For this analysis, DESMAN assumed the difference between average (median) levels of activity and design day (i.e., 85<sup>th</sup> percentile) level activity for patients and visitors was 21% and increased averaged figures to reflect that variance.

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<sup>4</sup> Recorded on Wednesday, 10/27/2021.

<sup>5</sup> Recorded on Thursday, 2/24/2022; Tuesday, 3/15/22; and Friday, 11/4/2022.

<sup>6</sup> 14% of the total days of the sample, occurring randomly throughout the span.

**Parking Demand Model Methodology**

**Table 1: Array of Studied Parking Demand Ratios from Comparable Institutions**

<u>User Groups:</u>	<u>Staff</u>	<u>Physicians</u>	<u>ER Patients</u>	<u>Visitors/Inpatients</u>	<u>Outpatients</u>
<b>Survey Size:</b>	0.26	0.07	0.10	0.07	0.16
	0.28	0.08	0.10	0.10	0.19
	0.30	0.09	0.10	0.15	0.22
	0.30	0.09	0.10	0.15	0.23
	0.30	0.09	0.12	0.18	0.24
	0.34	0.09	0.14	0.20	0.25
	0.35	0.10	0.15	0.23	0.25
	0.35	0.10	0.15	0.23	0.25
	0.35	0.10	0.15	0.25	0.25
	0.36	0.12	0.16	0.25	0.25
	0.37	0.14	0.18	0.25	0.25
	0.37	0.15	0.18	0.25	0.25
	0.38	0.15	0.19	0.26	0.26
	0.39	0.16	0.20	0.28	0.27
	0.39	0.17	0.20	0.29	0.28
	0.40	0.18	0.20	0.29	0.29
	0.40	0.21	0.20	0.30	0.29
	0.40	0.23	0.20	0.30	0.29
	0.40	0.24	0.20	0.30	0.30
	0.40	0.25	0.20	0.30	0.30
	0.40	0.27	0.21	0.31	0.30
	0.41	0.29	0.25	0.34	0.30
	0.42	0.29	0.25	0.35	0.30
	0.43	0.30	0.25	0.36	0.30
	0.43	0.30	0.25	0.37	0.30
	0.43	0.34	0.26	0.39	0.31
	0.43	0.40	0.26	0.40	0.32
	0.45	0.40	0.26	0.41	0.33
	0.45	0.40	0.28	0.43	0.33
	0.45	0.40	0.29	0.43	0.33
	0.45	0.44	0.29	0.44	0.35
	0.45	0.45	0.30	0.46	0.35
	0.45	0.46	0.30	0.47	0.36
	0.47	0.49	0.33	0.48	0.36
	0.49	0.54	0.34	0.52	0.39
	0.49	0.54	0.34	0.581	0.40
	0.53	0.58	0.35	0.59	0.45
	0.58	0.65	0.38	0.61	0.45
	0.60	0.69	0.38	0.61	0.48
	0.64	0.80	0.39	0.69	0.495
	0.65	0.81	0.60	0.83	0.68
	0.68	0.90	0.63	1.07	0.81
<b>43 Hospitals</b>	<b>0.87</b>	<b>0.90</b>	<b>0.94</b>	<b>1.44</b>	<b>0.85</b>
<b>Range</b>	.26-.87	.07-.90	.10-.94	.07-1.44	.16-.85
<b>Median</b>	0.41	0.29	0.25	0.34	0.30
<b>85th %ile</b>	0.55	0.61	0.36	0.60	0.45

1. Values sorted highest to lowest for each User Group across the survey set to show the range of values, not by study.

DESMAN identified a total of 43 studies of hospitals and medical centers conducted over the past decade which were considered comparable to CCMC in terms of size, composition, and geographic setting. All of these were sited in communities in the eastern half of the United States and roughly one-quarter were located in the Mid-Atlantic states. All the facilities used were part of a larger healthcare system.

Each of the ratios in **Table 1** on the prior page represents the correlation between peak hour observed demand at a particular facility and the corresponding activity level of population the same day. As such, the Median and Design Day values do not reflect annual activity on a continuum, but rather the sample of comparable institutions contained within DESMAN's database.

DESMAN evaluated the range of each demand ratio according to its range, median (50<sup>th</sup> percentile) value, and Design Day (85<sup>th</sup> percentile) value. The table on the prior page shows the range of ratios covered by the median or lesser values (shown in yellow) versus the ratios above the median up to the 85<sup>th</sup> percentile (shown in green). The values in red show studies where the calculated ratio was above the 85<sup>th</sup> percentile standard for the sample.

If CCMC were elect to design to the median standard ratios, they would be wagering the new facility would rank as average in terms of demand for parking by a particular user type relative to the other 43 comparable institutions. If CCMC elected to apply 85<sup>th</sup> percentile (Design Day) ratios to their projections, the inference would be that they anticipated the parking demand would be more intense than average, requiring more parking spaces to support future demand.

It is important to note that the preceding table ranks ratios from lowest to highest value for each user group independently and not the occurrence of demand by a typical user group by site/study. In other words, the reader should be cautioned when reviewing this table against drawing the conclusion that one of the healthcare institutions studied at one point was exerting peak hour demand at a rate of .87 spaces per FTE, .90 space per Physician, .94 spaces per daily ER visit, 1.44 spaces per occupied bed, and .85 spaces per daily Outpatient visit (see lowest line on the table on the prior page). No such facility existed within DESMAN's database.

In point of fact, DESMAN found that individual user parking demand ratios varied from campus to campus and study to study. In looking at each of the 43 studies used in developing the parking demand model, DESMAN never encountered a situation where the ratios for each user type were all consistently below the median, above the median but below the 85<sup>th</sup> percentile, or all above the 85<sup>th</sup> percentile. Instead, what DESMAN noted was those most institutions had one or more ratios at or below the median, several between the median and the 85<sup>th</sup> percentile, and occasionally one or two above the 85<sup>th</sup> percentile.

To illustrate this, DESMAN isolated the 43 studies of comparable hospitals (identified as Institutions "A" through "NN") and coded the demand ratios associated with each major user types (i.e., FTEs, Physicians, ER Patients, Visitors & Inpatients, Outpatients) according to whether those ratios fell at or below median levels (in yellow), above median up to 85<sup>th</sup> percentile (in green), or above 85<sup>th</sup> percentile (in red). DESMAN then added up these five ratios to create an 'aggregate' figure<sup>7</sup> which was used to rank the institutions in order from the lowest to highest aggregate value. This is shown in **Table 2** on the next page.

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<sup>7</sup> Note: this figure was representative of nothing more than the total of all five ratios added together and represents a relative measure of parking need only in reference to the other 42 institutions within the pool of comparable institution studies.

**Table 2: Ranking of Comparable Institutions According to the Aggregate**

Study #	Staff	Physicians	ER Patients	Visitors/Inpatients	Outpatients	Composite
A	0.30	0.10	0.10	0.23	0.25	0.98
B	0.45	0.30	0.15	0.07	0.16	1.13
C	0.47	0.09	0.20	0.15	0.25	1.16
D	0.53	0.15	0.10	0.15	0.28	1.21
E	0.37	0.09	0.14	0.30	0.36	1.26
F	0.37	0.16	0.20	0.25	0.29	1.27
G	0.45	0.14	0.20	0.25	0.25	1.29
H	0.30	0.29	0.15	0.29	0.30	1.33
I	0.35	0.15	0.20	0.23	0.40	1.33
J	0.43	0.30	0.15	0.20	0.30	1.38
K	0.43	0.18	0.16	0.48	0.19	1.44
L	0.26	0.40	0.20	0.30	0.29	1.45
M	0.43	0.08	0.20	0.40	0.35	1.46
N	0.28	0.40	0.10	0.41	0.33	1.52
O	0.40	0.27	0.20	0.30	0.35	1.52
P	0.45	0.12	0.34	0.37	0.24	1.52
Q	0.40	0.34	0.21	0.31	0.27	1.53
R	0.30	0.09	0.26	0.43	0.45	1.53
S	0.42	0.21	0.25	0.34	0.32	1.54
T	0.60	0.25	0.30	0.10	0.30	1.55
U	0.34	0.10	0.35	0.44	0.33	1.56
V	0.40	0.23	0.29	0.36	0.30	1.58
W	0.41	0.09	0.26	0.61	0.33	1.70
X	0.35	0.65	0.25	0.25	0.29	1.79
Y	0.65	0.40	0.25	0.25	0.25	1.80
Z	0.64	0.40	0.26	0.26	0.26	1.82
AA	0.45	0.54	0.25	0.30	0.30	1.84
BB	0.39	0.44	0.10	0.52	0.39	1.84
CC	0.49	0.29	0.33	0.39	0.36	1.86
DD	0.58	0.69	0.18	0.29	0.23	1.97
EE	0.45	0.10	0.38	0.59	0.45	1.97
FF	0.49	0.90	0.18	0.18	0.25	2.00
GG	0.39	0.58	0.19	0.46	0.48	2.10
HH	0.43	0.24	0.94	0.28	0.25	2.14
II	0.36	0.17	0.34	1.07	0.22	2.16
JJ	0.38	0.81	0.28	0.47	0.30	2.24
KK	0.40	0.07	0.12	0.83	0.85	2.27
LL	0.40	0.90	0.39	0.35	0.25	2.29
MM	0.35	0.54	0.63	0.61	0.31	2.44
NN	0.45	0.45	0.60	0.581	0.495	2.58
OO	0.87	0.80	0.30	0.43	0.30	2.70
PP	0.68	0.49	0.29	0.69	0.68	2.83
QQ	0.40	0.46	0.38	1.44	0.81	3.49
<b>Range</b>	.26-.87	.07-.90	.10-.94	.07-1.44	.16-.85	.98-3.49
<b>Median</b>	0.41	0.29	0.25	0.34	0.30	1.58
<b>85th %ile</b>	0.55	0.61	0.36	0.60	0.45	2.28

As the table illustrates, only institution with the lowest composite score (A) had all five ratios ranked as median values or lower. Every other institution carried a mix of ratios, some of which were median level or lower, some between the median and the 85<sup>th</sup> percentile, and occasionally one or more ratio which ranked about the 85<sup>th</sup> percentile. Even the institution with the highest aggregate score (QQ) had one ratio ranked median or below and one ratio ranked between the median and the 85<sup>th</sup> percentile.

The ratios shown as 85<sup>th</sup> percentile in the table on the prior page represent that standard relative to each of the ranges shown for each user type, which sets a high standard for designing the parking system. In lay terms, it means that the designer anticipates that each user type will exert an unusually intense need for parking at the busiest hour of the busiest day; a level of demand in excess of what has been observed in the majority of existing peer institutions. If those five ratios are taken as an aggregate they would most closely, although not exactly, resemble the ratios recorded for the institution ranked fourth highest (NN) in the table on the previous page.

In DESMAN’s estimate, this standard of design is conservative enough to assure that the planned parking supply for CCMC will be adequate to meet their needs under all anticipated conditions. Therefore, for this analysis, DESMAN assumed that CCMC would elect to design to the 85<sup>th</sup> percentile standard for each ratio.

**Modal Adjustments**

These demand ratios used on DESMAN’s model were developed from studying suburban medical centers with limited transit service and a high percentage of individuals arriving on campus via personal vehicle. It is our understanding that the dynamics at CCMC are very similar. To reflect this, DESMAN applied small modal adjustments to certain demand ratios before calculating demand. The applied modal adjustments reflected the reduction in each ratio to reflect current estimated use of alternative modes of transportation. Applied ratios and modal adjustments are shown in **Table 3**.

**Table 3: Applied Demand Ratios and Modal Adjustments**

User Group	Median		Parking Demand Ratios			Unit	Modal Adjustment
	Driving Statistic	Range	Median	85th %ile			
Inpatients & General Visitors	145 occupied beds	.07-1.44	0.34	0.60	spaces/ occupied bed	0.950	
General Outpatients	706 daily visits	.16-.85	0.30	0.45	spaces/ total daily visits	0.950	
Emergency Room Patients & Visitors	167 daily visits	.10-.94	0.25	0.36	spaces/ total daily visits	1.000	
Hospital Staff Physicians	319 physicians	.07-.90	0.29	0.61	spaces/ physician	1.000	
Hospital Staff	2,602 FTEs	.26-.87	0.41	0.55	spaces/ FTE	0.950	

Where these were applied, the adjustments were based on DESMAN estimates of trip mode, adjusted to meet the specifics of each user group. For example, DESMAN estimated that roughly 5% of patients, visitors, and staff members would come to the site by means other than a private vehicle. DESMAN did not assume any reduction associated with physician demand, as it is rare when this user group elects not to drive themselves to and from work, even in major urban center with multiple transit options. Similarly, DESMAN assumed all demand associated with Emergency Room visits would be conveyed to the site via personal vehicle.

**Parking Demand Projections**

To determine parking need, DESMAN applied the appropriate driving statistic, adjusted to reflect Design Day (85<sup>th</sup> percentile) conditions where appropriate, to the 85<sup>th</sup> percentile parking demand ratio, adjusted to reflect any modal reductions, to render a projection of ‘raw demand’. This projection was in turn

adjusted according to a 'supply factor' to produce the number of spaces needed to support that particular user type at the peak hour on a very busy day.

Supply Factors are a best practice in planning efforts because they engineer a small cushion into the planned parking supply. The application of a Supply Factor serves two purposes: 1) It creates a small reserve so that, even under peak demand conditions, users unfamiliar with the campus can find a parking space in a facility designated for their use; and 2) It creates a reserve against conditions which exceed the 85th percentile threshold. As a general rule, Patients and Visitors are accorded a 10% cushion as they are least familiar with the campus, whereas Staff members who are attuned to institution's layout and operating rhythms may only require a 5% reserve. Physicians, who commonly have facilities and sometimes even spaces reserved for their use, are not accorded any reserve.

For this analysis, DESMAN projected that the CCMC needs a total of 2,110 total parking spaces to meet peak hour conditions currently, using only the median (average) statistics for daily bed census, outpatient volumes, and ER visits as shown in **Table 3**. As this table shows, if CCMC were to build a new garage today to capture all the demand from patients and visitors it would need to be 488 spaces plus another 45 parking spaces for employee need exceeding the 1,424-space supply currently provided by CCMC through various lease agreements.

**Table 3: Estimate of Peak Hour Parking Current (2022) Demand under Median Conditions**

User Group	Median		Parking Demand Ratios		Modal Adjustment	Design (85th Percentile) Projections		
	Driving Statistic	85th %ile	Unit	Raw Demand		Supply Factor	Target Capacity	
Inpatients & General Visitors	145	occupied beds	0.60	spaces/ occupied bed	0.950	82	10%	90
General Outpatients	706	daily visits	0.45	spaces/ total daily visits	0.950	302	10%	332
Emergency Room Patients & Visitors	167	daily visits	0.36	spaces/ total daily visits	1.000	60	10%	66
Hospital Staff Physicians	319	physicians	0.61	spaces/ physician	1.000	194	0%	194
Hospital Staff	2,323	FTEs	0.55	spaces/ FTE	0.950	1,214	5%	1,275
<b>Parking Spaces Needed</b>						<b>1,852</b>		<b>1,957</b>
<b>Total Patient/Visitor Need =</b>								<b>488</b>
<b>Total Physician &amp; Staff Need =</b>								<b>1,469</b>
<b>Current Employee Supply =</b>								<b>1,424</b>
<b>Unmet Need =</b>								<b>45</b>
<b>Target Design Capacity =</b>								<b>533</b>

Application of adjustments to push the median (i.e., average) driving statistics to estimated Design Day (e.g., 85<sup>th</sup> percentile) conditions would drive total projected demand up by a net 5%, resulting in a design target of 636 spaces as shown in the following table.

**Table 4: Estimate of Peak Hour Parking Current (2022) Demand under Design Day Conditions**

User Group	85th Percentile		Parking Demand Ratios		Modal Adjustment	Design (85th Percentile) Projections		
	Driving Statistic	85th %ile	Unit	Raw Demand		Supply Factor	Target Capacity	
Inpatients & General Visitors	175	occupied beds	0.60	spaces/ occupied bed	0.950	99	10%	109
General Outpatients	854	daily visits	0.45	spaces/ total daily visits	0.950	365	10%	402
Emergency Room Patients & Visitors	202	daily visits	0.36	spaces/ total daily visits	1.000	73	10%	80
Hospital Staff Physicians	319	physicians	0.61	spaces/ physician	1.000	194	0%	194
Hospital Staff	2,323	FTEs	0.55	spaces/ FTE	0.950	1,214	5%	1,275
<b>Parking Spaces Needed</b>						<b>1,945</b>		<b>2,060</b>
<b>Total Patient/Visitor Need =</b>								<b>591</b>
<b>Total Physician &amp; Staff Need =</b>								<b>1,469</b>
<b>Current Employee Supply =</b>								<b>1,424</b>
<b>Unmet Need =</b>								<b>45</b>
<b>Target Design Capacity =</b>								<b>636</b>



The proposed expansion will add 80 new beds in a 190,000 square foot tower, but only 50 will be net new, as 30 of the beds are currently accounted for in the existing daily bed census<sup>8</sup>. DESMAN adjusted the net bed count by a 15% reduction to represent current occupancy rates.

Based on historical growth patterns, DESMAN assumed that outpatient volumes would increase 5.6% annually over current activity and Emergency Room volumes would grow naturally by 1% over current levels, resulting in total increases of 16.8% for outpatients and 3.0% for ER patients and visitors by the time the tower opens (2025).

The new tower has been projected to need 385 FTE new staff, which 40 are projected to be physicians. To reflect this, DESMAN added 40 physicians to the existing population and 345 staff members to the existing population.

With these factors applied to current figures, the median projection showed a need for a total of 2,256 parking spaces at CCMC when the new tower is complete, pushing the parking garage design target to 832 spaces as shown in the table below.

**Table 5: Estimate of Peak Hour Parking Future (2025) Demand under Median Conditions**

User Group	Median		Parking Demand Ratios		Modal Adjustment	Design (85th Percentile) Projections		
	Driving Statistic	85th %ile	Unit	Raw Demand		Supply Factor	Target Capacity	
Inpatients & General Visitors	188	occupied beds	0.60	spaces/ occupied bed	0.950	107	10%	118
General Outpatients	825	daily visits	0.45	spaces/ total daily visits	0.950	353	10%	388
Emergency Room Patients & Visitors	172	daily visits	0.36	spaces/ total daily visits	1.000	62	10%	68
Hospital Staff Physicians	359	physicians	0.61	spaces/ physician	1.000	218	0%	218
Hospital Staff	2,668	FTEs	0.55	spaces/ FTE	0.950	1,394	5%	1,464
<b>Parking Spaces Needed</b>						<b>2,134</b>		<b>2,256</b>
<b>Total Patient/Visitor Need =</b>								<b>574</b>
<b>Total Physician &amp; Staff Need =</b>								<b>1,682</b>
<b>Current Employee Supply =</b>								<b>1,424</b>
<b>Unmet Need =</b>								<b>258</b>
<b>Target Design Capacity =</b>								<b>832</b>

Application of adjustments to push the median (i.e., average) driving statistics to estimated Design Day (e.g., 85<sup>th</sup> percentile) conditions would drive total projected demand up by a net 5%, resulting in a need for 2,377 spaces as shown in the following table.

**Table 6: Estimate of Peak Hour Parking Future (2025) Demand under Design Day Conditions**

User Group	85th Percentile		Parking Demand Ratios		Modal Adjustment	Design (85th Percentile) Projections		
	Driving Statistic	85th %ile	Unit	Raw Demand		Supply Factor	Target Capacity	
Inpatients & General Visitors	227	occupied beds	0.60	spaces/ occupied bed	0.950	129	10%	142
General Outpatients	998	daily visits	0.45	spaces/ total daily visits	0.950	427	10%	470
Emergency Room Patients & Visitors	208	daily visits	0.36	spaces/ total daily visits	1.000	75	10%	83
Hospital Staff Physicians	359	physicians	0.61	spaces/ physician	1.000	218	0%	218
Hospital Staff	2,668	FTEs	0.55	spaces/ FTE	0.950	1,394	5%	1,464
<b>Parking Spaces Needed</b>						<b>2,243</b>		<b>2,377</b>
<b>Total Patient/Visitor Need =</b>								<b>695</b>
<b>Total Physician &amp; Staff Need =</b>								<b>1,682</b>
<b>Current Employee Supply =</b>								<b>1,424</b>
<b>Unmet Need =</b>								<b>258</b>
<b>Target Design Capacity =</b>								<b>953</b>

<sup>8</sup> These are the 30 NICU beds housed within Hartford Hospital.

In summary, based on this methodology, the proposed parking structure will need to provide 953 parking spaces to accommodate all CCMC patients and visitors plus the overflow of staff and physicians that will not be able to find available space within the existing 1,424-space leased system.

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Home (<https://www.wolfehousebuildingmovers.com/>) » Project (<https://www.wolfehousebuildingmovers.com/project/>) » Alexander Hamilton National Memorial

## Alexander Hamilton National Memorial

New York, NY / April 2008



### Historic Building Moving

### New York, NY / April 2008

The Alexander Hamilton National Memorial (Hamilton Grange) in New York was successfully moved by Wolfe House and Building Movers in April of 2008. The Hamilton Grange was Alexander Hamilton's "Sweet Country Project," the home he built for himself in 1802. This project provided a unique set of challenges, as the house was nestled between St. Luke's Church and an apartment building. A stone portico on the church jutted out in front of the Grange, requiring Wolfe House & Building Movers to lift the house 35 feet into the air before rolling it out over the portico onto

the street. Seven thousand pieces of cribbing and nearly two miles of chain were used to provide stable support for the house during this transition. After Wolfe relocated the Grange onto the street, they used their steel beam and Smartsteer™ Dolly System to move the Grange around the corner, down a 6% grade, and into St. Nicholas Park where it has been restored to its former beauty.

Read an article by Mental Floss on how we moved this project [here](http://mentalfloss.com/article/504120/how-alexander-hamiltons-house-got-moved) (<http://mentalfloss.com/article/504120/how-alexander-hamiltons-house-got-moved>).

[Watch a video of the project »](https://www.youtube.com/watch?v=qAeUlsbuVY&index=20&list=PLqMa1co72ZARo_wGTvDC004Kd5zwRqiTV) ([https://www.youtube.com/watch?v=qAeUlsbuVY&index=20&list=PLqMa1co72ZARo\\_wGTvDC004Kd5zwRqiTV](https://www.youtube.com/watch?v=qAeUlsbuVY&index=20&list=PLqMa1co72ZARo_wGTvDC004Kd5zwRqiTV))

## Specs

- ✓ Alexander Hamilton's "Country Mansion"
- ✓ Built in 1802
- ✓ Required 35 foot lift and slide to get out of its lot
- ✓ Moved down a 6% grade

[◀ Previous Project](https://www.wolfehousebuildingmovers.com/project/historic-gas-station-move-in-center-city-philly/) (<https://www.wolfehousebuildingmovers.com/project/historic-gas-station-move-in-center-city-philly/>)

[Next Project ▶](https://www.wolfehousebuildingmovers.com/project/kreider-farms-observatory/) (<https://www.wolfehousebuildingmovers.com/project/kreider-farms-observatory/>)

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## Brick CSX Depot Relocation

Hamilton, OH / January 2023



### Hamilton, OH / January 2023

Wolfe House Movers of Indiana relocated the CSX train depot in Hamilton, Ohio as part of the city's initiative to renovate the building. The original 2-story triple-brick depot was built in the 1860s, and a single-story 115' building was added around 1880. The two buildings were separated by an additional brick section which was demolished before the move. The move took place in two stages, with the 2-story building relocated first, and the second one following a few weeks later. Wolfe lifted the buildings, installed Buckingham dollies under the supporting steel, and used the Buckingham SmartSteer® System to drive the buildings several hundred feet down the street to the new location. The city plans to restore the buildings to "white box" condition and lease them to community businesses.

## Specs

- Built Mid-1800s
- Moved in Two Sections
- Triple-Brick Construction

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[Previous Project \(https://www.wolfehousebuildingmovers.com/project/pride-of-susquehanna-riverboat-lift-for-repair/\)](https://www.wolfehousebuildingmovers.com/project/pride-of-susquehanna-riverboat-lift-for-repair/)

[Next Project > \(https://www.wolfehousebuildingmovers.com/project/historic-gas-station-move-in-center-city-philly/\)](https://www.wolfehousebuildingmovers.com/project/historic-gas-station-move-in-center-city-philly/)

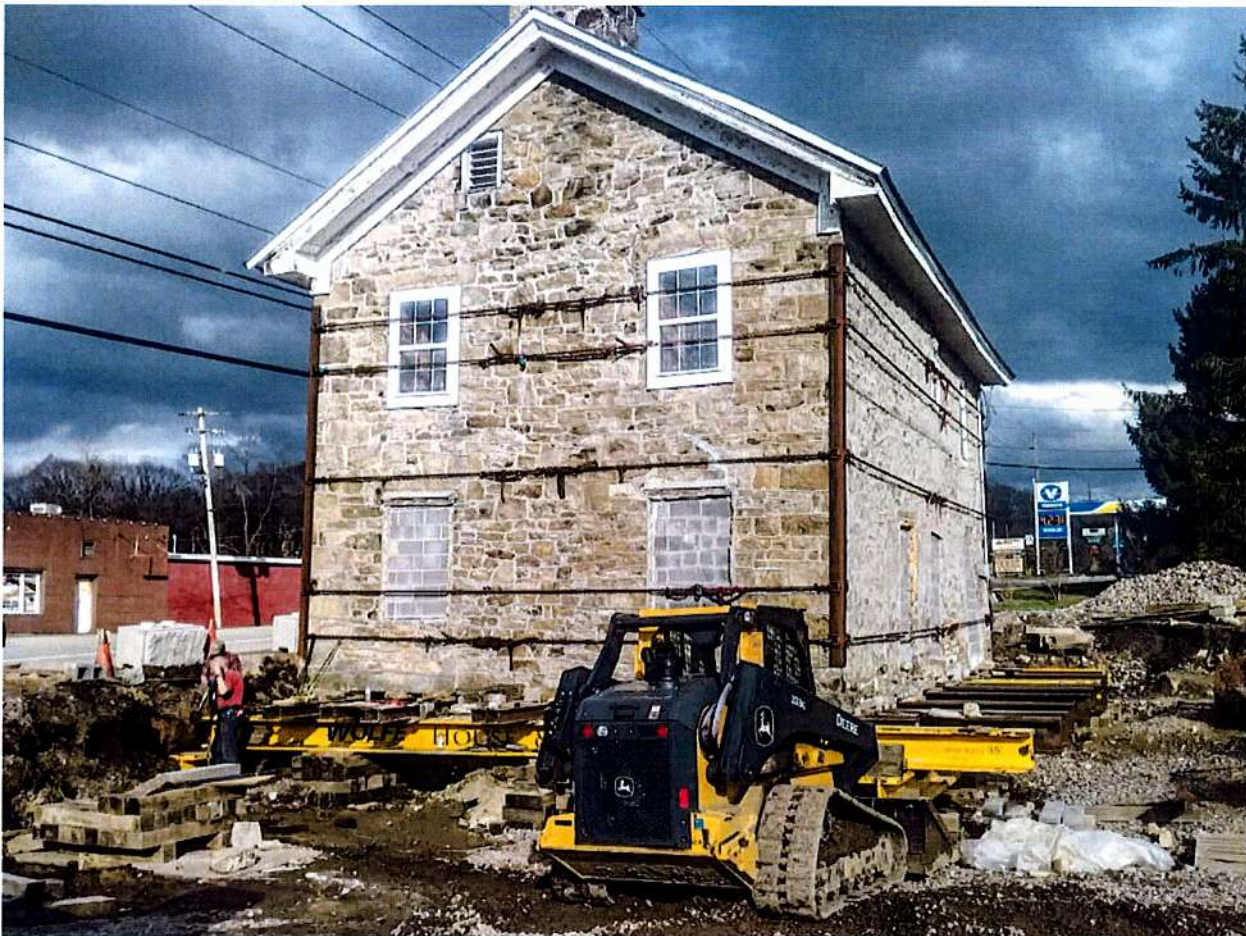
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Home (<https://www.wolfehousebuildingmovers.com/>) » Project (<https://www.wolfehousebuildingmovers.com/project/>) » Stone House Moved Away From Road

## Stone House Moved Away From Road

Markleysburg, PA / May 2022



### Services

### Markleysburg, PA / May 2022

This 227-year-old stone house stands beside the National Pike built by George Washington and General Braddock before the Revolutionary War. It was known as Shaw's Tavern and was a stopping point for travelers and drivers heading west to settle Ohio and the midwest. Over the decades, springs under the house undermined the foundation, and the widening of the pike for motor vehicles encroached on the building till it

lay only 6' from the white line. Wolfe was hired to relocate the house back from the road to a new location on the same property. We excavated the crawlspace under the building, installed steel beams, and used hydraulic crib jacks to lift the 500-ton, 2½-story building. We then installed Buckingham dollies and drove the house 150' to the new foundation.

## Specs

- ☑ Built in 1795
- ☑ 27"-Thick Walls
- ☑ Four Fireplaces

[Previous Project \(https://www.wolfehousebuildingmovers.com/project/timber-frame-barn-lift/\)](https://www.wolfehousebuildingmovers.com/project/timber-frame-barn-lift/)

[Next Project \(https://www.wolfehousebuildingmovers.com/project/smith-phillips-house-relocation/\)](https://www.wolfehousebuildingmovers.com/project/smith-phillips-house-relocation/)

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(610) 488-1020

To Whom It May Concern,

The following is a listing of some of our qualifications as a Structural Lifting & Relocation Contractor.

**Bio**

Wolfe House Movers has been in business since the late 1960s, centered in Pennsylvania. In 2004, the current owners, purchased the company and moved to Bernville, PA. Since that transition, the company has grown to where we now are covering projects nationally and internationally. We are a member of the International Association of Structural Movers and have personnel that have served on the Board of the organization. We are at the forefront of technology in the Structural Moving Industry and are recognized industry wide as being at the top of the industry in skill and capability.

**Capability**

Wolfe has lifted and moved over 1,000 houses in the last several years with over 100 houses up on steel and cribbing at times. We specialize in historic buildings and masonry buildings of all kinds including brick, stone, block, terra-cotta tile, steel, log and frame buildings. We also are capable in moving odd, heavy items such as tanks, transformers, heavy equipment, boilers, etc.

**Equipment**

We use state-of-the-art equipment from our sister company, Buckingham Equipment ([www.buckinghamequipment.com](http://www.buckinghamequipment.com)), and have the capability to manufacture as much equipment as needed for a large quantity of work. We use Unified Jack Machines for lifting to ensure an even and stable lift and the Buckingham Power Dolly System with SmartSteer™ for moving. The SmartSteer System was designed in house and is the first "and only" of its kind, computerized steering system for maneuvering around tight corners without the need for manual steering of each dolly. We also manufacture and sell the equipment to structural movers and heavy equipment riggers globally.

**Insurance**

Wolfe is fully insured for the work that we do including General Liability, Care Custody & Control, Umbrella, Automotive, Workers Comp and Cargo Coverage. Our standard coverage in these areas exceeds most requirements and is able to be expanded for larger projects.



(610) 488-1020

### Project Administration

Our company has worked on many State & Federal projects and our office is familiar and comfortable with the documentation and reporting requirements of such. We have the personnel and system capability to handle the paperwork for dozens of projects at a time including contracts, insurance, certified payroll and safety records.

### References:

#### Tishman Construction

Mark DaSilva (Superintendent)  
Cell 617-959-4719 | [Mark.dasilva@aecom.com](mailto:Mark.dasilva@aecom.com)  
Project Synopsis: French Congregationalist Church, Springfield, MA - Relocation of a historic, triple brick church weighing 475 ton and moved several hundred feet to make way for a casino.  
Video: <https://vimeo.com/164724119>  
<https://www.wolfehousebuildingmovers.com/project/first-spiritual-church-springfield-ma/>

#### Shawmut Design & Construction

Matt LeBarron (Project Manager)  
Cell 617-992-1491 | [mlebarron@shawmut.com](mailto:mlebarron@shawmut.com)  
Project Synopsis: Fairfield Pavilion, Fairfield, CT – Relocation of a 99'x167' Pavilion while the foundation is replaced and then move back into place and set onto the new foundation at a higher elevation.  
Video: <https://vimeo.com/173521611>  
<https://www.wolfehousebuildingmovers.com/project/penfield-pavilion-elevation/>

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#### Thornton Tomasetti, Inc

Matt Thomas (Project Engineer)  
312-596-2238 Direct  
[mthomas@thorntontomasetti.com](mailto:mthomas@thorntontomasetti.com)

#### National Park Service

Stephen Spaulding  
Chief of Architectural Preservation Work (978) 970-5127  
[stephen\\_spaulding@nps.gov](mailto:stephen_spaulding@nps.gov)  
v  
<https://www.wolfehousebuildingmovers.com/project/alexander-hamilton-national-memorial/>

#### Gilbane Building Company

Paul Bertelli (Sr. General Superintendent)  
Cell 401-413-9936 | [pbertelli@gilbaneco.com](mailto:pbertelli@gilbaneco.com)  
Project Synopsis: Stone Tower, Bristol, RI – Relocation of a historic stone and timber frame tower weighing 250 ton and moving several hundred feet for the Rhode Island Veterans Home.  
Video: <https://vimeo.com/159184855>  
<https://www.wolfehousebuildingmovers.com/project/stone-tower-rhode-island/>

# Court of Common Council

CITY OF HARTFORD  
550 MAIN STREET  
HARTFORD, CONNECTICUT 06103



The Office of  
Maly D. Rosado, Council President

City of Hartford, CT  
Department of Development Services  
Historic Commission and Planning & Zoning Commission  
260 Constitution Plaza, 1st Fl  
Hartford, CT 06103

May 3<sup>rd</sup>, 2023

Dear Commission Members:

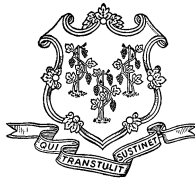
I write to express my support for the proposed garage to accommodate the expansion of Connecticut Children's Medical Center.

LAZ and Connecticut Children's have worked collaboratively with the Frog Hollow NRZ to come up with a design and proposal that addresses the concerns and needs of both the hospital and the neighborhood.

Connecticut Children's has also committed to relocating - not destroying - the historic homes to suitable nearby sites and to developing the car wash site to a mixed use building with at least 20 homes. They will also emphasize local hiring through job fairs and enhance their homeownership equity and rental assistance programs.

Sincerely,

Maly D. Rosado  
City of Hartford,  
Council President



**State of Connecticut**  
**HOUSE OF REPRESENTATIVES**  
STATE CAPITOL  
HARTFORD, CONNECTICUT 06106-1591

**REPRESENTATIVE JAMES SÁNCHEZ**  
6TH ASSEMBLY DISTRICT

LEGISLATIVE OFFICE BUILDING, ROOM 4046  
CAPITOL: (860) 240-8585  
TOLL FREE: (800) 842-8267  
FAX: (860) 240-0206  
E-MAIL: JAMES.SANCHEZ@CGA.CT.GOV

**MEMBER**

ENVIRONMENT COMMITTEE  
FINANCE, REVENUE AND BONDING COMMITTEE  
EXECUTIVE AND LEGISLATIVE NOMINATIONS  
COMMITTEE

May 2, 2023

City of Hartford - Department of Development Services  
Historic Commission and Planning & Zoning Commission  
260 Constitution Plaza, 1st Floor  
Hartford, CT 06103

Dear Commission Members:

I am writing to express my support for the proposed garage to serve the needs of the expanded and updated Connecticut Children's Medical Center.

The garage is essential to serve the new patients, families, and medical staff of Connecticut Children's expansion. Not only will it provide a safe and protected passage for patients and their families during a stressful time, it will also reduce the need for on street parking and additional traffic in the immediate neighborhood.

Connecticut Children's and the garage developer have worked collaboratively with the Frog Hollow NRZ to come up with a proposal that satisfies the desires of the NRZ. Connecticut Children's and the developer have committed to relocating the historic homes to suitable nearby sites and developing the former car wash site into a mixed-use building with over 20 residential units.

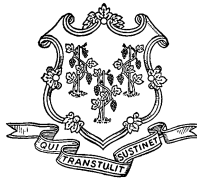
For those living on Lincoln between Broad and Washington they are providing neighbors with free parking on trash collection days and during inclement weather. They have also committed to emphasize local hiring through job fairs hosted by Connecticut Children's, improve bicycle, pedestrian and bus access and enhance their homeownership equity and rental assistance programs.

For these reasons, I encourage you to support their application for the proposed garage.

Sincerely,

A handwritten signature in cursive script that reads "James B. Sanchez".

James Sánchez  
State Representative



**State of Connecticut**  
**HOUSE OF REPRESENTATIVES**  
STATE CAPITOL  
HARTFORD, CONNECTICUT 06106-1591

**REPRESENTATIVE JULIO CONCEPCIÓN**  
4<sup>TH</sup> ASSEMBLY DISTRICT

LEGISLATIVE OFFICE BUILDING, ROOM 1003  
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E-MAIL: Julio.Concepción@cga.ct.gov

**CHAIR**  
EXECUTIVE & LEGISLATIVE NOMINATIONS COMMITTEE  
**MEMBER**  
FINANCE REVENUE & BONDING COMMITTEE  
**MEMBER**  
TRANSPORTATION COMMITTEE

May 2, 2023

City of Hartford, CT  
Department of Development Services  
Historic Commission and Planning & Zoning Commission  
260 Constitution Plaza, 1st Fl  
Hartford, CT 06103

Dear Commission Members,

I am in support of the proposed parking facility to serve new patients, family and staff associated with the expansion and upgrades at Connecticut Children's Medical Center.

Connecticut Children's has committed to relocating the historic homes to suitable nearby sites and developing the former car wash site into a mixed-use building with over 20 residential units.

Concerns expressed by the Frog Hollow NRZ have been addressed and the garage proposal has the support of the NRZ. Decorative mesh and facade work will be incorporated into the design to mask the parking facility. 5,300 square feet of activated ground floor retail/restaurant space will also be included in the garage, approximately 200 trees will be planted in the neighborhood, and bicycle, pedestrian and bus facilities will be added and enhanced.

Connecticut Children's will also emphasize local hiring through job fairs and improve homeownership equity and rental assistance programs

Sincerely,

A handwritten signature in black ink, reading "Julio Concepción". The signature is written in a cursive style with a large initial 'J' and a stylized 'C'.

Julio Concepción  
Connecticut State Representative  
Legislative Office Building, Room 1003  
Hartford, CT 06106