

# PLANNING BOARD MEETING

Tuesday, January 23, 2024 at 6:00 PM

Town Hall - 41 South Main Street Randolph, MA 02368

---

## AGENDA

---

Pursuant to the temporary provisions pertaining to the Open Meeting Law, public bodies may continue holding meetings remotely without a quorum of the public body physically present at a meeting location until March 31, 2025. The public is invited to participate in the meeting in person, via telephone or computer.

**A. Call to Order - Roll Call**

**B. Chairperson Comments**

**C. Approval of Minutes**

1. Minutes of 12/12/2023

**D. Public Speaks**

**E. Public Hearings**

1. Scanlon Drive - Site Plan, Design and Stormwater Review (6:30 PM)

**F. Old/Unfinished Business**

**G. New Business**

1. Discussion about potential renovations to 334 Center Street

2. Subdivision - Perry Estates - Request for Extension

**H. Staff Report**

\*Active Subdivision Review

\*Active Project Review

\*Upcoming Projects

**I. Board Comments**

**J. Adjournment**

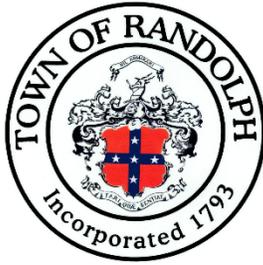
Notification of Upcoming Meeting Dates

Feb 13 and 27

Mar 12 and 26

**File Attachments for Item:**

1. Minutes of 12/12/2023



# PLANNING BOARD MEETING

Tuesday, December 12, 2023 at 6:00 PM

Town Hall - 41 South Main Street Randolph, MA 02368

## MINUTES

Pursuant to the temporary provisions pertaining to the Open Meeting Law, public bodies may continue holding meetings remotely without a quorum of the public body physically present at a meeting location until March 31, 2025. The public is invited to participate in the meeting via telephone, computer, or in person.

### A. Call to Order - Roll Call

Chairman Plizga called the meeting to order at 6:02 PM.

**PRESENT**

- Alexandra Alexopoulos
- Tony Plizga
- Nereyda Santos-Pina
- Peter Taveira
- Lou Sahl

### B. Chairperson Comments

None

### C. Approval of Minutes

1. Minutes of 11-28-2023

The Board approved the minutes of November 28, 2023, as presented.

Motion made by Alexopoulos, Seconded by Sahl to approve the minutes of November 28, 2023 as presented.

Voting Yea: Alexopoulos, Plizga, Santos-Pina, Sahl

Voting Abstaining: Taveira

### D. Public Speaks

Kristen Buker of 29 Commercial Street in Braintree asked to speak in reference to 217 Mill Street. The Board asked Ms. Buker to wait for the Public Hearing to open to comment.

Amy Hubert Masferrer, the attorney for the Buyer of 217 Mill Street also wished to speak but will hold off until the Public Hearing.

Hearing no other comments from the public, Chairman Plizga closed the public portion of the meeting.

**E. Public Hearings**

1. Subdivision - Mill Street (continuation 6:15pm)

Chairman Plizga asked Planner Tyler for a brief overview of the meeting on November 28. The Board discussed the design challenges of the proposed waterline for the 4-lot subdivision. The layout of the waterline does not loop as required by the Board's regulations. There was a discussion as to how it could be modified to improve it. The applicant's engineer Mr. Burke has drawn a new sketch for review by the Planning Board and DPW.

Mr. Burke, the engineer for the project was present, however, Mr. Sun, the agent for the applicant was not present, despite the request and reminder from the Planner to attend.

Planner Tyler read correspondence that she sent (via email) to the Planning Board, the applicant and the applicant's engineer on December 4. The correspondence stated "The Town's Engineer has reviewed the latest run for the proposed water line that will serve the Mill Street subdivision at the request of the Planning Board. He has reached the same conclusion as with the previous proposal designs. The proposed layout results in a substandard water distribution system that does not meet the Town's requirements for a looped system. While the proposal has revised the water line layout to improve the 180 degree turn in the line, it remains curved with water service beginning and stopping at the mainline on Mill Street. This is not anticipated to minimize any water quality issues and remains problematic with potentials for issues that would not be anticipated in a system with no curves. Further, permitting this type of substandard system could require the Town to invest time and resources above and beyond normal actions or costs to address any failures of the system once the subdivision is complete. The Randolph Planning Board subdivision regulations regarding water utilities are as follows...(pg 43 of the regulations). Planner also indicated in her correspondence that the applicant must attend this meeting.

Chairman Plizga asked Mr. Burke to present to the Board in the applicant's absence. Since the last meeting Mr. Burke revised the water line which widened the space between the tap. Mr. Burke stated that he strongly disagrees with the Town Engineer's assessment and hoped they could have had a discussion in order to work toward a resolution. He feels that water quality isn't an issue and that the head loss for a dead-end would be at a minimum. Mr. Burke pointed out that there are currently several dead-end lines that exist in the Town and would like to proceed with system as originally designed with the possibility of a future easement over to the neighboring water line.

Chairman Plizga invited Attorney Amy Hubert Masferrer to speak on behalf of the buyer. Ms. Masferrer feels with a housing shortage the benefit of adding housing far outweighs the minimal risk of adding this type of waterline. She contacted the abutting neighbors regarding a small easement - some did not respond, others had concerns over the disruption to their lawn.

Chairman Plizga followed up to Mr. Burke's comments about existing dead-end line the Town. He feels history, although important, doesn't always matter as they have to go by the current rules and regulations of the Town. As for water quality, Chairman Plizga feels it has been an issue for a long time in Randolph. He respects the Town engineer's opinion on the matter and has to take into consideration the opinion of the former DPW Superintendent, as well.

Chairman Plizga asked if they have exhausted all efforts to obtain an easement over to Prospect. Ms. Masferrer replied that yes, they received correspondence back in July that the request for easement at 54 Prospect Ave was denied. Ms. Masferrer replied back to assure them that they would make all restoration to their landscaping and received no reply. She reached out to all the abutting neighbors which was unsuccessful, much to their surprise. It was explained to the abutters that full restoration would be made, their water pressure would likely improve and were offered compensation for the easement. They are currently at a standstill.

Mr. Burke feels that this project, even with a dead-end, has the potential to assist with water quality in that area and could be achieved by eliminating a portion of the the water main on Mill Street where the new road will go by having it loop up into the new roadway and back down again. He feels there are answers to this with some potential design changes, but never had the opportunity to discuss them with the Engineer. Mr. Burke feels a situation like this (relying on a easement) gives abutters a significant amount of power with almost undue leverage in the development of someone's private property.

Chairman Plizga asked how far apart the water taps are on Mill Street. Mr. Burke said about 40 feet. Chairman Plizga recalled from the last meeting trying to make them about 100 feet apart? Mr. Burke explained that he thought he had more frontage, so it is only 40 feet, but could possibly stretch it to 60 feet changing the bends and fittings. He believes if they removed the section of main along Mill street between the taps you would essentially have a looped main. Mr. Burke would have to make sure that section of the main has no tap servicing any of the neighbors. Chairman Plizga understands what Mr. Burke is saying, but that was not what was presented to the Town Engineer. Mr. Burke replied that it was explained in the email he sent as an option. He feels there are several options in trying to correct this and wanted to have an opportunity to discuss them with the engineer. Chairman Plizga pointed out that a meeting was never requested by Mr. Burke.

Chairman Plizga opened the discussion up to the Board members. Mrs. Alexopoulos cannot believe that an easement over to Prospect was not possible and wonders if the abutter shared their concern with Ms. Masferrer? Mrs. Santos-Pina worries about setting precedence with by allowing a dead-end water line and is relying on the Town Engineers comments. Mr. Taveira feels it is an unfortunate circumstance but agrees with Mrs. Santos-Pina about setting precedence.

Chairman Plizga noted that the applicant is still not on the meeting and only the applicant can request a continuation. Therefore, the chair would like to make a motion to close the public hearing. At this time, he does not feel comfortable asking for another continuation as the applicant disregarded the Board's request for him to appear. Mrs. Alexopoulos seconded for discussion. On discussion, by closing the public hearing we would not be able to accept any new information. Our decision will be based on what we have in front of us, both from the engineer and from the Town side.

Motion made by Plizga, Seconded by Alexopoulos to close the public hearing  
Voting Yea: Alexopoulos, Plizga, Santos-Pina, Taveira, Sahlu

Chairman Plizga will move into deliberation. Planner Tyler advised the Chairman that the Board has 90 days to deliberate once the public hearing is closed. Chair is prepared to make a motion to deny the Mill Street subdivision.

On discussion, Chairman Plizga noted they have been through this a number of times and seem to be at a dead-end. Chairman confirmed with the Planner that they could resubmit the project for consideration. Planner Tyler noted that she will file the decision with the Town Clerk within 14 days. That initiates an appeal period for anyone aggrieved by the decision to file an appeal. Mrs. Santos-Pina wanted to clarify that the applicant could come back after this is denied. Planner Tyler replied yes, there is no restriction.

Motion made by Plizga, Seconded by Sahlu to deny the Mill Street subdivision as presented on the Decelle-Burke-Sala drawing package dated April 10, 2023 and revised drawing excerpt depicting proposed alternative water supply layout received via email dated November 28, 2023. The denial is based on the water supply system shown on these drawings, as it does not meet the Planning Board Subdivision Rules and Regulations, specifically Section X "Specification for Construction", subsection E3 "Water."

Voting Yea: Alexopoulos, Plizga, Santos-Pina, Taveira, Sahlu

**F. Old/Unfinished Business**

None

**G. New Business**

1. Subdivision - Pham Estates - Request for Certificate of Completion

The Pham Estates subdivision was approved in 2019 for single lot subdivision that created Mary Lee Way. The project has been constructed and the owner is requesting a release and a certificate of completion.

Chairman Plizga asked Planner Tyler to go through Form N (Final Certificate of Completion) which has a checklist of items on page two for the Board to review and fill in before signing the document.

- 1. Constructed with approved waivers? YES
- 2. Constructed with approved field changes? NO
- 3. Constructed with unapproved field changes? NO
- 4. Form J - Inspection Sign-Off received? YES, Inspected by Town Engineer, Jean Pierre-Louis.
- 5. Conveyance of easements and utilities has been received: YES
- 6. Binder course subjected to one winter prior to application of final course? YES

7. Drainage and utilities exposed to one additional winter season after installation

8. Trees and landscaping exposed to one winter season? N/A

9. Street name is Mary Lee Way and is to remain a private way.

After reviewing Form N, Chairman Plizga requested a motion to approve the Final Certificate of Completion.

Motion made by Taveira, Seconded by Sahlu to approve Form N - Final Certificate of Completion for Pham Estates at Mary Lee Way, as discussed.

Voting Yea: Alexopoulos, Plizga, Santos-Pina, Taveira, Sahlu

Planner Tyler requested the Board sign-off on the Form F - 2, to release the covenant.

Motion made by Plizga, Seconded by Alexopoulos to release the covenant Form F-2 as presented.

Voting Yea: Alexopoulos, Plizga, Santos-Pina, Taveira, Sahlu

Planner will have the forms endorsed and recorded.

## 2. Planning Board Roles for 2024

Chairman Plizga opened the discussion up for nominations for Planning Board Chair. Mrs. Alexopoulos made a motion for Mr. Plizga to be Chair in calendar year 2024. Chairman Plizga asked if there were any other nominations for Chair? Hearing none, the Board proceeded to take a vote.

Motion made by Alexopoulos, Seconded by Taveira for Mr. Plizga to be Chair in calendar 2024.

Voting Yea: Alexopoulos, Santos-Pina, Taveira, Sahlu

Voting Abstaining: Plizga

Chairman Plizga moved to nominate Mrs. Alexopoulos as vice-chair that was seconded by Mr. Taveira that was *withdrawn*.

Chairman Plizga made a motion to nominate Mr. Taveira as vice-chair, seconded by Mrs. Alexopoulos. Mr. Taveira *declined*.

The Board had a brief discussion about the details of going without a vice-chair. Mrs. Alexopoulos agreed to take the position.

Motion made by Plizga, Seconded by Taveira to nominate Alexandra Alexopoulos as vice-chair.

Voting Yea: Alexopoulos, Plizga, Santos-Pina, Taveira, Sahlu

Mrs. Santos-Pina will be resigning from the Planning Board due to personal reasons. Mrs. Santos-Pina said she enjoyed the experience tremendously. The Board offered her well wishes.

**H. Staff Report**

Planning Board Forms

Planner will add this to the next agenda for discussion. Planner Tyler made some modifications to the forms related to performance guarantees that will be sent to the Board for review.

**Active Subdivision Review**

Planning Department is still reviewing subdivision files to identify what remains outstanding.

Hampton Court Subdivision

Planner will be reviewing this file to determine if it is complete. Both the property owner and developer feel it is complete, but there seems to be some outstanding items such as as-builts etc. Also, one lot is still not constructed with no curb cut.

Trim Way & Toby Lane

Recorded the plan with land court. Needs to install a street sign.

**Active Project Review**

Mazzeo Drive (Splash Car Wash)

Waiting for an opening date.

Allen Street (Convenience Store)

No update. Chairman Plizga noticed blacktop in parking lot.

647 North Main Street (Daycare)

Finalizing site items. Awaiting Mass DOT approval for the light.

19 Highland Avenue (Taj Estates)

Outstanding site items remain that are known and agreed upon prior to completion.

34 Scanlon Drive (Yankee Bus Lines)

Demo work has started. Still waiting for finalization of stormwater utilities. Weston and Sampson (peer reviewer) is working with the project engineer on some changes. They will be coming back to Planning Board to review some minor changes to the plans.

Short Street (Bar)

Planner received a draft set of plans without application or fees. Planner reached out to the owner's attorney and has not hear back yet. There is a lot line issue that will need to be worked out that could impact a Planning Board decision.

**Upcoming Projects**

Lantana/Lombardo's property

In January the Board will review plans draft plans for the proposed development of the Lantana property and lots along Scanlon Drive. The plans are for light-industrial manufacturing - not customer based developments or residential. They are within the

approved uses for that district and will need an ANR to consolidate some lots resulting in some non-conforming lots. One of the non-conforming lots will be for an existing cell tower, the other will be parking for the DCR trailhead. Discussions are taking place with the Conservation Commission regarding storm water, DCR regarding the trailhead parking and DOT due to the proximity to off-ramps. Applicant intends to go to Town Council to discontinue/abandon Billings Way and to Norfolk County to discontinue/abandon part of High Street to make the project they have envisioned work. Their goal is to come before the Board for a Public Hearing on January 23.

Road Safety Audit with Mass DOT

Planner walked along Route 28 near Route 128 to review road safety issues with Police Sergeant Andrews, Fire Chief of Operations Frew, and Mass DOT. They reviewed detailed reporting on accidents before walking the area to discuss trouble spots. Mass DOT will be compiling a report.

Planning Department News

Planning Department is working on a procedural manual of how meetings operate etc. in anticipation for a new Planning Board member.

Planner received a call from a property owner that wants to have an informal discussion at the January 23 meeting about some changes to their business property.

The Board had a brief discussion about when/or if an executive session may be required.

Chairman Plizga thanked Planner Michelle Tyler for all her help and patience in explaining different subjects and answering questions for the Board.

**I. Board Comments**

None

**J. Adjournment**

- Notification of Upcoming Meeting Dates
- January 9, 2024
- January 23, 2024
- February 13, 2024
- February 27, 2024
- March 12, 2024

Meeting adjourned at 7:27 PM.

Motion made by Taveira, Seconded by Alexopoulos to adjourn the meeting at 7:27 PM.  
Voting Yea: Alexopoulos, Plizga, Santos-Pina, Taveira, Sahlu

**File Attachments for Item:**

1. Scanlon Drive - Site Plan, Design and Stormwater Review (6:30 PM)

<b>Account Number:</b>	663354
<b>Customer Name:</b>	Randolph Planning Director
<b>Customer Address:</b>	Randolph Planning Director 41 South Main St Randolph MA 02368
<b>Contact Name:</b>	Randolph Planning Director
<b>Contact Phone:</b>	7819610936
<b>Contact Email:</b>	
<b>PO Number:</b>	Austrino, Jen

<b>Date:</b>	01/03/2024
<b>Order Number:</b>	9706617
<b>Prepayment Amount:</b>	\$ 0.00

<b>Column Count:</b>	1.0000
<b>Line Count:</b>	44.0000
<b>Height in Inches:</b>	0.0000

**Print**

Product	#Insertions	Start - End	Category
NEO QUI The Patriot Ledger	2	01/06/2024 - 01/13/2024	Public Notices
NEO wickedlocal.com	2	01/06/2024 - 01/13/2024	Public Notices

As an incentive for customers, we provide a discount off the total order cost equal to the 3.99% service fee if you pay with Cash/Check/ACH. Pay by Cash/Check/ACH and save!

Total Cash Order Confirmation Amount Due	\$134.64
Service Fee 3.99%	\$5.37
Cash/Check/ACH Discount	-\$5.37
Payment Amount by Cash/Check/ACH	\$134.64
Payment Amount by Credit Card	\$140.01

<b>Order Confirmation Amount</b>	<b>\$134.64</b>
----------------------------------	-----------------

## Ad Preview

Section E, Item 1.

HEARING 01/23/24  
LEGAL NOTICE  
Public Hearing

The Randolph Planning Board and Department of Public Works (stormwater authority) will open a public hearing on Tuesday, January 23, 2024 at 6:30pm on the petition by Scanlon Suburban LLC, 486 and 490 High QOZB, LLC, and 6 Billings QOZB, LLC for site plan and design review for phased construction to demolish existing on-site structures, install stormwater management systems and utilities in conjunction with the construction of new buildings with associated grading, landscaping and site amenities. The parcel is located in the Blue Hill River Highway District and subject to consolidation of parcels and road discontinuances to meet zoning requirements.

This meeting is conducted via ZOOM with public participation via telephone, computer or in person. The link to join the meeting is on the Town of Randolph calendar. Plans and materials may be viewed in the office of the Town Clerk at 41 South Main Street Randolph during regular business hours.

AD# 9706617  
PL 01/06 & 01/13/2024



Town Hall  
41 South Main Street  
Randolph, MA 02368  
781.961.0936

---

## NOTICE OF PUBLIC HEARING

Dear Property Owner

This letter is being sent to let you know a public hearing has been scheduled about a project near your property. You received this notice because records from the Randolph Assessor's Office indicate you own property near the site. Your attendance at this meeting is not required but your participation and input are an important part of the review process. A decision regarding the approval or denial of the proposal may be made at the conclusion of this hearing.

The meeting will be conducted with remote participation by ZOOM or in person at Town Hall. The link to join the meeting is posted to the Town's website [www.townofrandolph.com](http://www.townofrandolph.com) on the Planning Board webpage AND the meeting calendar no less than 48 hours before the meeting date.

Detailed plans and specifications for this project may be viewed at the office of the Town Clerk at 41 South Main Street, Randolph, MA during normal business hours.

---

### **HEARING TIME & LOCATION**

6:30pm

Tuesday, January 23, 2024

Town Hall – Washington Room

41 South Main Street

Randolph, MA 02368

Attendance is via computer or telephone using ZOOM or in person at Town Hall.

### **PROPOSAL DESCRIPTION AND LOCATION**

The petitioner seeks **site plan and design review** for phased construction to demolish existing on-site structures, install stormwater management systems and utilities in conjunction with the construction of new buildings with associated grading, landscaping and site amenities. The parcels are located on High Street, Scanlon Drive and Billings Street in the Blue Hill River Highway District and subject to consolidation of parcels and road discontinuances to meet zoning requirements.

***See reverse for map.***

### **PETITIONER**

Scanlon Suburban, LLC; 486 and 490 High QOZB, LLC; and 6 Billings QOZB, LLC

800 Boylston Street, 30<sup>th</sup> Floor

Boston, MA 02199



December 20, 2023

Ms. Michelle Tyler, Director of Planning  
Town of Randolph Planning Board  
41 South Main Street  
Randolph, MA 02368

Re: **Site Plan Design & Review**  
Proposed Development North of Scanlon Drive  
43 Scanlon Drive  
Randolph, MA 02368  
VERTEX Project No. 78000

Dear Ms. Tyler and Members of the Planning Board:

On behalf of the Applicant and pursuant to the Site plan & Design Review Regulations by Planning Board for the Town of Randolph, The Vertex Companies LLC (VERTEX) is pleased to submit the items outlined below for the Proposed Development North of Scanlon Drive (Randolph North Development) as part of the Site plan Design & Review process.

The design team for this project is led by Stantec Architecture & Engineering P.C., of Boston, MA. Civil Engineering services are being provided by The Vertex Companies, LLC of Weymouth, MA. Stantec Architecture & Engineering P.C. of Boston, MA is also providing landscape architectural design for this project.

The project consists of the demolition of the existing onsite structures and construction of two (2) new buildings. In addition to the new structures, work will include site grading, utilities, stormwater management facilities, and site amenities. The structures will be accessed via new curb cuts on Scanlon Drive and High Street.

Included in this submission are the following materials:

- Three (3) copies of the Town of Randolph Planning Department Application for Site Plan & Design Review;
- Three (3) copies of the plans entitled *Site Development Plans for Proposed Development North of Scanlon Drive*, prepared by The Vertex Companies, LLC and dated December 26, 2023;
- Three (3) copies of Architectural Plans prepared by Stantec Architecture & Engineering P.C.;
- Three (3) copies of the Planting Plan prepared by Stantec Architecture & Engineering P.C.;

- Three (3) copies of the plan entitled *RAMP N – Parcelage Legend* prepared by the Owner;
- Three (3) copies of the plan entitled *ANR Plan of Land – High Street and Scanlon Drive – Randolph, MA* prepared by CHA and dated December 19, 2023;
- Three (3) copies of the plan entitled *Billings Street Discontinuance Plan of Land – Billings Street – Randolph, MA* prepared by CHA;
- Three (3) copies of the plan entitled *High Street, Randolph, MA* prepared by CHA and dated September 29, 2023;
- Three (3) copies of the figure entitled *Fire Truck Exhibit* prepared by The Vertex Companies, LLC and dated December 12, 2023;
- Three (3) copies of the Stormwater Management Report prepared by The Vertex Companies, LLC and dated December 26, 2023;
- Three (3) copies of the Operations & Maintenance Manual prepared by The Vertex Companies, LLC and dated December 26, 2023;
- Three (3) copies of the report entitled *Randolph North Development – Traffic Impact Study* prepared by Howard Stein Hudson and dated December 2023;
- Three (3) copies of the Certified Abutters list;
- Three (3) copies of *Memorandum in Support of Application for Site Plan & Design Review*;
- Check for filing fee

We appreciate your consideration of this project and respectfully request the review of the included project materials. Please feel free to contact us if you have any questions or concerns.

Sincerely,

The Vertex Companies, Inc.



Andrew B. Street, PE  
Senior Project Manager – Civil Engineering

**To:** Town of Randolph Planning Board, Planning Department, Building Department  
Conservation Commission (the “**Reviewing Authorities**”)

**From:** Scanlon Suburban LLC, 486 and 490 High QOZB, LLC, and 6 Billings QOZB, LLC (the “**Applicants**”)

**Property Addresses:** 43 Scanlon Drive, 6 Billings Street, 493 High Street, 486 High Street, 490 High Street, and unnumbered High Street, of Randolph, MA (collectively, the “**Properties**”)

**Plans:** Existing conditions drawings, discontinuation plans, consolidation plans, proposed site plans (including infrastructure), and conceptual exterior renderings, attached to this memorandum (the “**Plans**”)

**Re:** Site Plan & Design Review, Proposed Maxim Crane Regional HQ & Technical Industrial Building

**First Hearing Date:** January 9, 2023

---

**Memorandum In Support of Application  
For Site Plan & Design Review**

**Application for Site Plan & Design Review**

Applicants submit this memorandum in support of their application (the “**Application**”) for Tier 3 Site Plan & Design Review under Section 200-90 of the Town of Randolph Zoning Ordinance. The Applicants are the owners or the current owner’s contracts purchaser of the Properties.

It is the intent of the Applicants, or their successors in title, to consolidate and develop the Properties for four (4) independent uses described below. As part of the consolidation of the Properties, the Applicant intends to simultaneously work with the Town of Randolph to discontinue Billings Street and work with Norfolk County to discontinue the northern portion of High Street.

Applicants would request that the Town of Randolph consider this Application as a “Masterplan” design for a two (2) Phase Development for Property A and Property B as described below.

**Property A**

The Applicants, wish to develop 486 High Street, 490 High Street, a portion of 43 Scanlon Drive, a portion of unnumbered High Street, a portion of 493 High Street, a portion of 6 Billings Street, and a portion of High Street (the “**Maxim Site**”), depicted as “**Property A**” on the Plans, as the regional corporate maintenance and operations headquarters for Maxim Crane Works LP (“**Maxim**”), the largest operator of tower and crawler cranes in the United States.

*Description of Development Plan*

As shown on the Plans, the intended development of the Maxim Site is comprised of newly constructed facility space containing maintenance, warehousing, and office space, for approximately 68,000 square feet, within two (2) buildings located on 43 Scanlon Drive, thirty-seven (37) employee parking spaces, an exterior laydown yard, and ancillary fueling depot.

*Proposed Operations*

The Maxim Site will be fenced and secured at all times for safety and security. Property A will be principally used for (i) storage (interior warehousing and exterior laydown) of new building components, (ii) maintenance and staging of the crawler and tower crane fleet, (iii) supporting office space, (iv) parking, and (v) and laydown of crane components. On-site business hours, during which most staff [roughly thirty (30) on-site employees] will be present, will be between 6:00 AM – 7:00 PM. Occasionally crawler cranes and components of tower cranes may arrive and depart from the Maxim Site outside of those hours.

Essentially all maintenance and upkeep of the fleet will happen within the 65,000 square foot building, which will also house the offices, field operator resource areas, and warehousing mentioned above. The remainder of Property A will be dedicated to yard space, an ancillary fueling area, and parking for employees.

Maxim will diligently monitor and work to mitigate any disturbances caused by noise or light pollution. Maxim’s effective monitoring at its existing facilities is evidenced by the fact that there have been no citations for such disturbances. The proposed Maxim Site has been designed to be harmonious with its surroundings. By performing maintenance within the building, utilizing full-perimeter opaque fencing, and providing lush foliage to buffer the yard from the abutters, the few activities occurring in the yard of the Maxim Site are expected to be inconspicuous to outside parties.

*Maxim Crane Works LP*

Maxim is the largest provider of cranes and crane services in the United States with almost 3,000 employees, spanning across over 60 locations from coast to coast. Maxim was established in 1994 and has stabilized over 30 locations for its operations since. The Applicants are looking forward to a long-term landlord/tenant relationship with Maxim and anticipate that Maxim will meaningfully contribute to Randolph for the span of its 20-year lease.

In the Spring of 2022, Maxim approached the Applicant expressing interest in the Property A. Maxim had been looking to consolidate an existing portfolio of leased spaces spread throughout the Boston metropolitan area into one facility that could accomplish all of its needs for the foreseeable future, and Property A is where Maxim saw an opportunity to accomplish just that. Maxim’s New England regional headquarters, formerly Shaughnessy Crane headquarters, has been located in South Boston for the past 66 years. Maxim has established a deep history and meaningful relationships within the City of Boston. Over time its operation has outgrown its existing facilities. Thus, Maxim now wishes to establish a new corporate home that is conveniently accessible and close to Boston. Maxim and its affiliates across the nation pride themselves on being courteous neighbors and active participants in their communities. The group makes significant contributions to charities on local, regional and national scales, and is currently looking to expand an active Emergency Solutions Grants Program. The majority of Maxim’s philanthropy at the local and regional level where they donate or directly engage with the community through events. Maxim’s contribution to the tax base in terms of property tax and excise tax will be significant.

*Design Strategy*

The layout has been tailored to the intended operations for Maxim Site. The program, consisting of both interior and exterior uses, situates the building between the paved laydown yard and the public face in order to buffer the streetscape from more function-forward uses, such as exterior storage and crane staging. The laydown yard is bounded on 4 of its 5 sides by forested portions of the Blue Hills Reservation. On top of said natural buffering, a tall, opaque fence will surround the entirety of the laydown yard, with gated openings exclusively at the entryway. The proposed building will be no more than two stories to the roof ridge, allowing the structure to be characteristic with its surroundings and conceal the majority of the yard activity from the streetscape. Interior uses occurring inside this building would include all maintenance activity related to cranes, rack-based storage, and office/dispatch areas. Due to the low occupancy levels typical to Maxim operations, the design team elected to provide the minimum parking count required by code.

**Property B**

*Description of Development Plan*

As a second phase to the proposed development of the Properties, the Applicants, wish to develop a portion of a portion of 43 Scanlon Drive, a portion of 6 Billings Street, a portion of 493 High Street, and a portion of Billings Street, depicted as “**Property B**” on the Plans, as either a Current Good Manufacturing Practice (cGMP) facility or another technical industrial use of approximately an approximately 180,000 square foot building. Property B suitable for warehousing, production, and office space, as well as parking for up to two hundred sixty-nine (269) vehicles.

The Applicants plan to commence development of Property B while simultaneously fielding interest from prospective end-users. The day-to-day operations of a cGMP or technical industrial facility customarily involve all on site activity taking place during working hours (8:00 AM – 6:00 PM Monday through Friday). Employees generally arrive between 8:00 AM – 10:00 AM and depart between 4:00 PM – 6:00 PM, and the site is designed to park up to two hundred sixty-nine (269) vehicles for employees. The site is designed to provide viable traffic flow and loading. As noted above, these uses are intended to include production of goods, lab and research, warehousing, office, and other support space. Due to the nature of the business of end users in the high-end industrial market, most prospective end-users are solely interested in striking deals with projects that are under construction or have permits in hand. The Applicants have set out to design a site that can accommodate either a large single user or two medium-sized users, both with parking ratios or roughly 1.5 spaces per 1,000 square feet.

**Property C**

“**Property C**”, as depicted on the Plans, is a portion of unnumbered High Street at the intersection of High Street and Scanlon Drive. The intended use of Property C is to establish an easement to DCR for public use of this parcel as the trailhead and a related parking area. The origin of this concept was developed as a part of a land swap agreement between the former owner of unnumbered High Street and DCR. The initial design was to provide ten (10) dedicated spaces for trailhead parking. This parcel is a portion of the parking lot which was previously used as overflow parking for the Lantana.

**Property D**

490 High Street is home to a single cell tower (and its support equipment). In order to maintain operations, the tenant requires access and a small maintenance area. “**Property D**”, as shown on the Plans, is intended to be used as a non-buildable access easement to the cell tower tenant through Property A and B to 490 High Street.

**The Masterplan**

*Masterplan Approach for Property A*

In light of the fact that the Applicants’ have not yet identified the end-use for Property B (defined below), the Applicants desire to proceed with specific approval for Property A, but conditional approval for Property B because an end-user for Property B has not yet been secured. Once a user is secured (by way of lease agreement or otherwise), the Applicants, will reapproach the town with updated, more

detailed plans and specifications that will pertain to the specific operations. Applicant would accept a condition on Site Design Approval for Property B to return to the Planning Board when the final design and use of Property B is identified. The Applicant would however, respectfully request an independent and full approval for the Maxim Site, Property A.

*Site Design Strategy*

The Applicant’s design strategy is aimed to minimize potential impacts to the nearby neighborhoods while ushering in stable, long-term uses that complement the existing surroundings and the Town of Randolph as a whole. The proposed consolidation of parcels, locations of intended uses, and street discontinuances (of Billings Street and High Street) within the overall masterplan strategy have been based around market conditions and the perceived “highest-and-best-use” for the Properties. Due to the nature of Maxim’s use, the pre-existence of the cell tower, and DCR’s need for a trailhead, the western half of the site (Properties A, C and D) came together organically, leaving the remainder, Property B, to be designed around a yet to be identified user.

**Current Site Uses and Recent History**

*6 Billings Street, Lombardo’s Events Facility*

The 70,000+ square foot Lombardo’s building plans to cease operations after December of 2023. Lombardo’s has hosted a myriad of weddings, holiday parties, retirement functions, proms, and conventions for 40 years and has become an integral part of the Randolph landscape since opening in 1983. One of the Applicants, 6 Billings QOZB, LLC, is the contract purchase of the Lombardo’s facility with a closing planned in January 2024.

*493 High Street, Parking for Lombardo’s Events Facility*

The lot located at 493 High Street, across from Lombardo’s on the other side of Billings Street, is solely used as a parking lot for Lombardo’s, and included under the Lombardo’s purchase agreement.

*43 Scanlon Drive, The Lantana*

The Lantana, which ceased operations in 2021, operated at 43 Scanlon Drive for nearly 50 years. The property is owned by one of the Applicants, Scanlon Suburban LLC, and now vacant.

*Unnumbered High Street, Greenfield Site*

Located directly across from the former Lantana events facility, the lot referred to as unnumbered High Street currently exists as an undeveloped parcel of vegetated land. Formerly owned by DCR as part of the Blue Hills Reservation, the land was conveyed to the prior owner of 43 Scanlon Drive and was approved by the Town of Randolph to be used as overflow parking for the Lantana.

*486 High Street, Single Family Home*

A single-family home, abutting unnumbered High Street, has been vacant since the prior tenant relocated in 2022. The site is owned by one of the Applicants, 486 and 490 High QOZB, LLC, and the house on the property has been boarded up and made safe.

*490 High Street, A Cell Tower & Laydown Space*

A portion of this parcel is home to a cell tower easement holder, as mentioned above. In addition, historically, the paved lot on this parcel has been used for parking.

*Billings Street*

Billings Street is a public way under the Town of Randolph’s jurisdiction. Its sole use, as it stands today, is to act as frontage for 6 Billings Street. The street branches off of High Street and dead ends just before Route 24.

*High Street*

The northern most portion of High Street begins at its intersection of Scanlon Drive and is bounded to the north by the Interstate 93 off ramp (exit 5A). This portion of High Street provides access to the High Street parcels listed above and branches into Billings Street.

**Description of Abutting Properties**

The Properties are abutted by the following: (i) to the north, Route 93 (MassDOT); (ii) to the south, Scanlon Drive; (iii) to the west, Blue Hills Reservation (DCR); and (iv) to the east, the Comfort Inn Hotel and Route 28. The Properties will be heavily landscaped and fenced at their perimeters and have been designed to use existing buffers to screen function forward elements of the program.

**Conclusion**

Maxim and its development team in partnership with the development staff at Core Investments Development LLC (an affiliate of the Applicants), Stantec Architects and the engineering staff of Vertex have worked tirelessly with the Town Planning, Building, Conservation, Administration, and other departments in Randolph to develop a plan and design that would be fully consistent with Randolph Zoning Ordinance Section 200-94 criteria. As outlined above, the Applicants seek specific approval for Property A, and conditional approval for Property B, as Applicants will continue to work with the Town and seek additional approval for Property B as a second phase to the development of these Properties once an end-use has been secured.

On behalf of the Applicants, Maxim, and Core Investments Development LLC, we thank the Board and the Town of Randolph for their assistance and guidance in the Site Plan Review & Design Approval process and ask that the Board act favorably upon the Application and grant Site Plan & Design Approval.

The Applicants look forward to our hearing before the Board on January 9, 2024.

TOWN OF RANDOLPH PLANNING DEPARTMENT

**APPLICATION FOR SPECIAL PERMIT ~ AND/OR ~ SITE PLAN & DESIGN REVIEW**

<b>Project Type</b>	<input type="checkbox"/> Tier 1 Review (administrative)	<input type="checkbox"/> In-Law Apartment
	<input type="checkbox"/> Tier 2 Review	<input type="checkbox"/> Two-Family Dwelling
	<input checked="" type="checkbox"/> Tier 3 Site Plan/Design Review	<input type="checkbox"/> Special Permit
<b>Assessor Parcel ID map-block-parcel</b>	1-A-1; 1-B-2; 2-C-1.438; 2-C-2.2; 2-B-1.LA	<b>Norfolk County Registry of Deeds</b> Book & Page or Land Court Cert # C#205596; 27628/37; 27987/53
<b>Parcel Address</b>	High Street; Blue Hills Reservation; 43 Scanlon Drive; 6 Billings Street; 493 High Street	
<b>Current Use</b>	Commercial and vacant land	
<b>Zoning District</b>	Blue Hills River Highway	<b>Size of Parcel</b> 13.18 acres (combined)
<b>Project Description</b>	Project includes the demolition of the existing onsite structures and construction of two new buildings with associated grading, utilities, stormwater management facilities, landscaping and site amenities.	
	Project includes the demolition of the existing onsite structures and construction of two new buildings with associated grading, utilities, stormwater management facilities, landscaping and site amenities.	
<b>Other permits or approvals may be required</b>	Are there wetlands on the parcel or within 300 feet of the construction? <input checked="" type="radio"/> YES <input type="radio"/> NO <i>If yes – file with the Conservation Commission</i>	
	Is land disturbance > 5,000 square feet? <input checked="" type="radio"/> YES <input type="radio"/> NO <i>If yes – file a stormwater permit with DPW</i>	
	Does the proposed use increase pollutant loads? <input checked="" type="radio"/> YES <input type="radio"/> NO <i>If yes – file a stormwater permit with DPW</i>	
	Is structure > 100 years old? YES <input checked="" type="radio"/> NO <i>If yes – file with the Historic Commission</i>	

<b>Applicant Name</b>	Scanlon Suburban LLC, 486 and 490 High QOZB, LLC , and 6 Billings QOZB, LLC		
<b>Contact person</b>	Art Campbell		
<b>Applicant Status</b>	<input checked="" type="radio"/> Owner <input type="radio"/> Tenant <input type="radio"/> Licensee <input type="radio"/> Buyer <input type="radio"/> Other _____		
<b>Address</b>	800 Boylston Street, 30th Floor		
	<b>CITY</b>	Boston	<b>STATE</b> MA <b>ZIP</b> 02199
<b>Phone</b>	617-428-8000	<b>Email</b>	acambell@coreinvestments.com

*\*If property owner is not the Applicant, authorization from the owner is required\**

<b>Surveyor</b>	CHA		
<b>Contact person</b>	William Dorgan, PLS		
<b>Address</b>	141 Longwater Drive		
	<b>CITY</b>	Norwell	<b>STATE</b> MA <b>ZIP</b> 02061
<b>Phone</b>	781-982-5400	<b>Email</b>	wdorgan@chasolutions.com

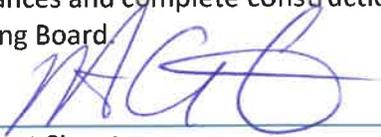
<b>Engineer</b>	The Vertex Companies, LLC				
<b>Contact person</b>	Andrew Street, PE				
<b>Address</b>	100 North Washington Street, Suite 302				
	<b>CITY</b>	Boston	<b>STATE</b>	MA	<b>ZIP</b> 02114
<b>Phone</b>	781-400-6882	<b>Email</b>	astreet@vertexeng.com		

<b>Property Owner</b>	Scanlon Suburban LLC, 486 and 490 High QOZB, LLC , and 6 Billings QOZB, LLC				
<b>Address</b>	800 Boylston Street				
	<b>CITY</b>	Boston	<b>STATE</b>	MA	<b>ZIP</b> 02199
<b>Phone</b>	9082394642	<b>Email</b>	acampbell@coreinvestmentsinc.com		

For any application for a **Special Permit**, the applicant shall submit additional documentation to support:

- That the proposed use is in harmony with the general purpose and intent of the Town’s ordinances;
- That the proposed use is in an appropriate location and is not detrimental to the neighborhood and does not significantly alter the character of the zoning district;
- Adequate and appropriate facilities will be provided for the proper operation of the proposed use;
- That the proposed use would not be detrimental or offensive to the adjoining zoning districts and neighboring properties due to the effects of lighting, odors, smoke, noise, sewage, refuse materials or other visual nuisances;
- That the proposed use would not cause undue traffic congestion in the immediate area.

I hereby certify, under the pains and penalties of perjury, that the information contained in this application is true, accurate and complete to the best of my knowledge and belief. I agree to abide by the Randolph Zoning Ordinances and complete construction of the project in accordance with said rules and any conditions of the Planning Board.



---

Applicant Signature

12-19-23

---

Date

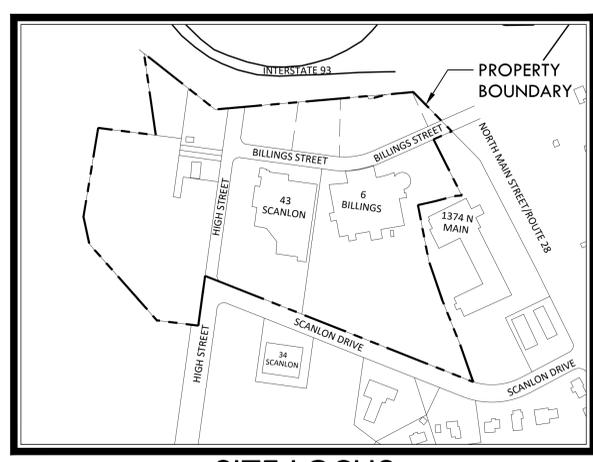


400 Libbey Parkway  
Weymouth, MA 02189  
Main: 781.952.6000

VERTEXENG.COM

# SITE DEVELOPMENT PLANS FOR PROPOSED DEVELOPMENT NORTH OF SCANLON DRIVE

Submitted to the: Town of Randolph



— SITE LOCUS —  
SCALE: 1"= 200'

**OWNER**

---

**ARCHITECT**  
STANTEC ARCHITECTURE & ENGINEERING P.C.  
40 WATER STREET, 3RD FLOOR  
BOSTON, MA 02109

---

**MECHANICAL, ELECTRICAL, PLUMBING  
& FIRE PROTECTION ENGINEER**  
CONSENTINI CONSULTING ENGINEERING  
100 FEDERAL STREET, 6TH FLOOR  
BOSTON, MA 02110

**CIVIL ENGINEER**  
THE VERTEX COMPANIES, LLC.  
400 Libbey Parkway  
Weymouth, MA 02189

---

**LANDSCAPE ARCHITECT**  
STANTEC ARCHITECTURE & ENGINEERING P.C.  
40 WATER STREET, 3RD FLOOR  
BOSTON, MA 02109

---

**STRUCTURAL ENGINEER**  
DESIMONE CONSULTING ENGINEERS  
31 MILK STREET, SUITE 1016  
BOSTON, MA 02109

**TRAFFIC ENGINEER**  
HOWARD STEIN HUDSON ENGINEERS + PLANNERS  
11 BEACON STREET, SUITE 1010  
BOSTON, MA 02108

---

**PERMITTING SPECIALIST**  
VHB, INC.  
99 HIGH STREET, 13TH FLOOR  
BOSTON, MA 02110

---

**GEOTECHNICAL ENGINEER**  
MCPHAIL ENGINEERS  
2269 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02140

### SHEET INDEX

- 1 EXISTING CONDITIONS PLAN
- C0.1 GENERAL NOTES & LEGEND
- C1.0 OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN
- C1.1 EXISTING CONDITIONS AND DEMOLITION PLAN 1
- C1.2 EXISTING CONDITIONS AND DEMOLITION PLAN 2
- C1.3 EXISTING CONDITIONS AND DEMOLITION PLAN 3
- C2.0 OVERALL SITE IMPROVEMENTS PLAN
- C2.1 SITE IMPROVEMENTS PLAN 1
- C2.2 SITE IMPROVEMENTS PLAN 2
- C2.3 SITE IMPROVEMENTS PLAN 3
- C3.0 OVERALL GRADING PLAN
- C3.1 GRADING PLAN 1
- C3.2 GRADING PLAN 2
- C3.3 GRADING PLAN 3
- C4.0 OVERALL UTILITY PLAN
- C4.1 UTILITY PLAN 1
- C4.2 UTILITY PLAN 2
- C4.3 UTILITY PLAN 3
- C5.0 OVERALL DRAINAGE PLAN
- C5.1 DRAINAGE PLAN 1
- C5.2 DRAINAGE PLAN 2
- C5.3 DRAINAGE PLAN 3
- C5.4 DRAINAGE PLAN 4
- C6.1 SITE DETAILS 1
- C6.2 SITE DETAILS 2
- C6.3 SITE DETAILS 3
- C6.4 SITE DETAILS 4
- C6.5 SITE DETAILS 5







Issue/Revision	Date
1	2023.12.15
2	2023.12.15
3	2023.12.15
4	2023.12.15
5	2023.12.15
6	2023.12.15
7	2023.12.15
8	2023.12.15
9	2023.12.15
10	2023.12.15
11	2023.12.15
12	2023.12.15
13	2023.12.15
14	2023.12.15
15	2023.12.15
16	2023.12.15
17	2023.12.15
18	2023.12.15
19	2023.12.15
20	2023.12.15
21	2023.12.15
22	2023.12.15
23	2023.12.15
24	2023.12.15
25	2023.12.15
26	2023.12.15
27	2023.12.15
28	2023.12.15
29	2023.12.15
30	2023.12.15
31	2023.12.15
32	2023.12.15
33	2023.12.15
34	2023.12.15
35	2023.12.15
36	2023.12.15
37	2023.12.15
38	2023.12.15
39	2023.12.15
40	2023.12.15
41	2023.12.15
42	2023.12.15
43	2023.12.15
44	2023.12.15
45	2023.12.15
46	2023.12.15
47	2023.12.15
48	2023.12.15
49	2023.12.15
50	2023.12.15

Permit/Seal

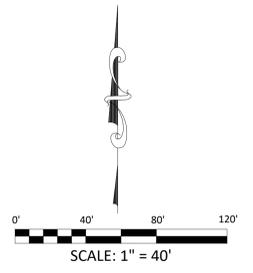
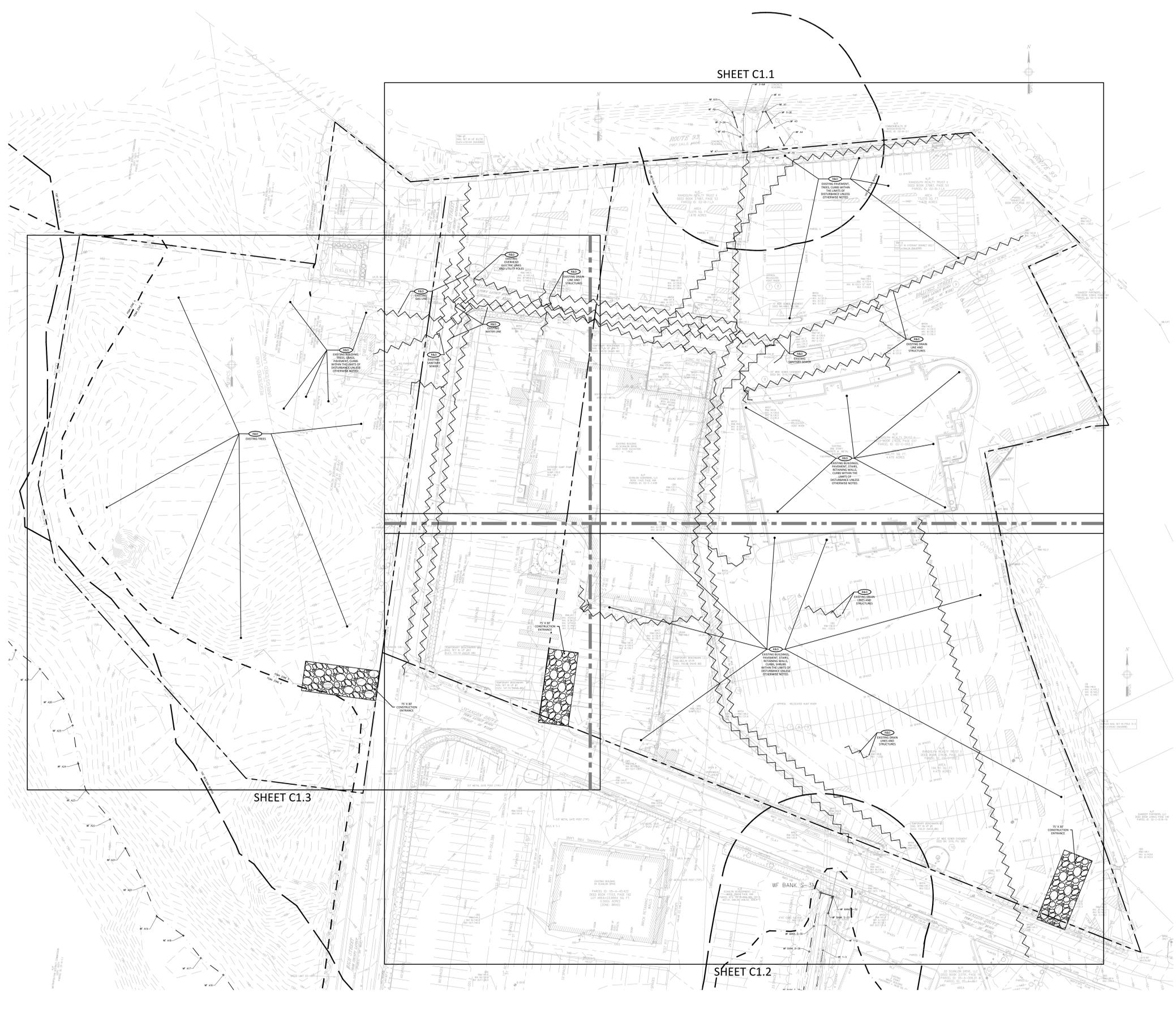
**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

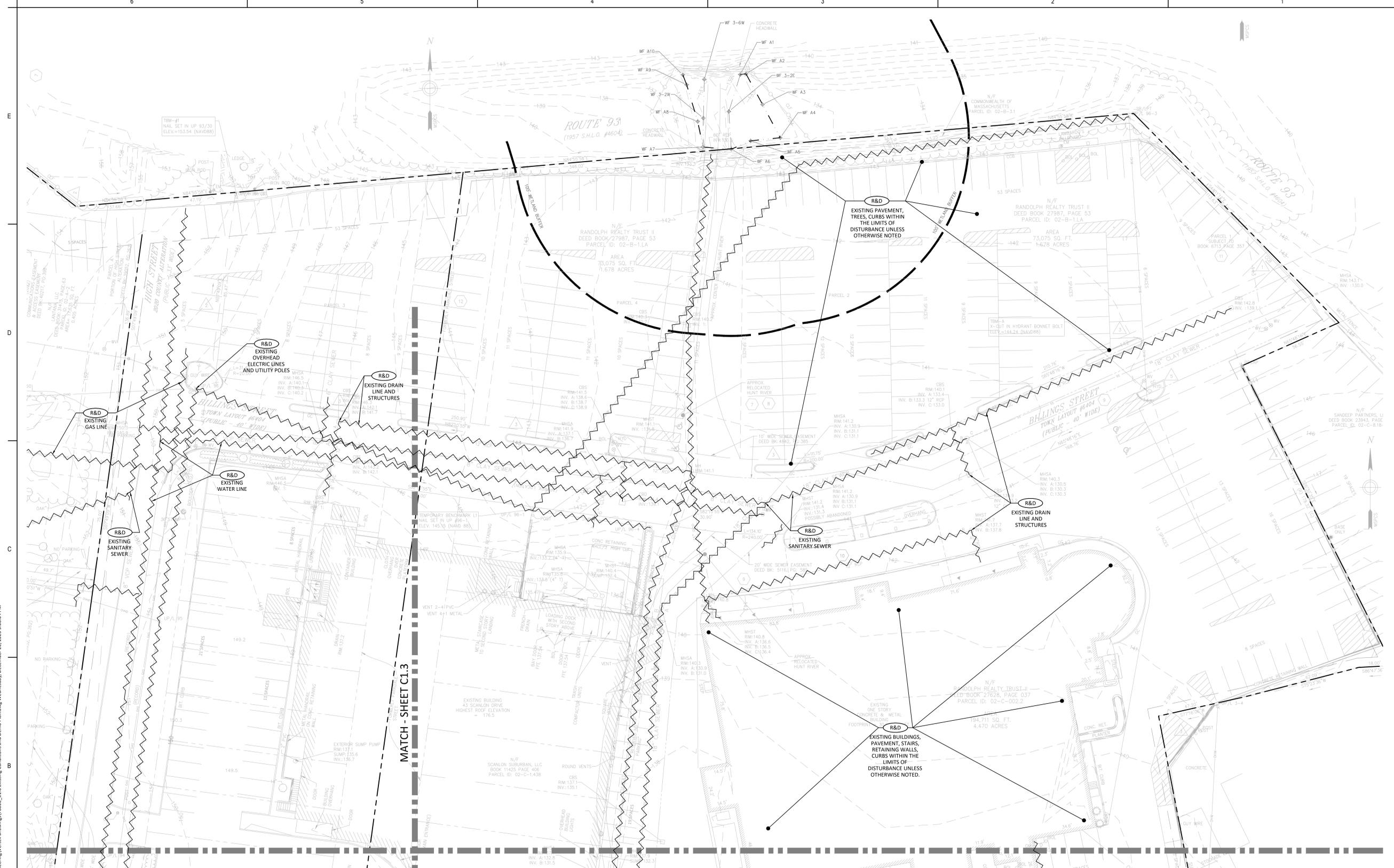
Scale AS NOTED  
 Project No. 78000

**OVERALL EXISTING  
 CONDITIONS AND  
 DEMOLITION PLAN**

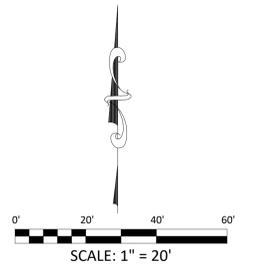
**C1.0**

Z:\Shared\Projects\78000-78999\78000-78999\78000-05-Randolph North - Assemblage (Civil)\05-Engineering\Vertex Drawings\78000\_C1.0 Existing Conditions and Demolition Plan.dwg, Wednesday, December 20, 2023 3:07:59 PM  
 Copyright © 2023 The Vertex Companies, Inc.





- NOTES:**
- EXISTING UTILITY INFORMATION SHOWN HEREON IS BASED UPON PREVIOUS DESIGN DRAWINGS AND RECORD INFORMATION. LOCATIONS, SIZES, AND DEPTHS OF UTILITIES HAVE NOT BEEN SURVEYED IN THE FIELD. ADDITIONAL SITE SURVEY IS ONGOING.
  - DEMOLITION OF EXISTING BUILDING AND SITE FEATURES SHOWN ON SHEETS C1.1 THROUGH C1.3 ARE INCLUSIVE OF ALL PHASES. PROPOSED DEMOLITION ACTIVITIES SHOWN ON THESE SHEETS ARE NOT INTENDED TO INDICATE THE PHASE IN WHICH THEY OCCUR. SEE PHASING DRAWINGS FOR DEMOLITION SPECIFIC TO PHASING.
  - THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE PLANS ARE INTENDED TO REPRESENT THE MINIMUM CONTROLS NECESSARY TO MEET ANTICIPATED SITE CONDITIONS. ADDITIONAL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
  - INSTALL EROSION CONTROLS DOWNSTREAM OF ANY DISTURBED AREAS TO REDUCE POTENTIAL FOR EROSION. CONTRACTOR SHALL INDICATE LOCATIONS OF EROSION CONTROLS FOR REVIEW WITH GENERAL CONTRACTOR AND OWNER'S REPRESENTATIVE PRIOR TO COMMENCING DISTURBANCE. THE DEMOLITION IS PROPOSED TO BE CONDUCTED IN PHASES. EROSION CONTROLS SHALL BE RELOCATED AS NECESSARY DURING EACH PHASE.
  - INSTALL CHAIN LINK FENCE TREE PROTECTION PER DETAIL. AT THE LOCATIONS SHOWN ON THE PLAN TO PROTECT EXISTING TREES SPECIFICALLY INDICATED ON THE PLAN. LAYOUT OF FENCE SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT. TREE PROTECTION SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION.
  - ALL EXISTING DRAINAGE AND SEWER SHALL BE MAINTAINED OR REROUTED AS NECESSARY UNTIL PERMANENT PIPING IS INSTALLED.
  - ELECTRICAL DEMOLITION IS SHOWN FOR INFORMATION ONLY. REFER TO ELECTRICAL PLANS FOR COMPLETE EXTENT OF ELECTRICAL DEMOLITION.
  - PROVIDE INLET PROTECTION AT ALL EXISTING DRAINAGE INLETS.
  - ALL ITEMS TO BE REMOVED AND STOCKPILED SHALL BE COORDINATED WITH OWNER FOR STOCKPILE LOCATIONS. AT THIS TIME, THE OWNER HAS NOT IDENTIFIED ITEMS FOR STOCKPILE.
  - ALL ITEMS MARKED FOR RE-USE SHALL BE STOCKPILED ONSITE, PROTECTED AND RE-INSTALLED AS SHOWN ON THE LANDSCAPE PLANS.
  - DRAINAGE FEATURES AND UTILITIES TO BE MAINTAINED UNLESS OTHERWISE NOTED.
  - TOTAL AREA OF DISTURBANCE: 13.18 ACRES.
  - CONTRACTOR TO REESTABLISH BENCHMARKS IN ALTERNATE LOCATION PRIOR TO CONSTRUCTION.
  - CONTRACTOR SHALL COORDINATE CLEARING OF ALL BUTTER ENCROACHMENTS WITH THE OWNER PRIOR TO CONSTRUCTION. IT IS NOT EXPECTED THAT ENCROACHMENTS WILL BE ENCOUNTERED ON THIS SITE.
  - INSTALL CONSTRUCTION ENTRANCE AT ALL ENTRY/EXIT POINT FOR VEHICULAR TRAFFIC FOR EACH PHASE OF THE PROJECT. LOCATION TO BE DETERMINED BY PHASING. IT SHALL BE ASSUMED THAT TWO (2) WILL BE NECESSARY THROUGHOUT CONSTRUCTION.
  - ALL EARTH DISTURBANCE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
  - ACTIVE UTILITY LINES (INCLUDING SEWER, WATER, AND DRAINAGE), CONTRACTOR SHALL PROVIDE 1 WEEK NOTIFICATION FOR ANY POSSIBLE DISRUPTION OF SERVICE TO OWNER, OWNER'S PROJECT MANAGER AND ARCHITECT; PROVIDE NOTIFICATION FOR CONNECTING, DISCONNECTING, TURNING ON OR TURNING OFF ANY SERVICE WHICH MAY AFFECT OWNER'S OPERATIONS.
  - CONTRACTOR SHALL PROVIDE 72 HOUR (3 WORKING DAYS) NOTICE TO LOCAL FIRE DEPARTMENT OF DISRUPTIONS.
  - DISTURBANCE ON ACTIVE GAS LINES SHALL BE COORDINATED WITH UTILITY PROVIDER.
  - THE CONTRACTOR SHALL CONFIRM LOCATION AND ELEVATION OF THE EXISTING DRAINAGE MANHOLES AND PIPES INDICATED. IT SHALL BE ASSUMED THAT AN ADDITIONAL 60 FEET OF PIPE WILL NEED TO BE REMOVED AND DISPOSED.
  - ANY UNFORESEEN UNDERGROUND TRANSIT PIPE OR OTHER UNFORESEEN HAZARDOUS MATERIAL SHALL BE ABATED IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL LOCAL, STATE AND FEDERAL REGULATIONS.
  - CONTRACTOR SHALL COMPLY WITH ALL LEED REQUIREMENTS FOR DEMOLITION.
  - ALL EXISTING MANHOLES OR CATCH BASINS TO REMAIN SHALL BE ADJUSTED TO FINISHED GRADE ELEVATION.
  - ALL EXISTING UTILITIES WITHIN TREE PROTECTION AREAS NOT SCHEDULED FOR RE-USE SHALL BE CUT, CAPPED, AND ABANDONED IN PLACE.
  - DEMOLITION WORK SHOWN ON THIS SHEET IS INDEPENDENT OF PROJECT PHASING OR SEQUENCING. CONTRACTOR SHALL BE RESPONSIBLE FOR SEQUENCING ALL WORK AS OUTLINED IN THE PROJECT SPECIFICATIONS.
  - CONTRACTOR SHALL SCHEDULE PRECONSTRUCTION MEETING WITH ARCHITECT, LANDSCAPE ARCHITECT, CIVIL ENGINEER, STRUCTURAL ENGINEER, AND OWNER'S REPRESENTATIVE PRIOR TO DEMOLITION OF EXISTING SERVICE AREA TO CONFIRM EXTENT OF DEMOLITION AND SAWCUT LOCATIONS.
  - PERIMETER EROSION CONTROL SHALL BE PROVIDED.



NO.	DESCRIPTION	DATE
1	DESIGN DEVELOPMENT	2023.12.15
2	SCHEDULED	2023.12.15
3	ISSUED/REVISION	YYYYMMDD

Permit/Seal

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000

**EXISTING CONDITIONS  
 AND DEMOLITION  
 PLAN 1**

**C1.1**

Key Plan



Notes

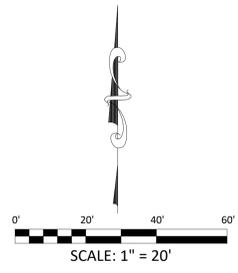
MATCH - SHEET C1.1

MATCH - SHEET C1.3



- NOTES:**
- EXISTING UTILITY INFORMATION SHOWN HEREON IS BASED UPON PREVIOUS DESIGN DRAWINGS AND RECORD INFORMATION. LOCATIONS, SIZES, AND DEPTHS OF UTILITIES HAVE NOT BEEN SURVEYED IN THE FIELD. ADDITIONAL SITE SURVEY IS ONGOING.
  - DEMOLITION OF EXISTING BUILDING AND SITE FEATURES SHOWN ON SHEETS C1.1 THROUGH C1.3 ARE INCLUSIVE OF ALL PHASES. PROPOSED DEMOLITION ACTIVITIES SHOWN ON THESE SHEETS ARE NOT INTENDED TO INDICATE THE PHASE IN WHICH THEY OCCUR. SEE PHASING DRAWINGS FOR DEMOLITION SPECIFIC TO PHASING.
  - THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE PLANS ARE INTENDED TO REPRESENT THE MINIMUM CONTROLS NECESSARY TO MEET ANTICIPATED SITE CONDITIONS. ADDITIONAL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
  - INSTALL EROSION CONTROLS DOWNSTREAM OF ANY DISTURBED AREAS TO REDUCE POTENTIAL FOR EROSION. CONTRACTOR SHALL INDICATE LOCATIONS OF EROSION CONTROLS FOR REVIEW WITH GENERAL CONTRACTOR AND OWNER'S REPRESENTATIVE PRIOR TO COMMENCING DISTURBANCE. THE DEMOLITION IS PROPOSED TO BE CONDUCTED IN PHASES. EROSION CONTROLS SHALL BE RELOCATED AS NECESSARY DURING EACH PHASE.
  - INSTALL CHAIN LINK FENCE TREE PROTECTION PER DETAIL. AT THE LOCATIONS SHOWN ON THE PLAN TO PROTECT EXISTING TREES SPECIFICALLY INDICATED ON THE PLAN. LAYOUT OF FENCE SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT. TREE PROTECTION SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION.
  - ALL EXISTING DRAINAGE AND SEWER SHALL BE MAINTAINED OR REROUTED AS NECESSARY UNTIL PERMANENT PIPING IS INSTALLED.
  - ELECTRICAL DEMOLITION IS SHOWN FOR INFORMATION ONLY. REFER TO ELECTRICAL PLANS FOR COMPLETE EXTENT OF ELECTRICAL DEMOLITION.
  - PROVIDE INLET PROTECTION AT ALL EXISTING DRAINAGE INLETS.
  - ALL ITEMS TO BE REMOVED AND STOCKPILED SHALL BE COORDINATED WITH OWNER FOR STOCKPILE LOCATIONS. AT THIS TIME, THE OWNER HAS NOT IDENTIFIED ITEMS FOR STOCKPILE.
  - ALL ITEMS MARKED FOR RE-USE SHALL BE STOCKPILED ONSITE, PROTECTED AND RE-INSTALLED AS SHOWN ON THE LANDSCAPE PLANS.

- DRAINAGE FEATURES AND UTILITIES TO BE MAINTAINED UNLESS OTHERWISE NOTED.
- TOTAL AREA OF DISTURBANCE: 13.18 ACRES.
- CONTRACTOR TO REESTABLISH BENCHMARKS IN ALTERNATE LOCATION PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE CLEARING OF ALL ABUTTER ENCROACHMENTS WITH THE OWNER PRIOR TO CONSTRUCTION. IT IS NOT EXPECTED THAT ENCROACHMENTS WILL BE ENCOUNTERED ON THIS SITE.
- INSTALL CONSTRUCTION ENTRANCE AT ALL ENTRY/EXIT POINT FOR VEHICULAR TRAFFIC FOR EACH PHASE OF THE PROJECT. LOCATION TO BE DETERMINED BY PHASING. IT SHALL BE ASSUMED THAT TWO (2) WILL BE NECESSARY THROUGHOUT CONSTRUCTION.
- ALL EARTH DISTURBANCE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- ACTIVE UTILITY LINES (INCLUDING SEWER, WATER, AND DRAINAGE), CONTRACTOR SHALL PROVIDE 1 WEEK NOTIFICATION FOR ANY POSSIBLE DISRUPTION OF SERVICE TO OWNER, OWNER'S PROJECT MANAGER AND ARCHITECT; PROVIDE NOTIFICATION FOR CONNECTING, DISCONNECTING, TURNING ON OR TURNING OFF ANY SERVICE WHICH MAY AFFECT OWNER'S OPERATIONS.
- CONTRACTOR SHALL PROVIDE 72 HOUR (3 WORKING DAYS) NOTICE TO LOCAL FIRE DEPARTMENT OF DISRUPTIONS.
- DISTURBANCE ON ACTIVE GAS LINES SHALL BE COORDINATED WITH UTILITY PROVIDER.
- THE CONTRACTOR SHALL CONFIRM LOCATION AND ELEVATION OF THE EXISTING DRAINAGE MANHOLES AND PIPES INDICATED. IT SHALL BE ASSUMED THAT AN ADDITIONAL 60 FEET OF PIPE WILL NEED TO BE REMOVED AND DISPOSED.
- ANY UNFORESEEN UNDERGROUND TRANSIT PIPE OR OTHER UNFORESEEN HAZARDOUS MATERIAL SHALL BE ABATED IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL LOCAL, STATE AND FEDERAL REGULATIONS.
- CONTRACTOR SHALL COMPLY WITH ALL LEED REQUIREMENTS FOR DEMOLITION.
- ALL EXISTING MANHOLES OR CATCH BASINS TO REMAIN SHALL BE ADJUSTED TO FINISHED GRADE ELEVATION.
- ALL EXISTING UTILITIES WITHIN TREE PROTECTION AREAS NOT SCHEDULED FOR RE-USE SHALL BE CUT, CAPPED, AND ABANDONED IN PLACE.
- DEMOLITION WORK SHOWN ON THIS SHEET IS INDEPENDENT OF PROJECT PHASING OR SEQUENCING. CONTRACTOR SHALL BE RESPONSIBLE FOR SEQUENCING ALL WORK AS OUTLINED IN THE PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL SCHEDULE PRECONSTRUCTION MEETING WITH ARCHITECT, LANDSCAPE ARCHITECT, CIVIL ENGINEER, STRUCTURAL ENGINEER, AND OWNER'S REPRESENTATIVE PRIOR TO DEMOLITION OF EXISTING SERVICE AREA TO CONFIRM EXTENT OF DEMOLITION AND SAWCUT LOCATIONS.
- PERIMETER EROSION CONTROL SHALL BE PROVIDED.



NO.	DESCRIPTION	DATE
1	DESIGN DEVELOPMENT	2023.12.15
2	SCHEMATIC DESIGN	2023.12.04
3	ISSUED/REVISION	YYYYMMDD

Permit/Seal

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000

**EXISTING CONDITIONS  
 AND DEMOLITION  
 PLAN 2**

**C1.2**

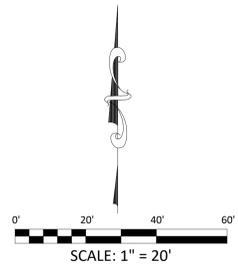
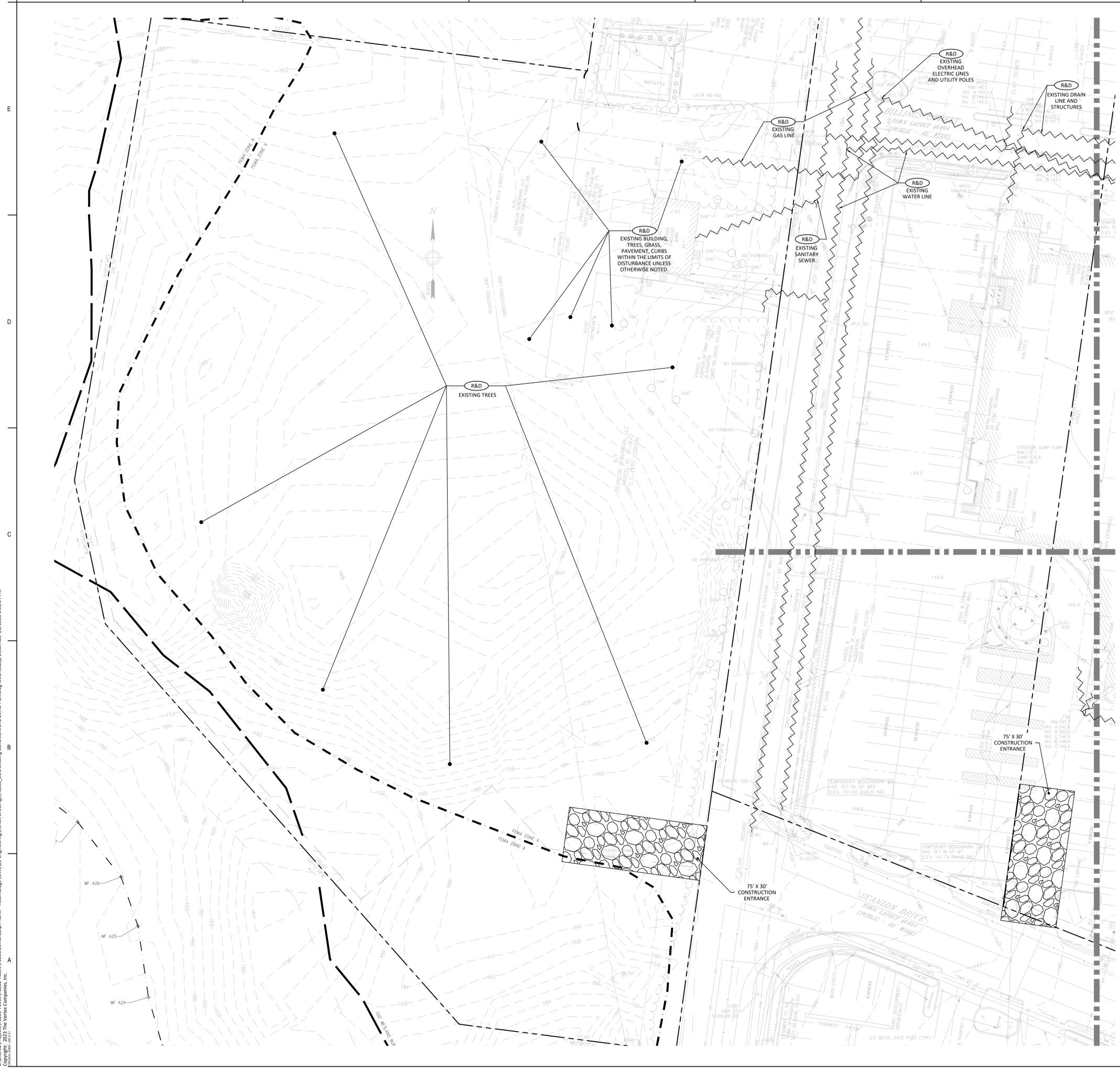


**NOTES:**

1. EXISTING UTILITY INFORMATION SHOWN HEREON IS BASED UPON PREVIOUS DESIGN DRAWINGS AND RECORD INFORMATION. LOCATIONS, SIZES, AND DEPTHS OF UTILITIES HAVE NOT BEEN SURVEYED IN THE FIELD. ADDITIONAL SITE SURVEY IS ONGOING.
2. DEMOLITION OF EXISTING BUILDING AND SITE FEATURES SHOWN ON SHEETS C1.1 THROUGH C1.3 ARE INCLUSIVE OF ALL PHASES. PROPOSED DEMOLITION ACTIVITIES SHOWN ON THESE SHEETS ARE NOT INTENDED TO INDICATE THE PHASE IN WHICH THEY OCCUR. SEE PHASING DRAWINGS FOR DEMOLITION SPECIFIC TO PHASING.
3. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE PLANS ARE INTENDED TO REPRESENT THE MINIMUM CONTROLS NECESSARY TO MEET ANTICIPATED SITE CONDITIONS. ADDITIONAL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
4. INSTALL EROSION CONTROLS DOWNSTREAM OF ANY DISTURBED AREAS TO REDUCE POTENTIAL FOR EROSION. CONTRACTOR SHALL INDICATE LOCATIONS OF EROSION CONTROLS FOR REVIEW WITH GENERAL CONTRACTOR AND OWNER'S REPRESENTATIVE PRIOR TO COMMENCING DISTURBANCE. THE DEMOLITION IS PROPOSED TO BE CONDUCTED IN PHASES. EROSION CONTROLS SHALL BE RELOCATED AS NECESSARY DURING EACH PHASE.
5. INSTALL CHAIN LINK FENCE TREE PROTECTION PER DETAIL. AT THE LOCATIONS SHOWN ON THE PLAN TO PROTECT EXISTING TREES SPECIFICALLY INDICATED ON THE PLAN. LAYOUT OF FENCE SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT. TREE PROTECTION SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION.
6. ALL EXISTING DRAINAGE AND SEWER SHALL BE MAINTAINED OR REROUTED AS NECESSARY UNTIL PERMANENT PIPING IS INSTALLED.
7. ELECTRICAL DEMOLITION IS SHOWN FOR INFORMATION ONLY. REFER TO ELECTRICAL PLANS FOR COMPLETE EXTENT OF ELECTRICAL DEMOLITION.
8. PROVIDE INLET PROTECTION AT ALL EXISTING DRAINAGE INLETS.
9. ALL ITEMS TO BE REMOVED AND STOCKPILED SHALL BE COORDINATED WITH OWNER FOR STOCKPILE LOCATIONS. AT THIS TIME, THE OWNER HAS NOT IDENTIFIED ITEMS FOR STOCKPILE.
10. ALL ITEMS MARKED FOR RE-USE SHALL BE STOCKPILED ONSITE, PROTECTED AND RE-INSTALLED AS SHOWN ON THE LANDSCAPE PLANS.
11. DRAINAGE FEATURES AND UTILITIES TO BE MAINTAINED UNLESS OTHERWISE NOTED.
12. TOTAL AREA OF DISTURBANCE: 13.18 ACRES.
13. CONTRACTOR TO REESTABLISH BENCHMARKS IN ALTERNATE LOCATION PRIOR TO CONSTRUCTION.
14. CONTRACTOR SHALL COORDINATE CLEARING OF ALL BUTTER ENCROACHMENTS WITH THE OWNER PRIOR TO CONSTRUCTION. IT IS NOT EXPECTED THAT ENCROACHMENTS WILL BE ENCOUNTERED ON THIS SITE.
15. INSTALL CONSTRUCTION ENTRANCE AT ALL ENTRY/EXIT POINT FOR VEHICULAR TRAFFIC FOR EACH PHASE OF THE PROJECT. LOCATION TO BE DETERMINED BY PHASING. IT SHALL BE ASSUMED THAT TWO (2) WILL BE NECESSARY THROUGHOUT CONSTRUCTION.
16. ALL EARTH DISTURBANCE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
17. ACTIVE UTILITY LINES (INCLUDING SEWER, WATER, AND DRAINAGE), CONTRACTOR SHALL PROVIDE 1 WEEK NOTIFICATION FOR ANY POSSIBLE DISRUPTION OF SERVICE TO OWNER, OWNER'S PROJECT MANAGER AND ARCHITECT. PROVIDE NOTIFICATION FOR CONNECTING, DISCONNECTING, TURNING ON OR TURNING OFF ANY SERVICE WHICH MAY AFFECT OWNER'S OPERATIONS.
18. CONTRACTOR SHALL PROVIDE 72 HOUR (3 WORKING DAYS) NOTICE TO LOCAL FIRE DEPARTMENT OF DISRUPTIONS.
19. DISTURBANCE ON ACTIVE GAS LINES SHALL BE COORDINATED WITH UTILITY PROVIDER.
20. THE CONTRACTOR SHALL CONFIRM LOCATION AND ELEVATION OF THE EXISTING DRAINAGE MANHOLES AND PIPES INDICATED. IT SHALL BE ASSUMED THAT AN ADDITIONAL 60 FEET OF PIPE WILL NEED TO BE REMOVED AND DISPOSED.
21. ANY UNFORESEEN UNDERGROUND TRANSIT PIPE OR OTHER UNFORESEEN HAZARDOUS MATERIAL SHALL BE ABATED IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL LOCAL, STATE AND FEDERAL REGULATIONS.
22. CONTRACTOR SHALL COMPLY WITH ALL LEED REQUIREMENTS FOR DEMOLITION.
23. ALL EXISTING MANHOLES OR CATCH BASINS TO REMAIN SHALL BE ADJUSTED TO FINISHED GRADE ELEVATION.
24. ALL EXISTING UTILITIES WITHIN TREE PROTECTION AREAS NOT SCHEDULED FOR RE-USE SHALL BE CUT, CAPPED, AND ABANDONED IN PLACE.
25. DEMOLITION WORK SHOWN ON THIS SHEET IS INDEPENDENT OF PROJECT PHASING OR SEQUENCING. CONTRACTOR SHALL BE RESPONSIBLE FOR SEQUENCING ALL WORK AS OUTLINED IN THE PROJECT SPECIFICATIONS.
26. CONTRACTOR SHALL SCHEDULE PRECONSTRUCTION MEETING WITH ARCHITECT, LANDSCAPE ARCHITECT, CIVIL ENGINEER, STRUCTURAL ENGINEER, AND OWNER'S REPRESENTATIVE PRIOR TO DEMOLITION OF EXISTING SERVICE AREA TO CONFIRM EXTENT OF DEMOLITION AND SAWCUT LOCATIONS.
27. PERIMETER EROSION CONTROL SHALL BE PROVIDED.

MATCH - SHEET C1.1

MATCH - SHEET C1.2



NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	2023.12.15
2	DESIGN DEVELOPMENT	2023.12.15
3	SCHEMATIC DESIGN	2023.12.04

Issued/Revision: YYYMMDD

Permit/Seal

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

Scale: AS NOTED  
 Project No.: 78000  
**EXISTING CONDITIONS  
AND DEMOLITION  
PLAN 3**

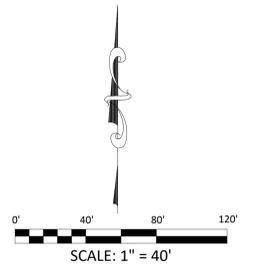
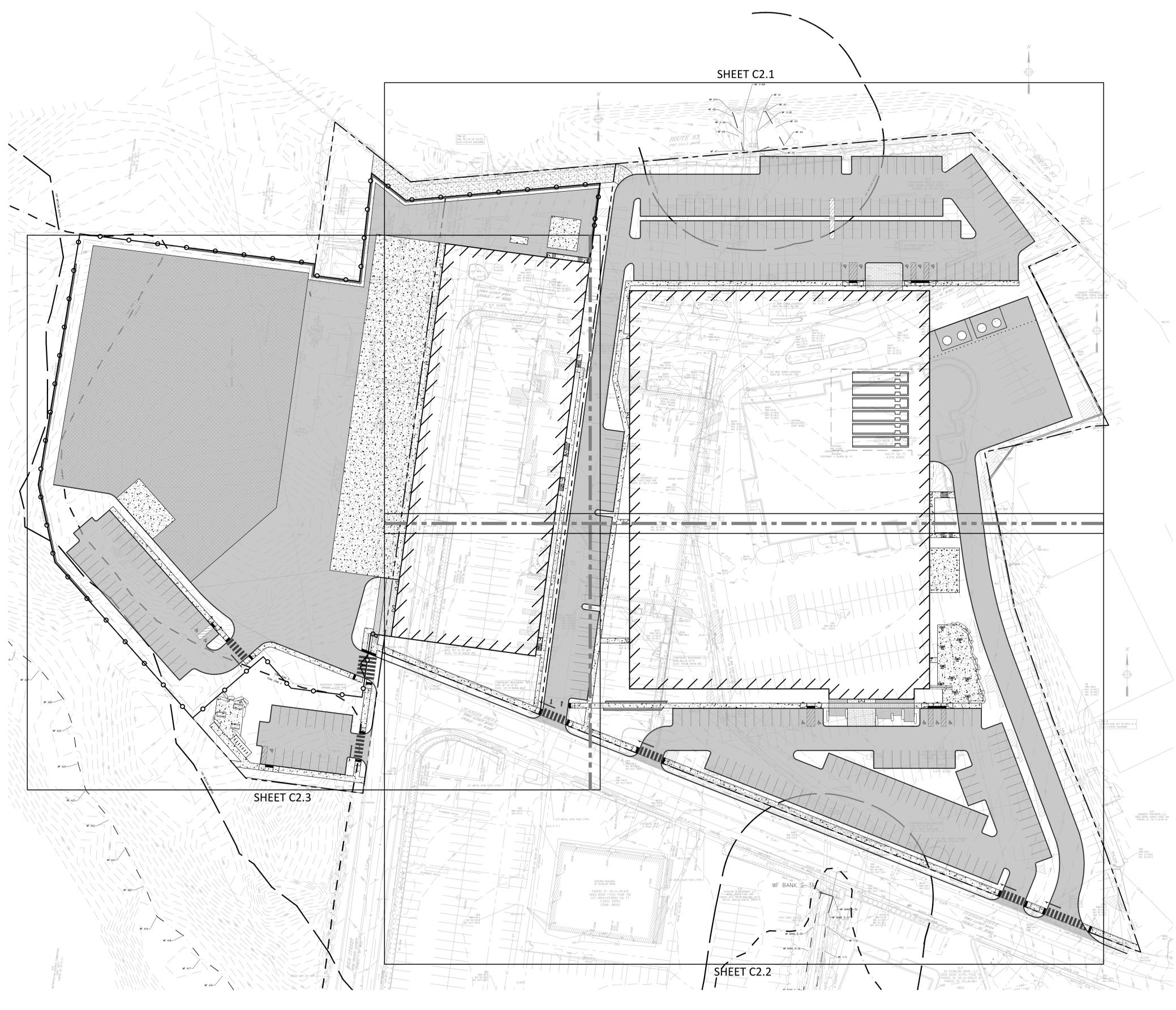
**C1.3**



Issued/Revision	DATE	BY
1	2023.12.15	YMM/AM/DD
2	2023.12.15	YMM/AM/DD
3	2023.12.15	YMM/AM/DD
4	2023.12.15	YMM/AM/DD
5	2023.12.15	YMM/AM/DD
6	2023.12.15	YMM/AM/DD
7	2023.12.15	YMM/AM/DD
8	2023.12.15	YMM/AM/DD
9	2023.12.15	YMM/AM/DD
10	2023.12.15	YMM/AM/DD
11	2023.12.15	YMM/AM/DD
12	2023.12.15	YMM/AM/DD
13	2023.12.15	YMM/AM/DD
14	2023.12.15	YMM/AM/DD
15	2023.12.15	YMM/AM/DD
16	2023.12.15	YMM/AM/DD
17	2023.12.15	YMM/AM/DD
18	2023.12.15	YMM/AM/DD
19	2023.12.15	YMM/AM/DD
20	2023.12.15	YMM/AM/DD
21	2023.12.15	YMM/AM/DD
22	2023.12.15	YMM/AM/DD
23	2023.12.15	YMM/AM/DD
24	2023.12.15	YMM/AM/DD
25	2023.12.15	YMM/AM/DD
26	2023.12.15	YMM/AM/DD
27	2023.12.15	YMM/AM/DD
28	2023.12.15	YMM/AM/DD
29	2023.12.15	YMM/AM/DD
30	2023.12.15	YMM/AM/DD
31	2023.12.15	YMM/AM/DD
32	2023.12.15	YMM/AM/DD
33	2023.12.15	YMM/AM/DD
34	2023.12.15	YMM/AM/DD
35	2023.12.15	YMM/AM/DD
36	2023.12.15	YMM/AM/DD
37	2023.12.15	YMM/AM/DD
38	2023.12.15	YMM/AM/DD
39	2023.12.15	YMM/AM/DD
40	2023.12.15	YMM/AM/DD
41	2023.12.15	YMM/AM/DD
42	2023.12.15	YMM/AM/DD
43	2023.12.15	YMM/AM/DD
44	2023.12.15	YMM/AM/DD
45	2023.12.15	YMM/AM/DD
46	2023.12.15	YMM/AM/DD
47	2023.12.15	YMM/AM/DD
48	2023.12.15	YMM/AM/DD
49	2023.12.15	YMM/AM/DD
50	2023.12.15	YMM/AM/DD

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

6  
5  
4  
3  
2  
1  
E  
D  
C  
B  
A



Z:\Shared\Projects\78000-78000-78000-78000-05-Randolph North - Assemlage (Civil)\05-Engineering\Vertex Drawings\78000\_C2.0 Site Improvements Plan.dwg, Wednesday, December 20, 2023 3:08:26 PM  
 Copyright © 2023 The Vertex Companies, Inc.





Key Plan



Notes

**NOTES:**

1. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED FOR THE DURATION OF CONSTRUCTION. AT A MINIMUM, PERIMETER HAY BALES, VEHICLE TRACKING CONTROL, INLET PROTECTION, CONCRETE WASHOUT AREAS AND TEMPORARY SEDIMENTATION BASINS SHOULD BE CONSIDERED.
2. GRANITE CURB SHALL BE PROVIDED IN ALL PARKING AREAS AT THE EDGE OF THE PAVEMENT AND ADJACENT TO SIDEWALKS.
3. CURB, BERM, AND WALKWAY RADII SHALL BE 2 FEET UNLESS NOTED ON PLANS.
4. WHERE SIDEWALKS INTERSECT CURB LINES, ADA, MAAB COMPLIANT CURB RAMP WITH DETECTABLE WARNING MAT SHALL BE INSTALLED. DETECTABLE WARNING PANELS SHALL BE CAST IRON, SEE SPECIFICATION SECTION 32 13 12.
5. CURB & GUTTER RELATED DIMENSIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED.
6. ALL PAVEMENT MARKINGS ONSITE SHALL BE WATERBOURNE, CONFORMING TO MASSACHUSETTS STANDARD SPECIFICATIONS.
7. CONCRETE WALKWAY MATERIALS SHOWN FOR CLARITY ONLY. REFER TO LANDSCAPE PLANS FOR ALL WALKWAY MATERIALS, FINISHES, AND SCORING.

MATCH - SHEET C2.1

- HEAVY-DUTY BITUMINOUS CONCRETE PAVEMENT:  
1.5" FINISH COURSE OVER  
2" BINDER COURSE OVER  
8.5" PROCESSED GRAVEL OVER  
12" COMPACTED SUBGRADE
- SIDEWALK CONCRETE  
RE: LANDSCAPE FOR CONCRETE TYPE
- POROUS PAVEMENT  
RE: SITE DETAILS

MATCH - SHEET C2.2

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	12/15/23
2	DESIGN DEVELOPMENT	12/15/23
3	SCHEMATIC DESIGN	09/15/23

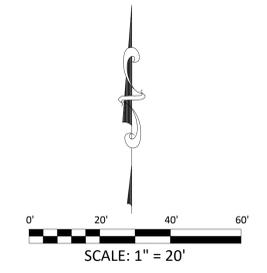
Permit/Seal

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000

**SITE IMPROVEMENT  
PLAN 3**

**C2.3**



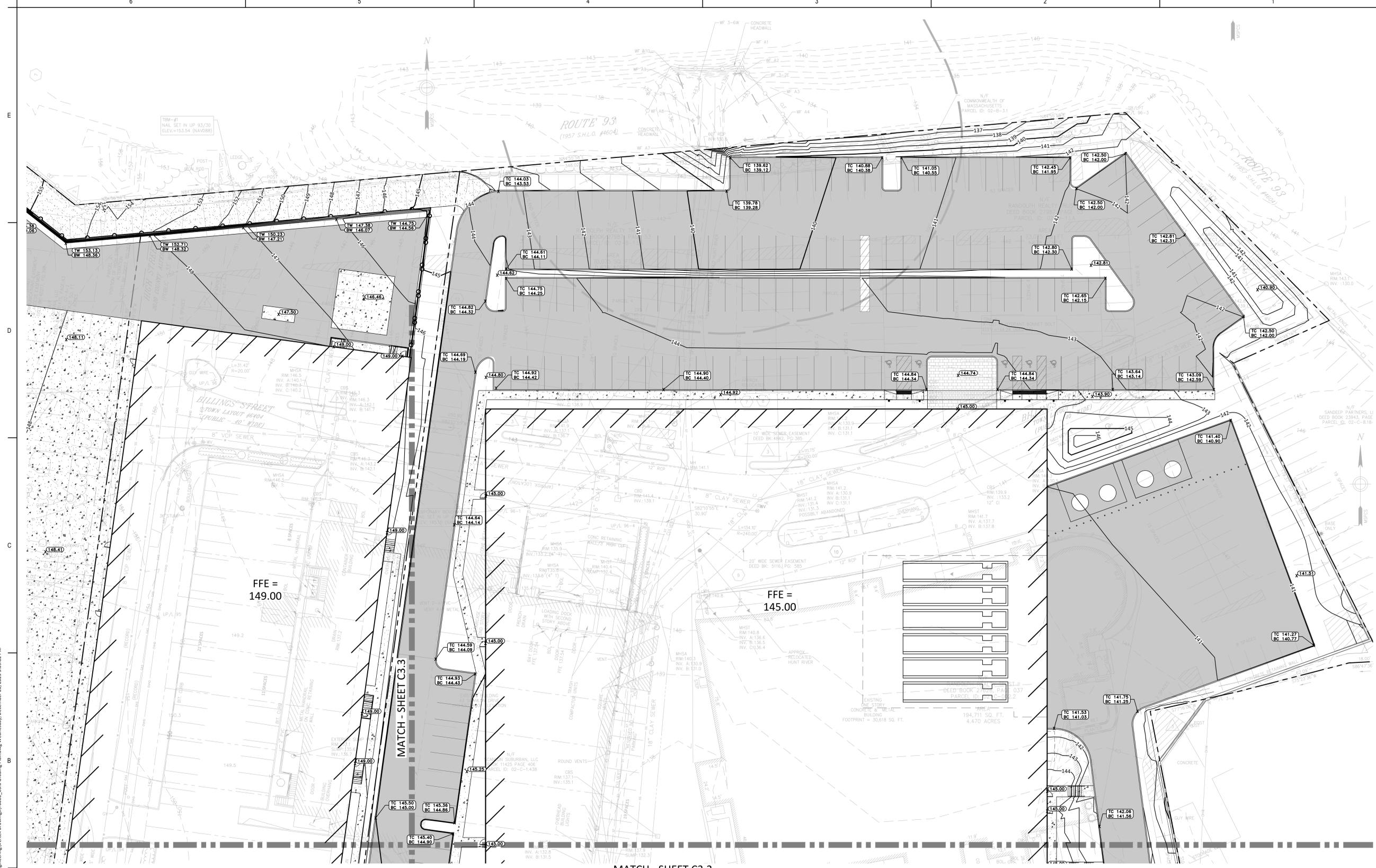
Z:\Shared\Projects\78000-78000-78000-05-Randolph North - Assemblage (Civil)\05-Engineering\Vertex Drawings\78000\_C2.0 Site Improvements Plan.dwg Wednesday, December 20, 2023 3:08:42 PM  
 Copyright © 2023 The Vertex Companies, Inc.  
 2018 Stantec



Key Plan

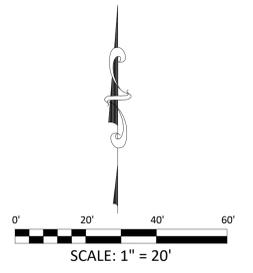


Notes



Z:\Shared\Projects\78000-78999\78000-78999\78000-05-Randolph North - Assemlage (Civil)\05-Engineering\Vertex Drawings\78000\_C3.0 Grading Plan.dwg, Wednesday, December 20, 2023 3:05:02 PM  
 Copyright © 2023 The Vertex Companies, Inc.

- NOTES:**
- PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MIN. OF 1/8" PER FOOT UNLESS SPECIFIED.
  - SITE GRADES SHALL CONFORM WITH ADA AND MAAB REQUIREMENTS. IN AREAS WHERE THESE REQUIREMENTS CANNOT BE MET, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING FOR RESOLUTION.
  - ALL TRANSITIONS BETWEEN GROUND COVERING MATERIALS SHALL BE SMOOTH AND MEET 521 CMR 20.10 REQUIREMENTS.
  - CROSS SLOPES FOR ALL WALKWAYS SHALL NOT EXCEED 2% AND RUNNING SLOPES FOR ALL WALKWAYS SHALL NOT EXCEED 5%.
  - REFER TO GRADING PLANS FOR ALL GRADING STRUCTURE RIM ELEVATIONS.



Issued/Revision	DATE	BY
DESIGN DEVELOPMENT	2023.12.15	
SCHEDULE DESIGN	2023.12.04	
XXXXXX	XXXXXX	

Permit/Seal

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000  
**GRADING PLAN 1**





NOTES:

- PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MIN. OF 1/8" PER FOOT UNLESS SPECIFIED.
- SITE GRADES SHALL CONFORM WITH ADA AND MAAB REQUIREMENTS. IN AREAS WHERE THESE REQUIREMENTS CANNOT BE MET, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING FOR RESOLUTION.
- ALL TRANSITIONS BETWEEN GROUND COVERING MATERIALS SHALL BE SMOOTH AND MEET 521 CMR 20.10 REQUIREMENTS.
- CROSS SLOPES FOR ALL WALKWAYS SHALL NOT EXCEED 2% AND RUNNING SLOPES FOR ALL WALKWAYS SHALL NOT EXCEED 5%.
- REFER TO GRADING PLANS FOR ALL GRADING STRUCTURE RIM ELEVATIONS.



MATCH - SHEET C3.1

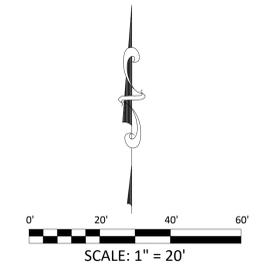
MATCH - SHEET C3.2

Issue/Revision	Date
1	2023.12.15
2	2023.12.15
3	2023.12.15
4	2023.12.15
5	2023.12.15
6	2023.12.15
7	2023.12.15
8	2023.12.15
9	2023.12.15
10	2023.12.15
11	2023.12.15
12	2023.12.15
13	2023.12.15
14	2023.12.15
15	2023.12.15
16	2023.12.15
17	2023.12.15
18	2023.12.15
19	2023.12.15
20	2023.12.15
21	2023.12.15
22	2023.12.15
23	2023.12.15
24	2023.12.15
25	2023.12.15
26	2023.12.15
27	2023.12.15
28	2023.12.15
29	2023.12.15
30	2023.12.15
31	2023.12.15
32	2023.12.15
33	2023.12.15
34	2023.12.15
35	2023.12.15
36	2023.12.15
37	2023.12.15
38	2023.12.15
39	2023.12.15
40	2023.12.15
41	2023.12.15
42	2023.12.15
43	2023.12.15
44	2023.12.15
45	2023.12.15
46	2023.12.15
47	2023.12.15
48	2023.12.15
49	2023.12.15
50	2023.12.15
51	2023.12.15
52	2023.12.15
53	2023.12.15
54	2023.12.15
55	2023.12.15
56	2023.12.15
57	2023.12.15
58	2023.12.15
59	2023.12.15
60	2023.12.15
61	2023.12.15
62	2023.12.15
63	2023.12.15
64	2023.12.15
65	2023.12.15
66	2023.12.15
67	2023.12.15
68	2023.12.15
69	2023.12.15
70	2023.12.15
71	2023.12.15
72	2023.12.15
73	2023.12.15
74	2023.12.15
75	2023.12.15
76	2023.12.15
77	2023.12.15
78	2023.12.15
79	2023.12.15
80	2023.12.15
81	2023.12.15
82	2023.12.15
83	2023.12.15
84	2023.12.15
85	2023.12.15
86	2023.12.15
87	2023.12.15
88	2023.12.15
89	2023.12.15
90	2023.12.15
91	2023.12.15
92	2023.12.15
93	2023.12.15
94	2023.12.15
95	2023.12.15
96	2023.12.15
97	2023.12.15
98	2023.12.15
99	2023.12.15
100	2023.12.15

Permit/Seal

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

Scale AS NOTED  
Project No. 78000  
**GRADING PLAN 3**



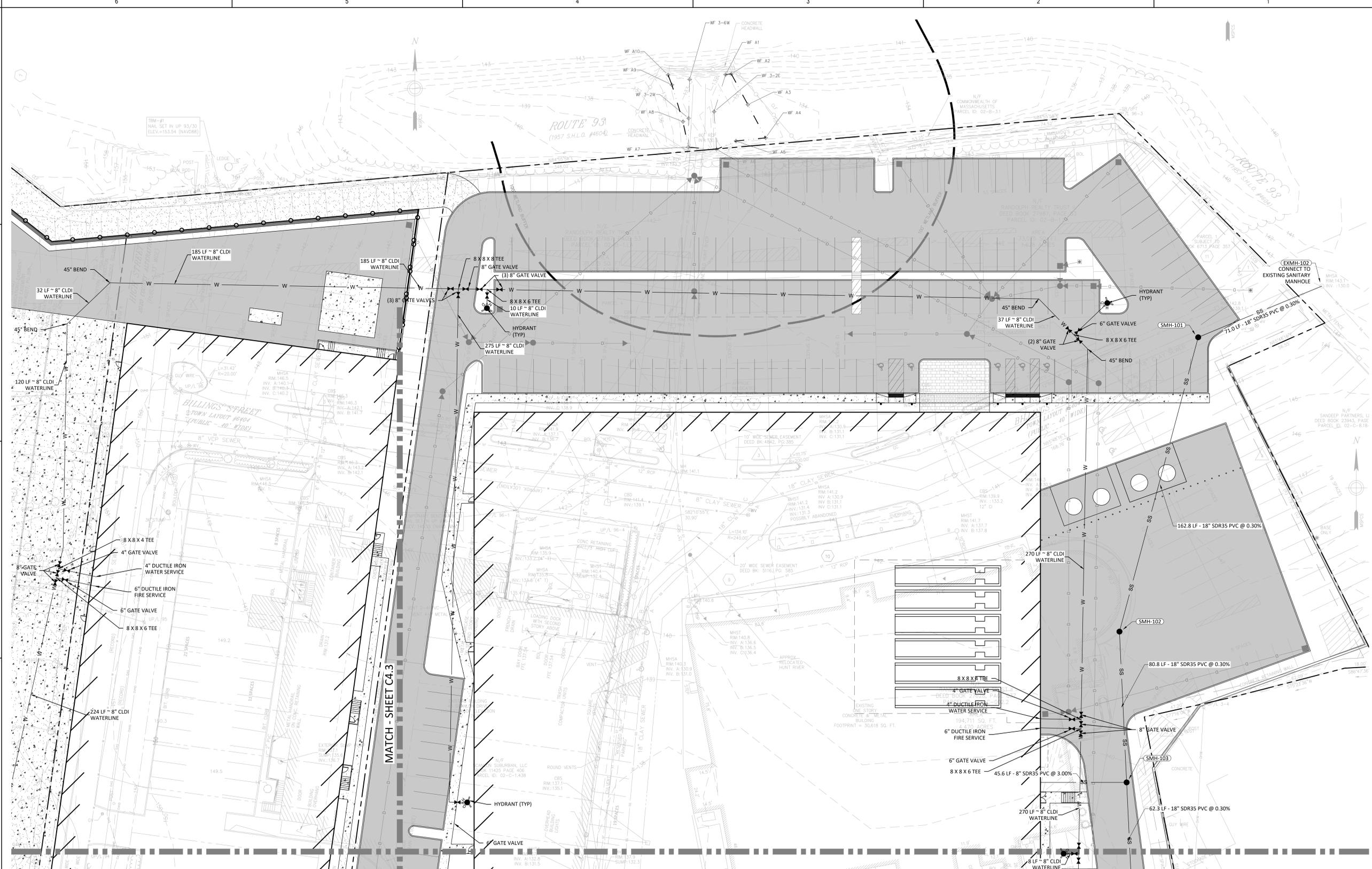
**C3.3**





NO.	DESCRIPTION	DATE
1	DESIGN DEVELOPMENT	2023.12.15
2	SCHEDULED	2023.12.04
3	ISSUED/REVISION	YYYYMMDD

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**



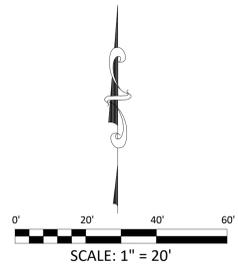
- NOTES:**
- WORK ON ACTIVE UTILITY LINES (INCLUDING SEWER, WATER, AND DRAINAGE) SHALL BE COORDINATED AND SCHEDULED WITH THE OWNER PRIOR TO EXECUTION OF THE WORK.
  - THE CONTRACTOR SHALL MAINTAIN SANITARY SEWER SERVICE TO THE EXISTING SANITARY MAIN FROM THE START OF CONSTRUCTION TO THE START OF BUILDING DEMOLITION.
  - WORK ON EXISTING AND PROPOSED GAS LINES SHALL BE COORDINATED WITH LOCAL GAS COMPANY.
  - POLYVINYL CHLORIDE PIPE AND FITTINGS (PVC) SHALL BE MINIMUM SDR 35 WITH FULL DIAMETER DIMENSIONS CONFORMING TO THE SPECIFICATIONS FOR TYPE 85M POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION D3034 LATEST REVISION, FOR SIZES 18 INCHES TO 27 INCHES THE PIPE SHALL COMPLY WITH ASTM F679, LATEST RECORD.
  - MANHOLE FRAMES AND COVERS SHALL BE MINIMUM CLASS 25 CONFORMING TO ASTM "STANDARD SPECIFICATION FOR GRAY IRON CASTINGS," DESIGNATION: A48.
  - ALL WATER MAINS SHALL BE DUCTILE IRON CLASS 52 WITH PUSH ON JOINTS (UNLESS OTHERWISE SPECIFIED) MEETING THE REQUIREMENTS OF ANSI/AWWA C151/A21.51. ALL DUCTILE IRON WATER MAIN PIPE SHALL BE CEMENT LINED, WITH AN ASPHALTIC SEAL COAT MEETING THE REQUIREMENTS OF ANSI/AWWA C104/A21.4.
  - CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL WATERLINE BENDS AND TEES IN ACCORDANCE WITH THE SPECIFICATIONS.
  - ALL EXISTING STRUCTURES TO REMAIN WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED TO FINISH GRADE. MINIMUM AND MAXIMUM NUMBER OF SEWER BRICK COURSES USED FOR GRADE ADJUSTMENT SHALL BE IN ACCORDANCE WITH TOWN STANDARDS
  - ALL PRECAST CONCRETE MANHOLES FOR SANITARY AND DRAINAGE SHALL CONFORM TO THE ASTM "SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS," DESIGNATION D478. THE BARREL SHALL BE 4-FOOT WITH A 1-FOOT COLLAR TO PREVENT FLOTATION
  - ALL DUCTILE IRON WATER PIPE SHALL BE PRESSURE TESTED FOR 2 HOURS.
  - ALL DOMESTIC AND FIRE SUPPLY PIPES AND MAINS MUST BE DISINFECTED AND SAMPLED FOR COLIFORM BACTERIA 2X24 HOURS APART BE A MASSACHUSETTS CERTIFIED LAB.
  - ALL WATERLINE CONNECTIONS SHALL REQUIRE A SHUTDOWN. LIVE TAPS SHALL NOT BE PERMITTED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SHUTDOWN WITH RANDOLPH DPW TWO WEEKS IN ADVANCE OF WORK.
  - ALL UTILITY AND DRAINAGE INSTALLATION SHALL BE INSPECTED BY RANDOLPH DPW. CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO DPW PRIOR TO INSTALLATION.
  - CONTRACTOR TO PROVIDE CONCRETE ENCASEMENT FOR WATER AND DRAINAGE CROSSINGS.
  - ALL WATERLINE GATE VALVES SHALL TURN TO THE RIGHT.

- ALL PRECAST CONCRETE MANHOLES FOR SANITARY AND DRAINAGE SHALL CONFORM TO THE ASTM "SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS," DESIGNATION D478. THE BARREL SHALL BE 4-FOOT WITH A 1-FOOT COLLAR TO PREVENT FLOTATION
- ALL DUCTILE IRON WATER PIPE SHALL BE PRESSURE TESTED FOR 2 HOURS.
- ALL DOMESTIC AND FIRE SUPPLY PIPES AND MAINS MUST BE DISINFECTED AND SAMPLED FOR COLIFORM BACTERIA 2X24 HOURS APART BE A MASSACHUSETTS CERTIFIED LAB.
- ALL WATERLINE CONNECTIONS SHALL REQUIRE A SHUTDOWN. LIVE TAPS SHALL NOT BE PERMITTED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SHUTDOWN WITH RANDOLPH DPW TWO WEEKS IN ADVANCE OF WORK.
- ALL UTILITY AND DRAINAGE INSTALLATION SHALL BE INSPECTED BY RANDOLPH DPW. CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO DPW PRIOR TO INSTALLATION.
- CONTRACTOR TO PROVIDE CONCRETE ENCASEMENT FOR WATER AND DRAINAGE CROSSINGS.
- ALL WATERLINE GATE VALVES SHALL TURN TO THE RIGHT.

**MATCH - SHEET C4.2**

Structure Table	
Structure Name	Structure Details
EXMH-101	141.80 INV OUT = 132.20
EXMH-102	134.47 INV IN = 130.05
EXMH-103	133.99 INV IN = 132.80
SMH-101	141.97 INV IN = 130.27 INV OUT = 130.26
SMH-102	141.09 INV IN = 130.75 INV OUT = 130.75
SMH-103	141.43 INV IN = 131.00 INV OUT = -4.15 INV OUT = 131.00

Structure Table	
Structure Name	Structure Details
SMH-104	142.01 INV IN = 131.18 INV OUT = 131.18
SMH-105	143.25 INV IN = 131.67 INV OUT = 131.67
SMH-201	148.36 INV IN = 137.98 INV OUT = 137.89
SMH-202	144.73 INV IN = 133.72 INV OUT = 133.62



Z:\Shared\Projects\78000-78999\78000-78999\78000\_C4.0 Utility Plan.dwg Wednesday, December 20, 2023 3:09:33 PM  
 Copyright © 2023 The Vertex Companies, Inc.

Key Plan



Notes

**NOTES:**

- WORK ON ACTIVE UTILITY LINES (INCLUDING SEWER, WATER, AND DRAINAGE) SHALL BE COORDINATED AND SCHEDULED WITH THE OWNER PRIOR TO EXECUTION OF THE WORK.
- THE CONTRACTOR SHALL MAINTAIN SANITARY SEWER SERVICE TO THE EXISTING SANITARY MAIN FROM THE START OF CONSTRUCTION TO THE START OF BUILDING DEMOLITION.
- WORK ON EXISTING AND PROPOSED GAS LINES SHALL BE COORDINATED WITH LOCAL GAS COMPANY.
- POLYVINYL CHLORIDE PIPE AND FITTINGS (PVC) SHALL BE MINIMUM SDR 35 WITH FULL DIAMETER DIMENSIONS CONFORMING TO THE SPECIFICATIONS FOR TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION D3034 LATEST REVISION, FOR SIZES 18 INCHES TO 27 INCHES THE PIPE SHALL COMPLY WITH ASTM F679, LATEST RECORD.
- MANHOLE FRAMES AND COVERS SHALL BE MINIMUM CLASS 25 CONFORMING TO ASTM "STANDARD SPECIFICATION FOR GRAY IRON CASTINGS," DESIGNATION: A48.
- ALL WATER MAINS SHALL BE DUCTILE IRON CLASS 52 WITH PUSH ON JOINTS (UNLESS OTHERWISE SPECIFIED) MEETING THE REQUIREMENTS OF ANSI/AWWA C151/A21.51. ALL DUCTILE IRON WATER MAIN PIPE SHALL BE CEMENT LINED, WITH AN ASPHALTIC SEAL COAT MEETING THE REQUIREMENTS OF ANSI/AWWA C104/A21.4.
- CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL WATERLINE BENDS AND TEES IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL EXISTING STRUCTURES TO REMAIN WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED TO FINISH GRADE. MINIMUM AND MAXIMUM NUMBER OF SEWER BRICK COURSES USED FOR GRADE ADJUSTMENT SHALL BE IN ACCORDANCE WITH TOWN STANDARDS.
- ALL PRECAST CONCRETE MANHOLES FOR SANITARY AND DRAINAGE SHALL CONFORM TO THE ASTM "SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS," DESIGNATION D478. THE BARREL SHALL BE 4-FOOT WITH A 1-FOOT COLLAR TO PREVENT FLOTATION.
- ALL DUCTILE IRON WATER PIPE SHALL BE PRESSURE TESTED FOR 2 HOURS.
- ALL DOMESTIC AND FIRE SUPPLY PIPES AND MAINS MUST BE DISINFECTED AND SAMPLED FOR COLIFORM BACTERIA 2X24 HOURS APART BE A MASSACHUSETTS CERTIFIED LAB.
- ALL WATERLINE CONNECTIONS SHALL REQUIRE A SHUTDOWN. LIVE TAPS SHALL NOT BE PERMITTED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SHUTDOWN WITH RANDOLPH DPW TWO WEEKS IN ADVANCE OF WORK.
- ALL UTILITY AND DRAINAGE INSTALLATION SHALL BE INSPECTED BY RANDOLPH DPW. CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO DPW PRIOR TO INSTALLATION.
- CONTRACTOR TO PROVIDE CONCRETE ENCASUREMENT FOR WATER AND DRAINAGE CROSSINGS.
- ALL WATERLINE GATE VALVES SHALL TURN TO THE RIGHT.

MATCH - SHEET C4.1

MATCH - SHEET C4.2

Structure Table		Structure Table	
Structure Name	Structure Details	Structure Name	Structure Details
EXMH-101	141.80 INV OUT = 132.20	SMH-104	142.01 INV OUT = 131.18 INV OUT = 131.18
EXMH-102	134.47 INV IN = 130.05	SMH-105	143.25 INV IN = 131.67 INV OUT = 131.67
EXMH-103	133.99 INV IN = 132.80	SMH-201	148.36 INV IN = 137.98 INV OUT = 137.89
SMH-101	141.97 INV IN = 130.27 INV OUT = 130.26	SMH-202	144.73 INV IN = 133.72 INV OUT = 133.62
SMH-102	141.09 INV IN = 130.75 INV OUT = 130.75		
SMH-103	141.43 INV IN = 131.00 INV IN = -4.15 INV OUT = 131.00		

Issue/Revision	Date	By
1	2023.12.15	XXXXXX
2	2023.12.15	XXXXXX
3	2023.12.15	XXXXXX
4	2023.12.15	XXXXXX
5	2023.12.15	XXXXXX
6	2023.12.15	XXXXXX
7	2023.12.15	XXXXXX
8	2023.12.15	XXXXXX
9	2023.12.15	XXXXXX
10	2023.12.15	XXXXXX
11	2023.12.15	XXXXXX
12	2023.12.15	XXXXXX
13	2023.12.15	XXXXXX
14	2023.12.15	XXXXXX
15	2023.12.15	XXXXXX
16	2023.12.15	XXXXXX
17	2023.12.15	XXXXXX
18	2023.12.15	XXXXXX
19	2023.12.15	XXXXXX
20	2023.12.15	XXXXXX

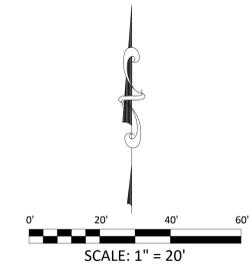
Permit/Seal

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000

UTILITY PLAN 3

**C4.3**



Z:\Shared\Projects\78000\78000-78000-05-Randolph North - Assemlage (Civil)\05-Engineering\Vertex Drawings\78000\_C4.0 Utility Plan.dwg Wednesday, December 20, 2023 3:09:44 PM  
 Copyright © 2023 The Vertex Companies, Inc.



E  
D  
C  
B  
A

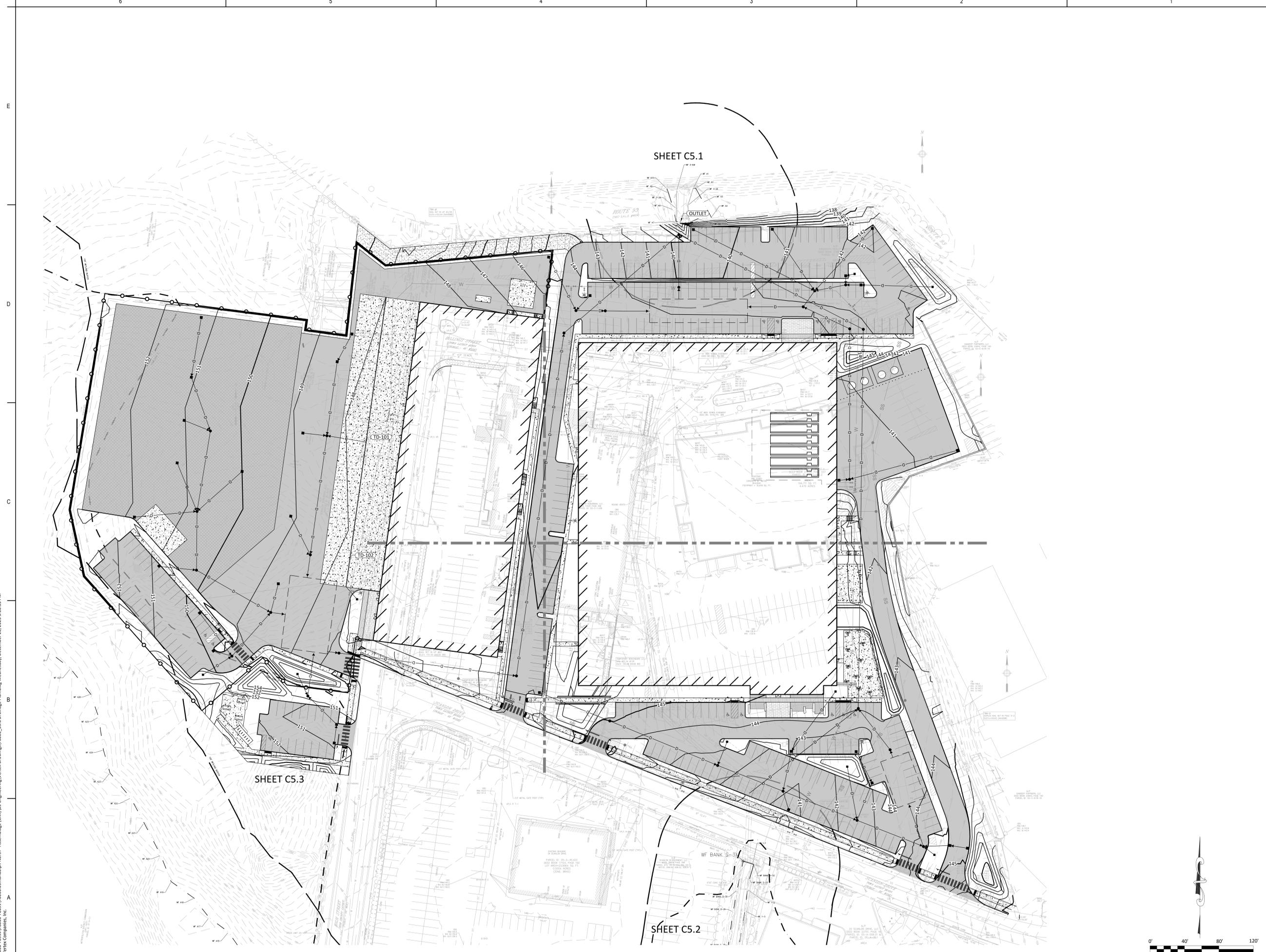
6  
5  
4  
3  
2  
1



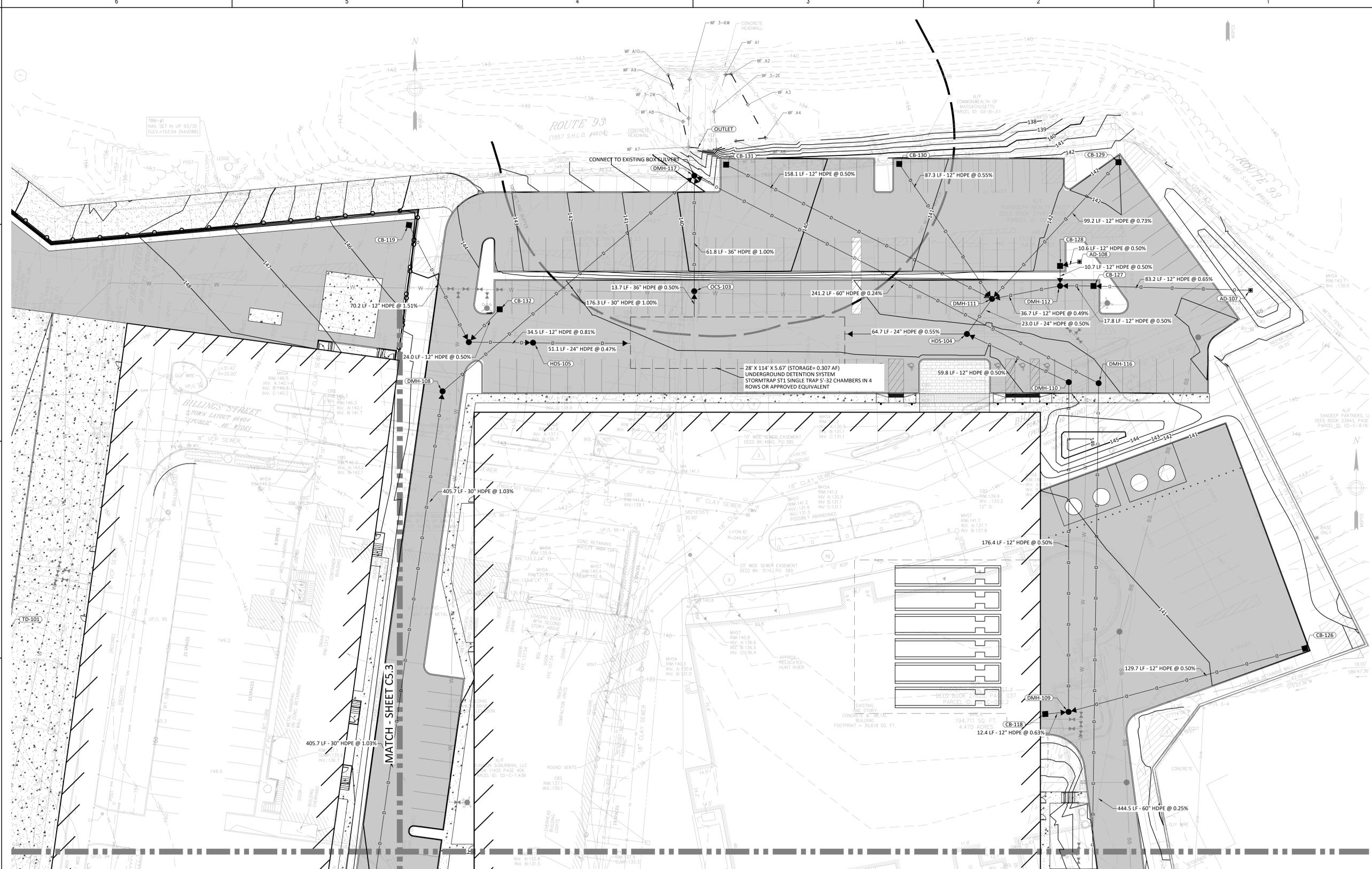


Issued/Revision	DATE	BY
1	2023.12.15	SCHEMATIC DESIGN
2	2023.12.15	DESIGN DEVELOPMENT
3	2023.12.15	PERMIT/SEAL

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

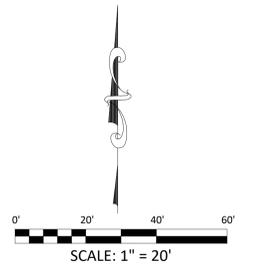


Z:\Shared\Projects\78000-78999\78000-78000-05-Assemble\Drawings\Vertex Drawings\78000\_C5.0 Drainage Plan.dwg Wednesday, December 20, 2023 3:10:13 PM  
 Copyright © 2023 The Vertex Companies, Inc.  
 01/18/2023



MATCH - SHEET C5.2

- NOTE:**
- EXISTING UNDERGROUND UTILITY LOCATIONS ARE ESTIMATED. AT THIS TIME EXISTENCE AND CONDITIONS OF UTILITIES HAVE NOT BEEN CONFIRMED
  - EROSION CONTROL MEASURES SHALL BE IMPLEMENTED FOR THE DURATION OF CONSTRUCTION. AT A MINIMUM, PERIMETER HAY BALES, VEHICLE TRACKING CONTROL, INLET PROTECTION, CONCRETE WASHOUT AREAS AND TEMPORARY SEDIMENTATION BASINS SHOULD BE CONSIDERED
  - ALL UTILITIES WITHIN THE FOOTPRINT OF PROPOSED BUILDING ADDITIONS SHOULD BE ANTICIPATED TO BE REMOVED AND RELOCATED. SERVICE SHALL BE MAINTAINED TO EXISTING BUILDINGS TO REMAIN FOR THE DURATION OF CONSTRUCTION
  - ALL EXISTING STRUCTURES TO REMAIN WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED TO FINISH GRADE. SERVICE SHALL BE MAINTAINED TO EXISTING BUILDINGS TO REMAIN FOR THE DURATION OF CONSTRUCTION.
  - ALL PRECAST CONCRETE MANHOLES FOR SANITARY AND DRAINAGE SHALL CONFORM TO THE ASTM SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, DESIGNATION D478. THE BARREL SHALL BE 4-FOOT WITH A 1-FOOT COLLAR TO PREVENT FLOTATION
  - ALL DRAIN LINES SHALL BE 12" UNLESS OTHERWISE NOTED. ALL DRAIN LINES SHALL BE RCP UNLESS OTHERWISE NOTED
  - ALL CATCH BASINS TO BE 4' DIAMETER (UNLESS OTHERWISE NOTED) SHALL CONFORM TO MHD STANDARD DETAIL 201.4.0 AND ALL CATCH BASIN FRAMES AND GRATES SHALL CONFORM TO 201.6.0 UNLESS OTHERWISE NOTED.
  - ALL MANHOLES TO BE 4' DIAMETER (UNLESS OTHERWISE NOTED) AND SHALL CONFORM TO MHD STANDARD DETAIL 202.4.0 AND ALL MANHOLE FRAMES AND COVERS SHALL CONFORM TO 202.6.0 UNLESS OTHERWISE NOTED. CONCRETE ANTI-FLOTATION COLLARS SHALL BE PROVIDED AT ALL MANHOLES.
  - REINFORCED CONCRETE PIPE AND FLARED ENDS SHALL CONFORM TO THE AASHTO M170 FOR STANDARD STRENGTH REINFORCED CONCRETE CULVERT PIPE FOR CLASS III PIPE, WALL B, OR ASTM C76 FOR REINFORCED CONCRETE CULVERT AND STORM DRAIN PIPE UNLESS NOTED OTHERWISE. ALL PIPE 24 INCHES IN DIAMETER OR SMALLER SHALL BE OF THE BELL AND SPIGOT TYPE. PIPES LARGER THAN 24 INCHES IN DIAMETER SHALL BE TONGUE AND GROOVE OR BELL AND SPIGOT. ALL DRAINAGE PIPING SHALL BE GASKETED.
  - RCP PIPE LOCATED IN VEHICULAR AREAS WITH LESS THAN 6" OF COVER BELOW SUBGRADE ELEVATION SHALL BE CLASS V
  - CONCRETE VAULT DETENTION SYSTEMS SHALL INCLUDE AN 8" EXTENDED CONCRETE SLAB WITH UNITS ANCHORED INTO SLAB, AND SHALL BE LINED WITH AN IMPERVIOUS LINER
  - HIGH-DENSITY POLYETHYLENE PIPE AND FITTINGS SHALL BE ADS N-12 18 BT SMOOTH INTERIOR PIPE, ADS N-12 18 BT HIGH CAPACITY LARGE DIAMETER PIPE OR APPROVED EQUIVALENT. JOINTS SHALL BE SOIL-TIGHT AND INCLUDE A RUBBER GASKET ON THE SPIGOT END OF THE PIPE. WHEN INSTALLED INTO THE BELL END, THE JOINT SHALL BE SEALED.
  - MANHOLES OVER 12 FEET IN DEPTH SHALL HAVE MINIMUM OF 5 FEET INSIDE DIAMETER. ALL MANHOLES SHALL HAVE A SUMP OF AT LEAST 30 INCHES BELOW INVERT OF OUTLET PIPE. RISERS SHALL BE CLAY OR SHALE BRICK, AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 91, GRADE MM OR AS SPECIFIED IN MASSDOT M4.05.
  - ALL CATCH BASINS SHALL HAVE A SUMP OF AT LEAST 48 INCHES (4 FEET) BELOW THE INVERT OF THE OUTLET PIPE, OR OTHERWISE APPROVED BY THE DPW, AND AN INSIDE DIAMETER OF 4 FEET MINIMUM.
  - LIVE LOAD DESIGN FOR CATCH BASINS SHALL BE H5-25. CATCH BASINS WHICH ARE LIMITED BY HEIGHT SHALL BE INSTALLED WITH A FLAT TOP SLAB, CAST IN PLACE, DESIGNED FOR H5-25 LOADING AND CAST IRON FRAME CAST IN PLACE.
  - MANHOLE FRAMES AND COVERS SHALL BE AT LEAST CLASS 25 CONFORMING TO ASTM A48 "STANDARD SPECIFICATION FOR GRAY IRON CASTINGS.
  - CATCH BASIN HOODS SHALL BE USED TO MINIMIZE THE ENTRY OF OIL, GASOLINE, AND DEBRIS INTO DRAINAGE PIPES.
  - WHERE PROPOSED DRAIN LINES CROSS SANITARY OR WATER LINES WITH LESS THAN 1.5' CLEARANCE, ENCASE BOTH UTILITIES IN FLOWABLE FILL FOR A DISTANCE OF 10' ON EITHER SIDE OF CROSSING. CENTER PIPE LENGTH AT CROSSING. REFER TO CROSSING DETAIL ON SHEET C6, ON DETAIL SHEETS.
  - HYDRODYNAMIC SEPARATORS SHALL BE CONTECH CDS2025-5-C, UNLESS OTHERWISE NOTED, OR APPROVED EQUIVALENT.
  - CONCRETE ANTI-FLOTATION COLLARS SHALL BE PROVIDED AT ALL MANHOLES IN AREAS OF HIGH GROUNDWATER.



1	DESIGN DEVELOPMENT	2023.12.15
2	SCHEDULE DESIGN	2023.12.04
3	ISSUED/REVISION	YYYYMMDD

Permit/Seal

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000  
**DRAINAGE PLAN 1**

Z:\Shared\Projects\78000-78999\78000-78999\78000\_C5.0 Drainage Plan.dwg Wednesday, December 20, 2023 3:10:23 PM  
 Copyright © 2023 The Vertex Companies, Inc.

Key Plan



Notes

**NOTE:**

1. EXISTING UNDERGROUND UTILITY LOCATIONS ARE ESTIMATED. AT THIS TIME EXISTENCE AND CONDITIONS OF UTILITIES HAVE NOT BEEN CONFIRMED
2. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED FOR THE DURATION OF CONSTRUCTION. AT A MINIMUM, PERIMETER HAY BALES, VEHICLE TRACKING CONTROL, INLET PROTECTION, CONCRETE WASHOUT AREAS AND TEMPORARY SEDIMENTATION BASINS SHOULD BE CONSIDERED
3. ALL UTILITIES WITHIN THE FOOTPRINT OF PROPOSED BUILDING ADDITIONS SHOULD BE ANTICIPATED TO BE REMOVED AND RELOCATED. SERVICE SHALL BE MAINTAINED TO EXISTING BUILDINGS TO REMAIN FOR THE DURATION OF CONSTRUCTION
6. ALL EXISTING STRUCTURES TO REMAIN WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED TO FINISH GRADE. SERVICE SHALL BE MAINTAINED TO EXISTING BUILDINGS TO REMAIN FOR THE DURATION OF CONSTRUCTION.
7. ALL PRECAST CONCRETE MANHOLES FOR SANITARY AND DRAINAGE SHALL CONFORM TO THE ASTM "SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS," DESIGNATION D478. THE BARREL SHALL BE 4-FOOT WITH A 1-FOOT COLLAR TO PREVENT FLOTATION
8. ALL DRAIN LINES SHALL BE 12" UNLESS OTHERWISE NOTED. ALL DRAIN LINES SHALL BE RCP UNLESS OTHERWISE NOTED
9. ALL CATCH BASINS TO BE 4' DIAMETER (UNLESS OTHERWISE NOTED) SHALL CONFORM TO MHD STANDARD DETAIL 201.4.0 AND ALL CATCH BASIN FRAMES AND GRATES SHALL CONFORM TO 201.6.0 UNLESS OTHERWISE NOTED.
10. ALL MANHOLES TO BE 4' DIAMETER (UNLESS OTHERWISE NOTED) AND SHALL CONFORM TO MHD STANDARD DETAIL 202.4.0 AND ALL MANHOLE FRAMES AND COVERS SHALL CONFORM TO 202.6.0 UNLESS OTHERWISE NOTED. CONCRETE ANTI-FLOTATION COLLARS SHALL BE PROVIDED AT ALL MANHOLES.
11. REINFORCED CONCRETE PIPE AND FLARED ENDS SHALL CONFORM TO THE AASHTO M170 FOR STANDARD STRENGTH REINFORCED CONCRETE CULVERT PIPE FOR CLASS III PIPE, WALL B, OR ASTM C76 FOR REINFORCED CONCRETE CULVERT AND STORM DRAIN PIPE UNLESS NOTED OTHERWISE. ALL PIPE 24 INCHES IN DIAMETER OR SMALLER SHALL BE OF THE BELL AND SPIGOT TYPE. PIPES LARGER THAN 24 INCHES IN DIAMETER SHALL BE TONGUE AND GROOVE OR BELL AND SPIGOT. ALL DRAINAGE PIPING SHALL BE GASKETED.
12. RCP PIPE LOCATED IN VEHICULAR AREAS WITH LESS THAN 6" OF COVER BELOW SUBGRADE ELEVATION SHALL BE CLASS V
13. CONCRETE VAULT DETENTION SYSTEMS SHALL INCLUDE AN 8" EXTENDED CONCRETE SLAB WITH UNITS ANCHORED INTO SLAB, AND SHALL BE LINED WITH AN IMPERVIOUS LINER
14. HIGH-DENSITY POLYETHYLENE PIPE AND FITTINGS SHALL BE ADS N-12 1/2" IB ST SMOOTH INTERIOR PIPE, ADS N-12 1/2" IB ST HIGH CAPACITY LARGE DIAMETER PIPE OR APPROVED EQUIVALENT. JOINTS SHALL BE SOIL-TIGHT AND INCLUDE A RUBBER GASKET ON THE SPIGOT END OF THE PIPE. WHEN INSTALLED INTO THE BELL END, THE JOINT SHALL BE SEALED.
15. MANHOLES OVER 12 FEET IN DEPTH SHALL HAVE MINIMUM OF 5 FEET INSIDE DIAMETER. ALL MANHOLES SHALL HAVE A SUMP OF AT LEAST 30 INCHES BELOW INVERT OF OUTLET PIPE. RISERS SHALL BE CLAY OR SHALE BRICK, AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 91, GRADE MM OR AS SPECIFIED IN MASSDOT M4.05.
16. ALL CATCH BASINS SHALL HAVE A SUMP OF AT LEAST 48 INCHES (4 FEET) BELOW THE INVERT OF THE OUTLET PIPE, OR OTHERWISE APPROVED BY THE DPW, AND AN INSIDE DIAMETER OF 4 FEET MINIMUM.
17. LIVE LOAD DESIGN FOR CATCH BASINS SHALL BE HS-25 LOADING. CATCH BASINS WHICH ARE LIMITED BY HEIGHT SHALL BE INSTALLED WITH A FLAT TOP SLAB, CAST IN PLACE, DESIGNED FOR HS-25 LOADING AND CAST IRON FRAME CAST IN PLACE.
18. MANHOLE FRAMES AND COVERS SHALL BE AT LEAST CLASS 25 CONFORMING TO ASTM A48 "STANDARD SPECIFICATION FOR GRAY IRON CASTINGS.
19. CATCH BASIN HOODS SHALL BE USED TO MINIMIZE THE ENTRY OF OIL, GASOLINE, AND DEBRIS INTO DRAINAGE PIPES.
20. WHERE PROPOSED DRAIN LINES CROSS SANITARY OR WATER LINES WITH LESS THAN 1.5' CLEARANCE, ENCASE BOTH UTILITIES IN FLOWABLE FILL FOR A DISTANCE OF 10' ON EITHER SIDE OF CROSSING. CENTER PIPE LENGTH AT CROSSING. REFER TO CROSSING DETAIL ON SHEET C6\_0 ON DETAIL SHEETS.
21. HYDRODYNAMIC SEPARATORS SHALL BE CONTECH CDS2025-5-C, UNLESS OTHERWISE NOTED, OR APPROVED EQUIVALENT.
22. CONCRETE ANTI-FLOTATION COLLARS SHALL BE PROVIDED AT ALL MANHOLES IN AREAS OF HIGH GROUNDWATER.

MATCH - SHEET C5.1

MATCH - SHEET C5.2



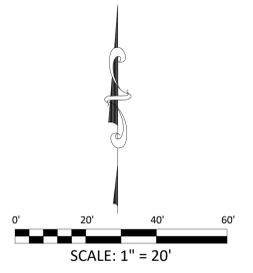
Z:\Shared\Projects\78000-78999\78000-78999\78000\_05\_Drainage Plan.dwg Wednesday, December 20, 2023 3:10:33 PM  
 Copyright © 2023 The Vertex Companies, Inc.

Issued/Revision	DATE	BY
1	2023.12.15	XXXXXX
2	2023.12.15	XXXXXX
3	2023.12.15	XXXXXX
4	2023.12.15	XXXXXX
5	2023.12.15	XXXXXX
6	2023.12.15	XXXXXX
7	2023.12.15	XXXXXX
8	2023.12.15	XXXXXX
9	2023.12.15	XXXXXX
10	2023.12.15	XXXXXX
11	2023.12.15	XXXXXX
12	2023.12.15	XXXXXX
13	2023.12.15	XXXXXX
14	2023.12.15	XXXXXX
15	2023.12.15	XXXXXX
16	2023.12.15	XXXXXX
17	2023.12.15	XXXXXX
18	2023.12.15	XXXXXX
19	2023.12.15	XXXXXX
20	2023.12.15	XXXXXX
21	2023.12.15	XXXXXX
22	2023.12.15	XXXXXX
23	2023.12.15	XXXXXX
24	2023.12.15	XXXXXX
25	2023.12.15	XXXXXX
26	2023.12.15	XXXXXX
27	2023.12.15	XXXXXX
28	2023.12.15	XXXXXX
29	2023.12.15	XXXXXX
30	2023.12.15	XXXXXX

Permit/Seal

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000  
**DRAINAGE PLAN 3**



**C5.3**

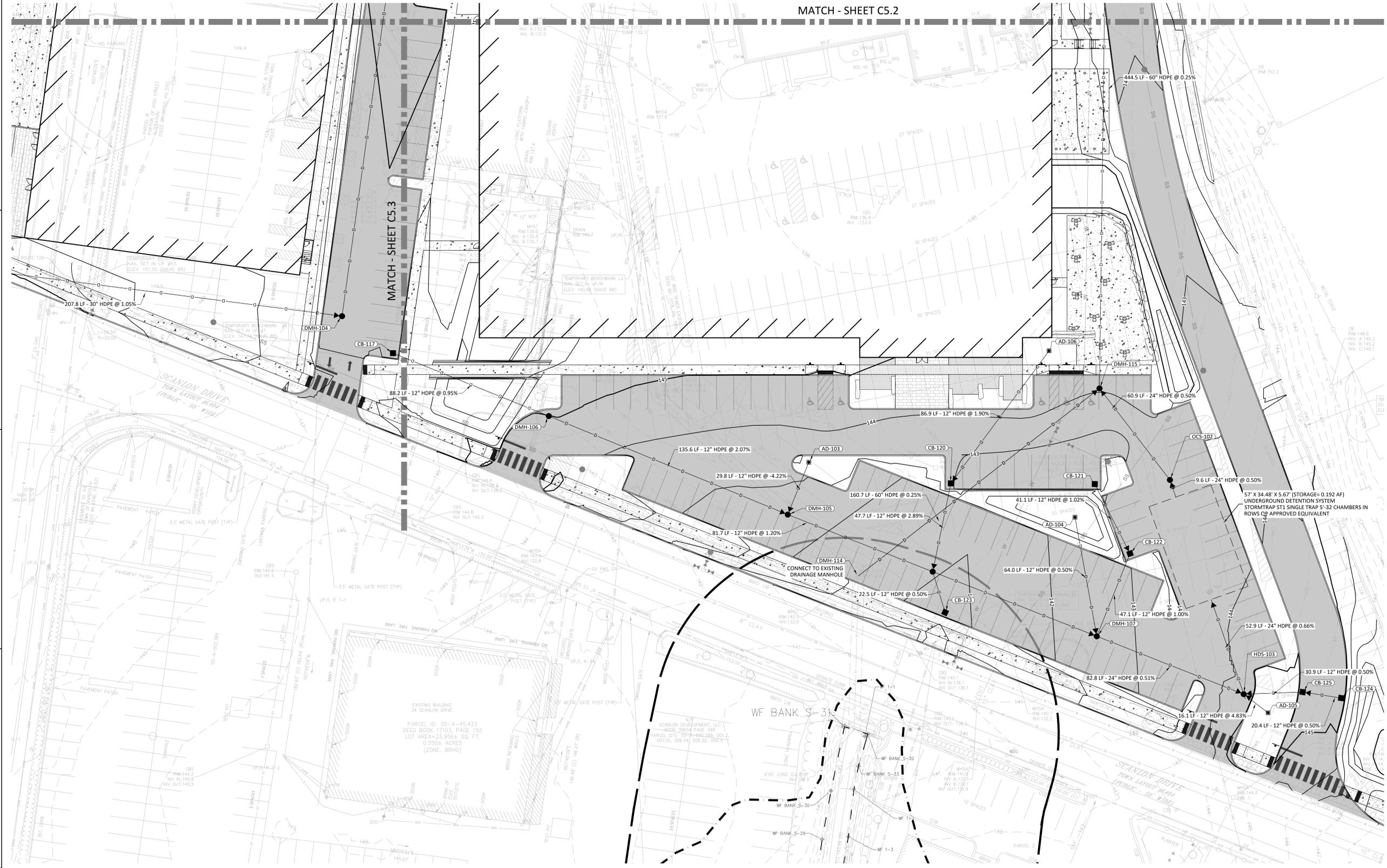
Key Plan



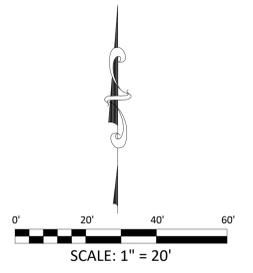
Notes

MATCH - SHEET C5.2

MATCH - SHEET C5.3



- NOTE:**
- EXISTING UNDERGROUND UTILITY LOCATIONS ARE ESTIMATED. AT THIS TIME EXISTENCE AND CONDITIONS OF UTILITIES HAVE NOT BEEN CONFIRMED
  - EROSION CONTROL MEASURES SHALL BE IMPLEMENTED FOR THE DURATION OF CONSTRUCTION. AT A MINIMUM, PERIMETER HAY BALES, VEHICLE TRACKING CONTROL, INLET PROTECTION, CONCRETE WASHOUT AREAS, AND TEMPORARY SEDIMENTATION BASINS SHOULD BE CONSIDERED
  - ALL UTILITIES WITHIN THE FOOTPRINT OF PROPOSED BUILDING ADDITIONS SHOULD BE ANTICIPATED TO BE REMOVED AND RELOCATED. SERVICE SHALL BE MAINTAINED TO EXISTING BUILDINGS TO REMAIN FOR THE DURATION OF CONSTRUCTION
  - ALL EXISTING STRUCTURES TO REMAIN WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED TO FINISH GRADE. SERVICE SHALL BE MAINTAINED TO EXISTING BUILDINGS TO REMAIN FOR THE DURATION OF CONSTRUCTION.
  - ALL PRECAST CONCRETE MANHOLES FOR SANITARY AND DRAINAGE SHALL CONFORM TO THE ASTM SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, DESIGNATION D478. THE BARREL SHALL BE 4-FOOT WITH A 1-FOOT COLLAR TO PREVENT FLOTATION
  - ALL DRAIN LINES SHALL BE 12" UNLESS OTHERWISE NOTED. ALL DRAIN LINES SHALL BE RCP UNLESS OTHERWISE NOTED
  - ALL CATCH BASINS TO BE 4' DIAMETER (UNLESS OTHERWISE NOTED) SHALL CONFORM TO MHD STANDARD DETAIL 201.4.0 AND ALL CATCH BASIN FRAMES AND GRATES SHALL CONFORM TO 201.6.0 UNLESS OTHERWISE NOTED.
  - ALL MANHOLES TO BE 4' DIAMETER (UNLESS OTHERWISE NOTED) AND SHALL CONFORM TO MHD STANDARD DETAIL 202.4.0 AND ALL MANHOLE FRAMES AND COVERS SHALL CONFORM TO 202.6.0 UNLESS OTHERWISE NOTED. CONCRETE ANTI-FLOTATION COLLARS SHALL BE PROVIDED AT ALL MANHOLES.
  - REINFORCED CONCRETE PIPE AND FLARED ENDS SHALL CONFORM TO THE AASHTO M170 FOR STANDARD STRENGTH REINFORCED CONCRETE CULVERT PIPE FOR CLASS III PIPE, WALL B, OR ASTM C76 FOR REINFORCED CONCRETE CULVERT AND STORM DRAIN PIPE UNLESS NOTED OTHERWISE. ALL PIPE 24 INCHES IN DIAMETER OR SMALLER SHALL BE OF THE BELL AND SPIGOT TYPE. PIPES LARGER THAN 24 INCHES IN DIAMETER SHALL BE TONGUE AND GROOVE OR BELL AND SPIGOT. ALL DRAINAGE PIPING SHALL BE GASKETED.
  - RCP PIPE LOCATED IN VEHICULAR AREAS WITH LESS THAN 6" OF COVER BELOW SUBGRADE ELEVATION SHALL BE CLASS V
  - CONCRETE VAULT DETENTION SYSTEMS SHALL INCLUDE AN 8" EXTENDED CONCRETE SLAB WITH UNITS ANCHORED INTO SLAB, AND SHALL BE LINED WITH AN IMPERVIOUS LINER
  - HIGH-DENSITY POLYETHYLENE PIPE AND FITTINGS SHALL BE ADS N-12 1/2 LB ST SMOOTH INTERIOR PIPE. ADS N-12 1/2 LB ST HIGH CAPACITY LARGE DIAMETER PIPE OR APPROVED EQUIVALENT. JOINTS SHALL BE SOIL-TIGHT AND INCLUDE A RUBBER GASKET ON THE SPIGOT END OF THE PIPE. WHEN INSTALLED INTO THE BELL END, THE JOINT SHALL BE SEALED.
  - MANHOLES OVER 12 FEET IN DEPTH SHALL HAVE MINIMUM OF 5 FEET INSIDE DIAMETER. ALL MANHOLES SHALL HAVE A SUMP OF AT LEAST 30 INCHES BELOW INVERT OF OUTLET PIPE. RISERS SHALL BE CLAY OR SHALE BRICK, AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 91, GRADE MM OR AS SPECIFIED IN MASSDOT M4.05.
  - ALL CATCH BASINS SHALL HAVE A SUMP OF AT LEAST 48 INCHES (4 FEET) BELOW THE INVERT OF THE OUTLET PIPE, OR OTHERWISE APPROVED BY THE DPW, AND AN INSIDE DIAMETER OF 4 FEET MINIMUM.
  - LIVE LOAD DESIGN FOR CATCH BASINS SHALL BE HS-25 LOADING. CATCH BASINS WHICH ARE LIMITED BY HEIGHT SHALL BE INSTALLED WITH A FLAT TOP SLAB, CAST IN PLACE, DESIGNED FOR HS-25 LOADING AND CAST IRON FRAME CAST IN PLACE.
  - MANHOLE FRAMES AND COVERS SHALL BE AT LEAST CLASS 25 CONFORMING TO ASTM A48 "STANDARD SPECIFICATION FOR GRAY IRON CASTINGS.
  - CATCH BASIN HOODS SHALL BE USED TO MINIMIZE THE ENTRY OF OIL, GASOLINE, AND DEBRIS INTO DRAINAGE PIPES.
  - WHERE PROPOSED DRAIN LINES CROSS SANITARY OR WATER LINES WITH LESS THAN 1.5' CLEARANCE, ENCASE BOTH UTILITIES IN FLOWABLE FILL FOR A DISTANCE OF 10' ON EITHER SIDE OF CROSSING. CENTER PIPE LENGTH AT CROSSING. REFER TO CROSSING DETAIL ON SHEET C6. ON DETAIL SHEETS.
  - HYDRODYNAMIC SEPARATORS SHALL BE CONTECH CDS2025-5-C, UNLESS OTHERWISE NOTED, OR APPROVED EQUIVALENT.
  - CONCRETE ANTI-FLOTATION COLLARS SHALL BE PROVIDED AT ALL MANHOLES IN AREAS OF HIGH GROUNDWATER.



1	DESIGN DEVELOPMENT	2023.12.15
2	SCHEDULE DESIGN	2023.12.15
3	ISSUED/REVISION	YYYYMMDD

Permit/Seal

**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**

Scale AS NOTED  
 Project No. 78000

**DRAINAGE PLAN 2**

**C5.2**







Key Plan



Notes

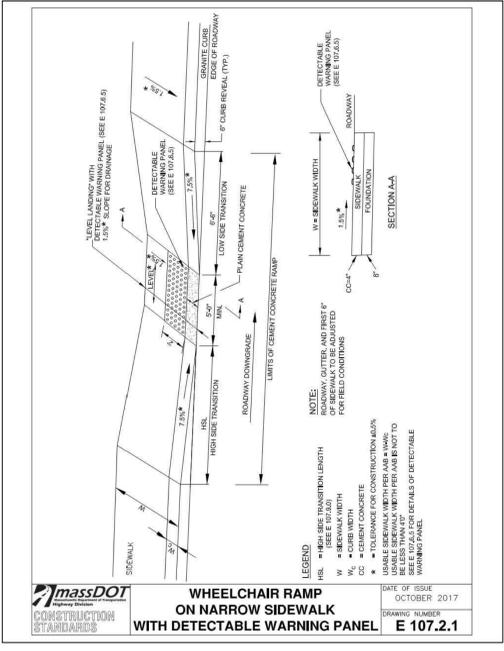
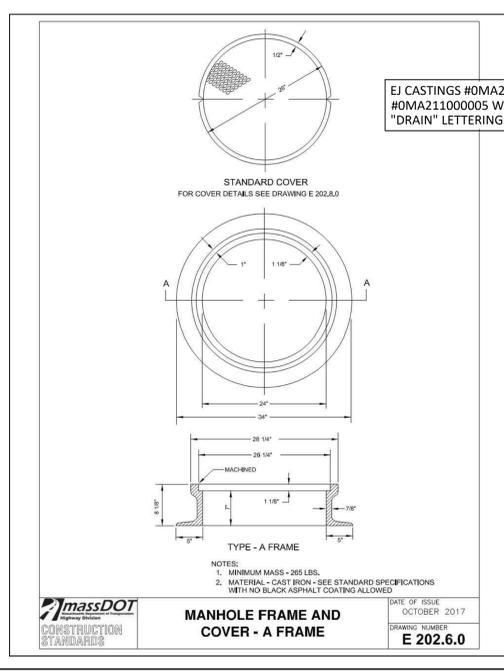
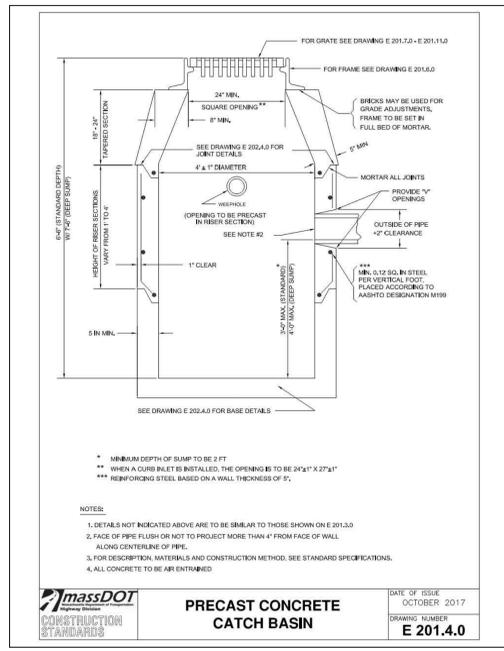
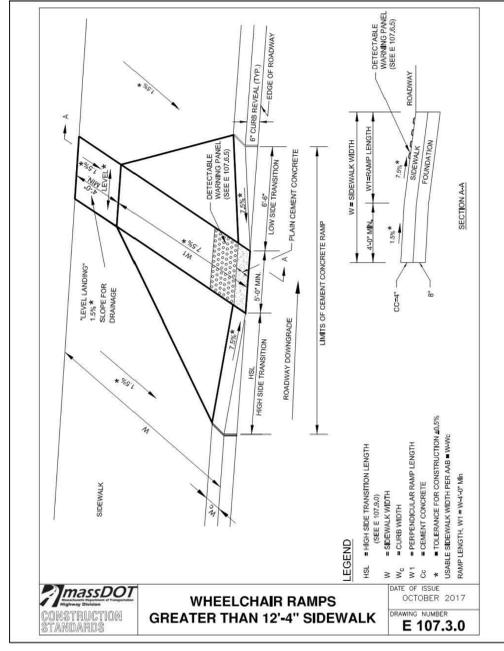
1	DESIGN DEVELOPMENT	2023.12.15
2	SCHEMATIC DESIGN	2023.10.04
3	ISSUED/REVISION	YYYYMMDD
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

PRELIMINARY  
NOT FOR  
CONSTRUCTION

Scale AS NOTED  
Project No. 78000

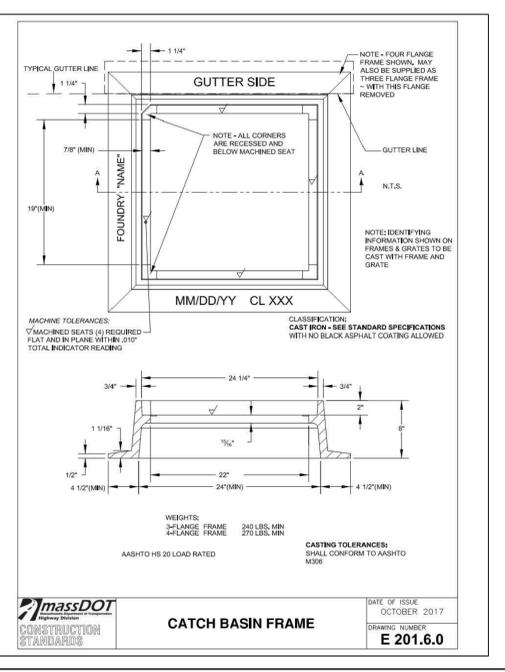
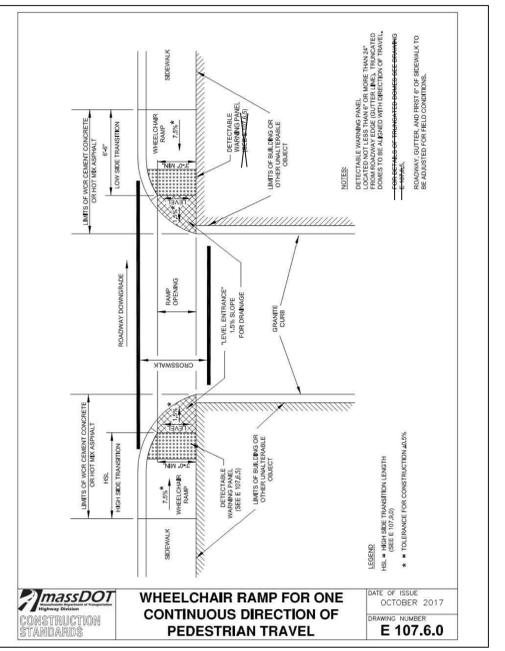
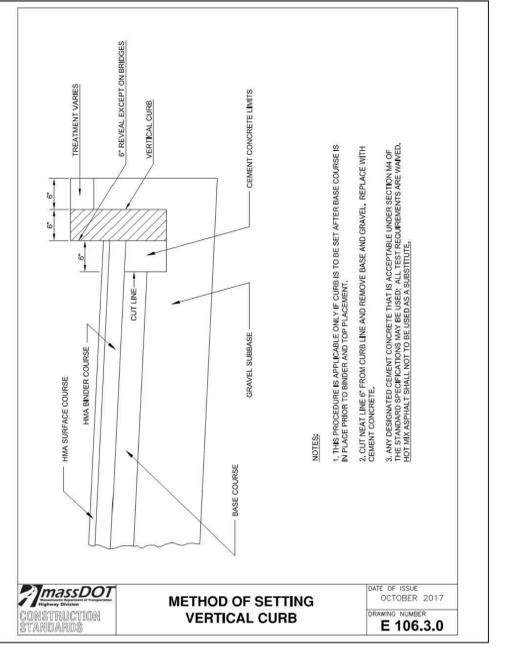
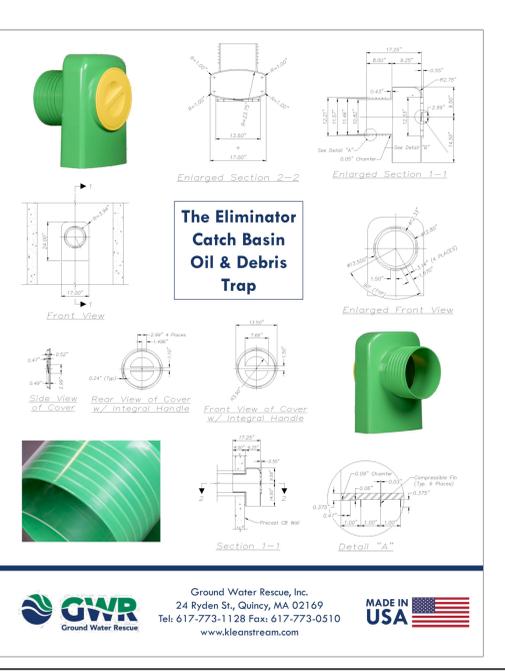
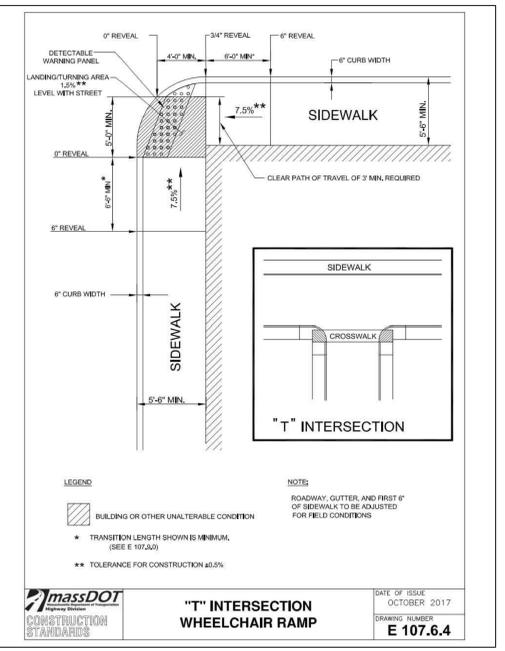
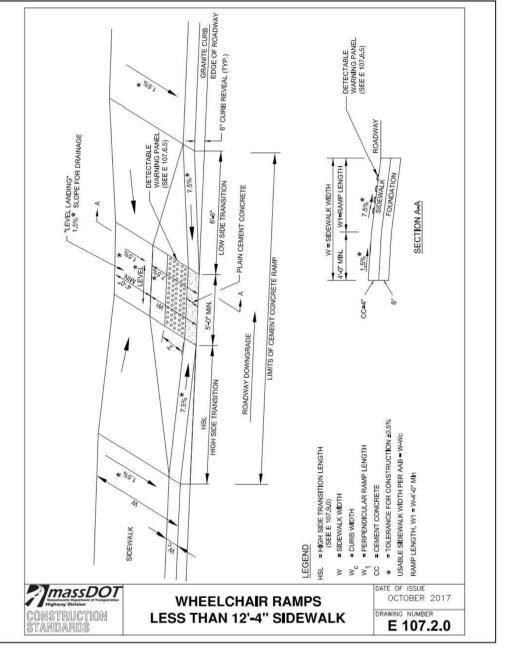
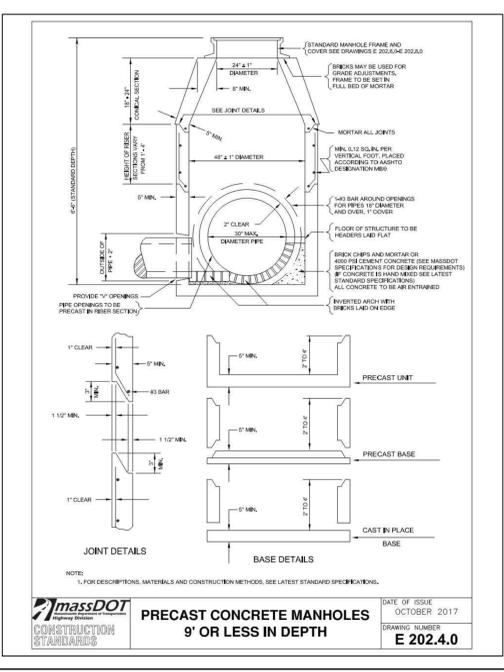
SITE DETAILS 3

C6.3



ROADWAY PROFILE GRADE	ENGLISH UNITS
%	6'-6"
	7'-8"
	9'-0"
	11'-0"
	14'-0"
	15'-0" Max

NOTE:  
\* BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".



Z:\Shared\Projects\78000-78999\78000-78999\78000\_C6.0 Details.dwg Wednesday, December 20, 2023 3:11:08 PM  
Copyright © 2023 The Vertex Companies, Inc.

D

C

B

6 5 4 3 2 1











RANDOLPH, MASSCHUSETTS

# Randolph North Redevelopment

## Traffic Impact Study

Prepared for  
**Town of Randolph**

Prepared by  
**Howard Stein Hudson**

Prepared on Behalf of  
**Core Investments Development, Inc**

**December 2023**



**HOWARD STEIN HUDSON**

Engineers + Planners

# Table of Contents

---

<b>Executive Summary</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>2</b>
Study Area .....	2
Methodology .....	4
<b>Existing (2023) Condition</b> .....	<b>4</b>
Roadway Descriptions .....	5
Intersection Descriptions .....	5
Traffic Data Collection .....	6
Existing Public Transportation .....	14
Off-street Parking .....	14
Safety Analysis .....	17
<b>No-build (2030) Condition</b> .....	<b>19</b>
Background Growth .....	19
Future Development Projects .....	20
<b>Build (2030) Condition</b> .....	<b>23</b>
Project Description .....	23
Vehicle Parking .....	25
Trip Generation Methodology .....	25
<b>Transportation Impact Analysis</b> .....	<b>34</b>
Motor Vehicle Operations Analysis .....	34
<b>Transportation Mitigation</b> .....	<b>38</b>
<b>Conclusion and Recommendations</b> .....	<b>40</b>



# List of Figures

---

Figure 1.	Study Area .....	3
Figure 2.	Average Daily Traffic: High Street, South of Scanlon Drive.....	8
Figure 3.	Average Daily Traffic: Scanlon Drive, East of High Street .....	9
Figure 4.	Average Daily Traffic: North Main Street, North of Scanlon Drive .....	10
Figure 5.	Existing (2023) Condition Vehicle Volumes, Weekday a.m. Peak Hour .....	12
Figure 6.	Existing (2023) Condition Vehicle Volumes, Weekday p.m. Peak Hour .....	13
Figure 7.	Existing (2023) Condition Bicycle Volumes, Weekday a.m. and p.m. Peak Hours .....	15
Figure 8.	Existing (2023) Condition Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours .	16
Figure 9.	No-build (2030) Condition Vehicle Volumes, Weekday a.m. Peak Hour .....	21
Figure 10.	No-build (2030) Condition Vehicle Volumes, Weekday p.m. Peak Hour .....	22
Figure 11.	Site Plan.....	24
Figure 12.	Trip Distribution .....	30
Figure 13.	Project-generated Vehicle Trips, Weekday a.m. and p.m. Peak Hours .....	31
Figure 14.	Build (2030) Condition Vehicle Volumes, Weekday a.m. Peak Hour .....	32
Figure 15.	Build (2030) Condition Vehicle Volumes, Weekday p.m. Peak Hour.....	33

# List of Tables

---

Table 1.	Existing Site and Proposed Building Program.....	2
Table 2.	Average Weekday Traffic .....	7
Table 3.	Crash Data Summary.....	18

Table 4.	Parking Requirements .....	25
Table 5.	Mode Share .....	27
Table 6.	Project-generated Person Trips by Mode .....	27
Table 7.	Net New Vehicle Trips .....	28
Table 8.	Level of Service Criteria .....	34
Table 9.	Capacity Analysis Summary, a.m. Peak Hour .....	35
Table 10.	Capacity Analysis Summary, p.m. Peak Hour .....	36
Table 11.	Mitigation at North Main Street/Scanlon Drive.....	39

# Appendices

---

- Appendix A – Traffic Count Data
- Appendix B – MassDOT Seasonal Factors
- Appendix C – Crash Data and Worksheets
- Appendix D – Trip Generation
- Appendix E – Synchro Reports



# Executive Summary

---

This Traffic Impact Study (TIS) presents the comprehensive transportation evaluation completed by *Howard Stein Hudson (HSH)* for the proposed Project, Randolph North Development, located on Scanlon Drive in Randolph, Massachusetts. The study was completed in conformance with the Massachusetts Department of Transportation's (MassDOT's) *Transportation Impact Assessment (TIA) Guidelines*. The study analyzes existing conditions within the Project study area, as well as conditions forecast to be in place under the seven-year planning horizon of 2030.

The site is currently occupied by a two-event venue building, and three parking lots totaling 747 spaces. The Project will consist of demolition of existing venue buildings and construction of two new buildings, one supporting a crane operations tenant that will feature a laydown area to the west of High Street, and another building primarily housing the cGMP uses. Overall, the Project consists of constructing 68,000 square feet (sf) of general office space, 22,000 sf of warehousing space, 75,000 sf of research and development space, and 110,000 sf of cGMP space (Laboratory/current Good Manufacturing Practice) with 326 parking spaces across the development.

Designated loading/service areas for the cGMP building are located at the north edge of the site with parking located at the frontage along Scanlon Drive. The site will also construct a new trailhead and parking lot for the Department of Conservation and Recreation's (DCR's) Blue Hills Reservation near the intersection of High Street and Scanlon Street with approximately 18 parking spaces.

The transportation analysis employed mode use data for the area surrounding the Project site based on U.S. Census data and identifies the number of trips expected to be generated by the Project by mode (walk, bicycle, transit, and vehicle). The Project is expected to generate approximately 242 new vehicle trips, 24 new transit trips, and 6 new walk/bicycle trips during the weekday a.m. peak hour, and 241 new vehicle trips, 23 new transit trips, and 6 new walk/bicycle trips during the weekday p.m. peak hour. The Project is expected to see 184 net new trips for the a.m. peak hour and 171 net new trips during the p.m. peak hour compared to the existing conditions.

A detailed traffic operations analysis was conducted for the following intersections:

- Scanlon Drive/North Main Street (signalized);
- Reed Street/High Street (signalized); and
- Scanlon Drive/High Street (unsignalized).

The Project is expected to have minimal impact on traffic operations at the study area intersections.



# Introduction

---

*Howard Stein Hudson (HSH)* has prepared this Traffic Impact Study (TIS) to determine the potential impacts related to Randolph North redevelopment project (the Project) in Randolph, Massachusetts. The Project consists of constructing approximately 68,000 square feet (sf) of general office space, 22,000 sf of warehousing space, 75,000 sf of research and development space, and 110,000 sf of cGMP space with 324 parking spaces. The site is currently occupied by an event venue, a closed restaurant, and parking lots. **Table 1** presents the program summary of the existing and proposed uses on the site.

*Table 1. Existing Site and Proposed Building Program*

---

Land Use	Proposed
<b>cGMP (Manufacturing)</b>	110,000 sf
<b>Warehousing</b>	22,000 sf
<b>General Office</b>	68,000 sf
<b>Research and Development</b>	75,000 sf
<b>Parking Spaces</b>	324 spaces

---

## Study Area

Based on the project traffic demands, proposed site circulation, traffic circulation in this area of the Town, and discussions with the Town of Randolph, the study area includes the following intersection locations:

- Scanlon Drive/North Main Street (signalized);
- Reed Street/High Street (signalized); and
- Scanlon Drive/High Street (unsignalized).

The study area intersection locations are shown on **Figure 1**.

Figure 1. Study Area





---

## Methodology

---

This TIS follows the Massachusetts Department of Transportation’s (MassDOT’s) *Transportation Impact Assessment (TIA) Guidelines*, as described below:

- The Existing (2023) Condition analysis includes an inventory of the existing transportation conditions such as traffic characteristics, parking, curb usage, transit, pedestrian circulation, bicycle facilities, loading, and site conditions. Existing counts for vehicles, bicycles, and pedestrians were collected at the study area intersections. Operations at the study area intersections are calculated using Synchro 11.0, which is based on the traffic operational analysis methodology of the Transportation Research Board’s (TRB’s) *Highway Capacity Manual (HCM)* 6<sup>th</sup> edition.<sup>1</sup>
- The future transportation conditions analyses evaluate potential transportation impacts associated with the Project. The long-term transportation impacts are evaluated for Year 2030, based on a seven-year horizon.
  - The No-build (2030) Condition analysis includes general background traffic growth, traffic growth associated with specific developments (not including this Project), and transportation improvements that are planned in the vicinity of the Project Site.
  - The Build (2030) Condition analysis includes a net increase in traffic volume due to the addition of Project-generated trips. The transportation study identifies expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies.
  - The Build-Mitigated (2030) Condition includes an analysis of traffic operations in the design year with the implementation of significant roadway or intersection improvements, if applicable.
- The final section of the transportation study summarizes transportation conclusions and identifies potential transportation recommendations.

---

## Existing (2023) Condition

---

This section documents the condition of the roadways and intersections located in the study area including geometric layout, lane use, traffic count data, pedestrian and bicycle count data, crash data, and other existing information. Crash analysis was performed using the most recent available data from the MassDOT IMPACT Crash Portal.

---

<sup>1</sup> Highway Capacity Manual, Sixth Edition; Transportation Research Board; Washington, D.C.; 2016.




---

## Roadway Descriptions

---

*Scanlon Drive* is classified as an urban minor arterial under the jurisdiction of the Town of Randolph. It runs east-west between North Main Street to the east and High Street to the west. It is a two-way, two-lane road. On-street parking is not provided on either side of the road. A sidewalk is provided on the south side of the road.

*North Main Street (Route 28)* is classified as an urban principal arterial under Massachusetts Department of Transportation jurisdiction. It runs north-south between the I-93 interchange to the north and South Main Street to the south. Within the study area, it is a two-way, four-lane road. On-street parking is not provided on either side of the road. Sidewalks are generally provided on both sides of the road.

*Reed Street* is classified as an urban minor arterial under the jurisdiction of the Town of Randolph. It runs east-west between North Main Street to the east and Canton Street to the west. It is a two-lane, two-lane road. On-street parking is not provided on either side of the road. Sidewalks are provided on both sides of the road.

*High Street* is classified as an urban minor arterial under the jurisdiction of the Town of Randolph and Norfolk County. It runs north-south between Scanlon Drive to the north and Vine Street to the south. It is a two-way, two-lane road. On-street parking is not provided on either side of the road. A sidewalk is provided on the east side of the road.

*Billings Street* is classified as a local road under the jurisdiction of the Town of Randolph. It runs east-west between High Street and High Street. It is a paper street within the existing site parking lot.

---

## Intersection Descriptions

---

*Scanlon Drive/North Main Street/Russ Street* is a four-legged, signalized intersection with four approaches. The Scanlon Drive eastbound approach consists of a shared left-turn/through lane and a shared through/right-turn lane. The Russ Street westbound approach consists of an exclusive left-turn lane and a shared through/right-turn lane. The North Main Street northbound approach consists of an exclusive left-turn lane, a through lane, and a shared through/right-turn lane. The North Main Street southbound approach consists of an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane. Crosswalks are provided at all approaches. Pedestrian ramps are provided at all crossings, but only the ramp at the northeast corner is currently ADA-accessible. On-street parking is not provided along any approach. Pedestrian signal equipment is provided at all crosswalks.



*Reed Street/High Street* is a four-legged, signalized intersection with four approaches. All four approaches consist of a shared left-turn/through/right-turn lane. Crosswalks with pedestrian ramps are provided at all approaches. On-street parking is not provided along any approach. Pedestrian signal equipment is provided at all crosswalks.

*Scanlon Drive/High Street* is a three-legged, unsignalized intersection with three approaches. The Scanlon Drive westbound approach consists of a shared left-turn/right-turn lane. The High Street northbound approach consists of a shared through/right-turn lane. The High Street southbound approach consists of a shared left-turn/through lane. Crosswalks are not provided at any of the approaches. On-street parking is not provided along any approach.

*Scanlon Drive Driveways.* Along Scanlon Drive, there are several driveways that lead to the existing Site as well as adjacent parcels. Starting from High Street and moving east, this includes four driveways for the closed Lantana venue, two driveways for Lombardo's, a shared driveway for Lombardo's and the Comfort Inn Hotel, and a driveway for the Shell gas station.

---

## Traffic Data Collection

---

This section summarizes the traffic data that was collected within the study area.

### AUTOMATIC TRAFFIC RECORDER COUNTS

An automatic traffic recorder (ATR) is a device that continuously records the number and class of vehicles on a roadway for a given period. ATR counts were conducted on Park Street for a 48-hour period from Wednesday, September 13, 2023, to Thursday, September 14, 2023. Complete ATR data is included in **Appendix A. Table 2** summarizes the existing ATR traffic data, including daily traffic, and peak-hour percentage (K factor). Average vehicular speeds and approximate 85<sup>th</sup> percentile vehicular speeds are included in **Appendix A**. Peak periods are also identified below. **Figure 2, Figure 3,** and **Figure 4** show the average daily traffic recorded at each ATR location.

- High Street
  - The a.m. peak was 6:15 a.m. – 7:15 a.m. (770 vehicles).
  - The p.m. peak was 4:30 p.m. – 5:30 p.m. (750 vehicles).
- Scanlon Drive
  - The a.m. peak was 8:15 a.m. – 9:15 a.m. (760 vehicles).
  - The p.m. peak was 4:30 p.m. – 5:30 p.m. (750 vehicles).
- North Main Street
  - The a.m. peak was 8:00 a.m. – 9:00 a.m. (2,400 vehicles).
  - The p.m. peak was 4:15 p.m. – 5:15 p.m. (2,500 vehicles).

*Table 2. Average Weekday Traffic*

Location	ADT	Heavy Vehicle %	K Factor
<b>High Street</b>			
Northbound	5,033	3.1%	12%
Southbound	4,793	2.8%	10%
<b>TOTAL</b>	<b>9,826</b>		
<b>Scanlon Drive</b>			
Eastbound	4,942	3.3%	11%
Westbound	4,762	2.9%	10%
<b>TOTAL</b>	<b>9,704</b>		
<b>North Main Street</b>			
Northbound	17,318	10.3%	9%
Southbound	19,172	4.5%	8%
<b>TOTAL</b>	<b>36,490</b>		



Figure 2. *Average Daily Traffic: High Street, South of Scanlon Drive*

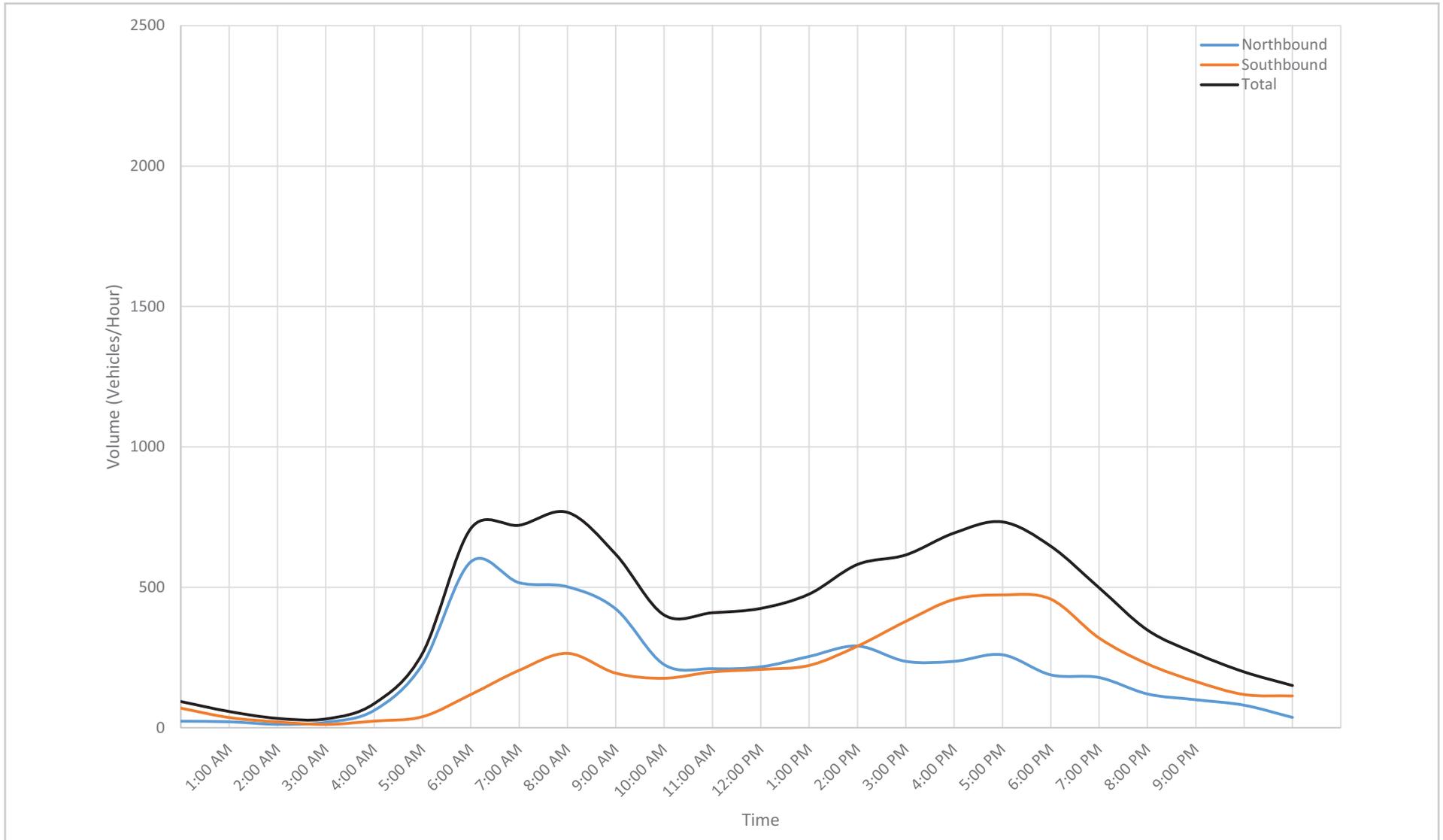




Figure 3. *Average Daily Traffic: Scanlon Drive, East of High Street*

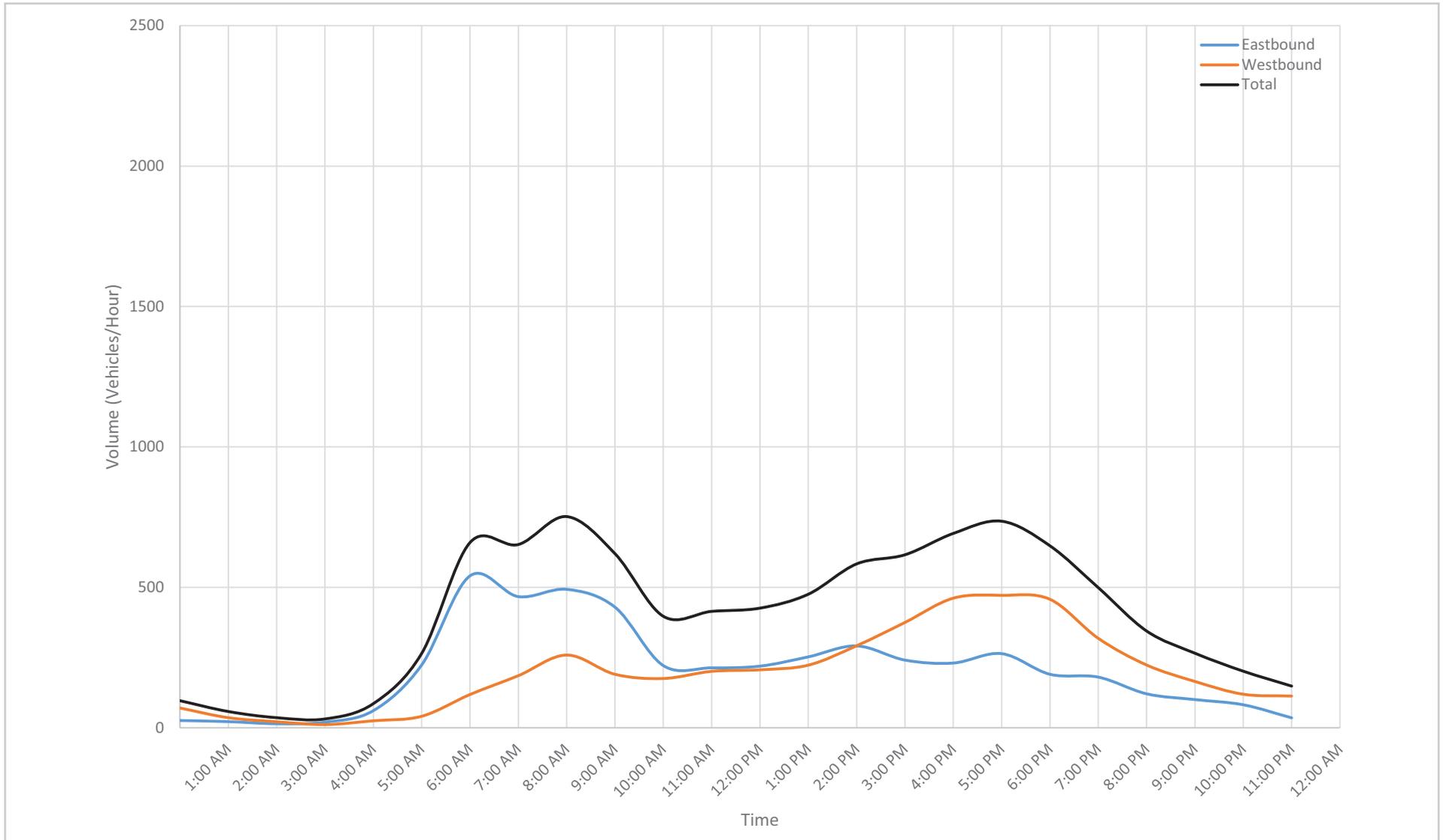
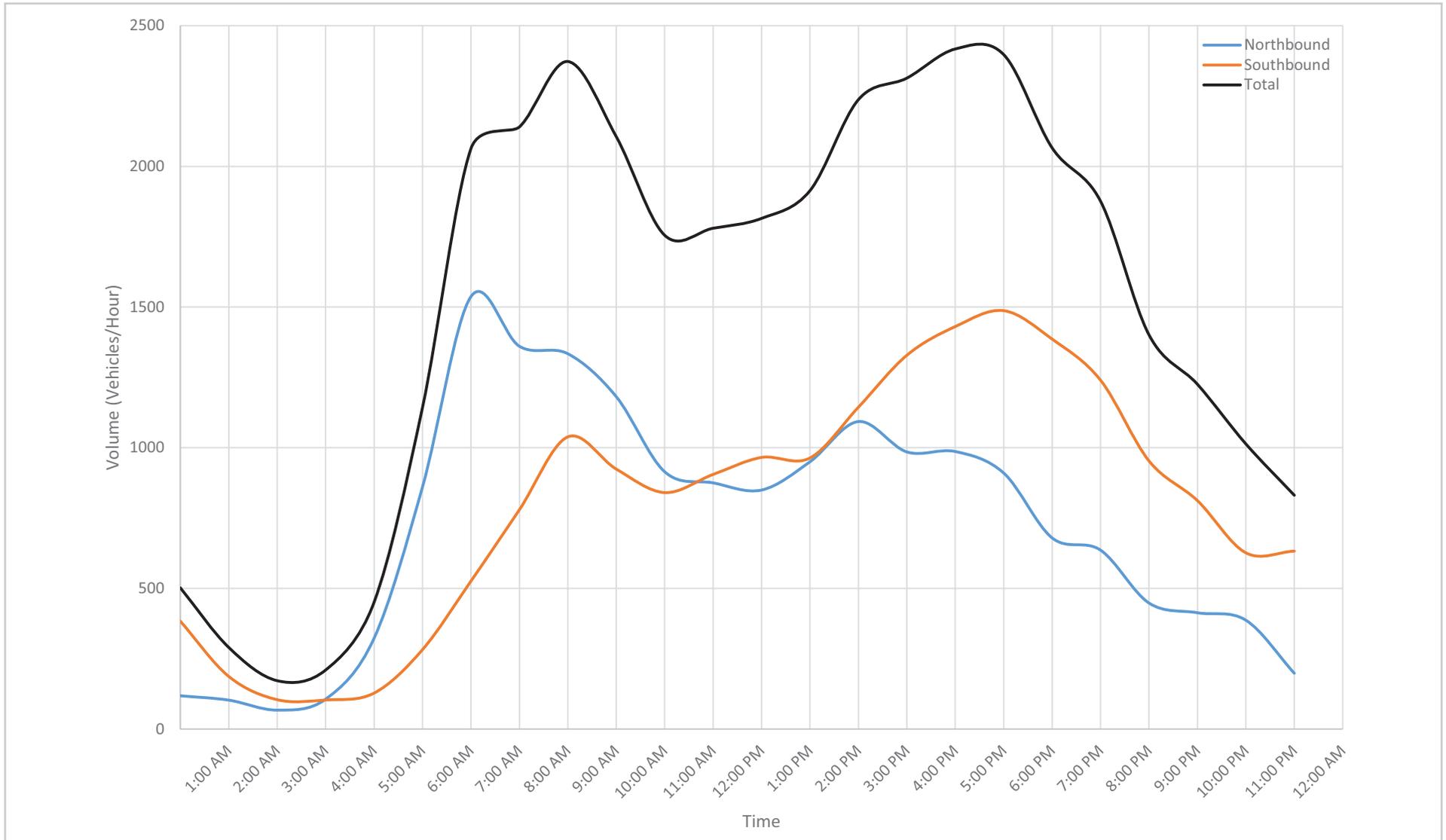




Figure 4. *Average Daily Traffic: North Main Street, North of Scanlon Drive*





## MANUAL TURNING MOVEMENT COUNTS

Manual Turning Movement Counts (TMCs) were recorded from 7:00 – 9:00 a.m. and 4:00 – 6:00 p.m. at the study area intersections and site driveway. The TMCs include vehicle, bicycle, and pedestrian counts. Counts were collected on Wednesday, September 13<sup>th</sup>, 2023, at the study area intersections. The count data indicates that the morning peak hour occurs between 8:00 – 9:00 a.m. and the evening peak hour occurs between 4:30 – 5:30 p.m. Complete traffic count data is provided in **Appendix A**.

## SEASONAL ADJUSTMENT FACTORS

According to MassDOT's Weekday Seasonal Factors Report for urban arterials and collectors, traffic volumes in September are shown to be slightly above average with a seasonal adjustment factor of 0.92. This means that volumes are 8% higher during September than the average for the year. For a more conservative analysis, counts were not adjusted. Seasonal adjustment factors are included in **Appendix B**. **Figure 5** and **Figure 6** show the existing vehicular traffic volumes at the study area intersections and driveways along Scanlon Drive during the morning and evening peak hours. Volumes at adjacent intersections were balanced where appropriate.



Figure 5. Existing (2023) Condition Vehicle Volumes, Weekday a.m. Peak Hour

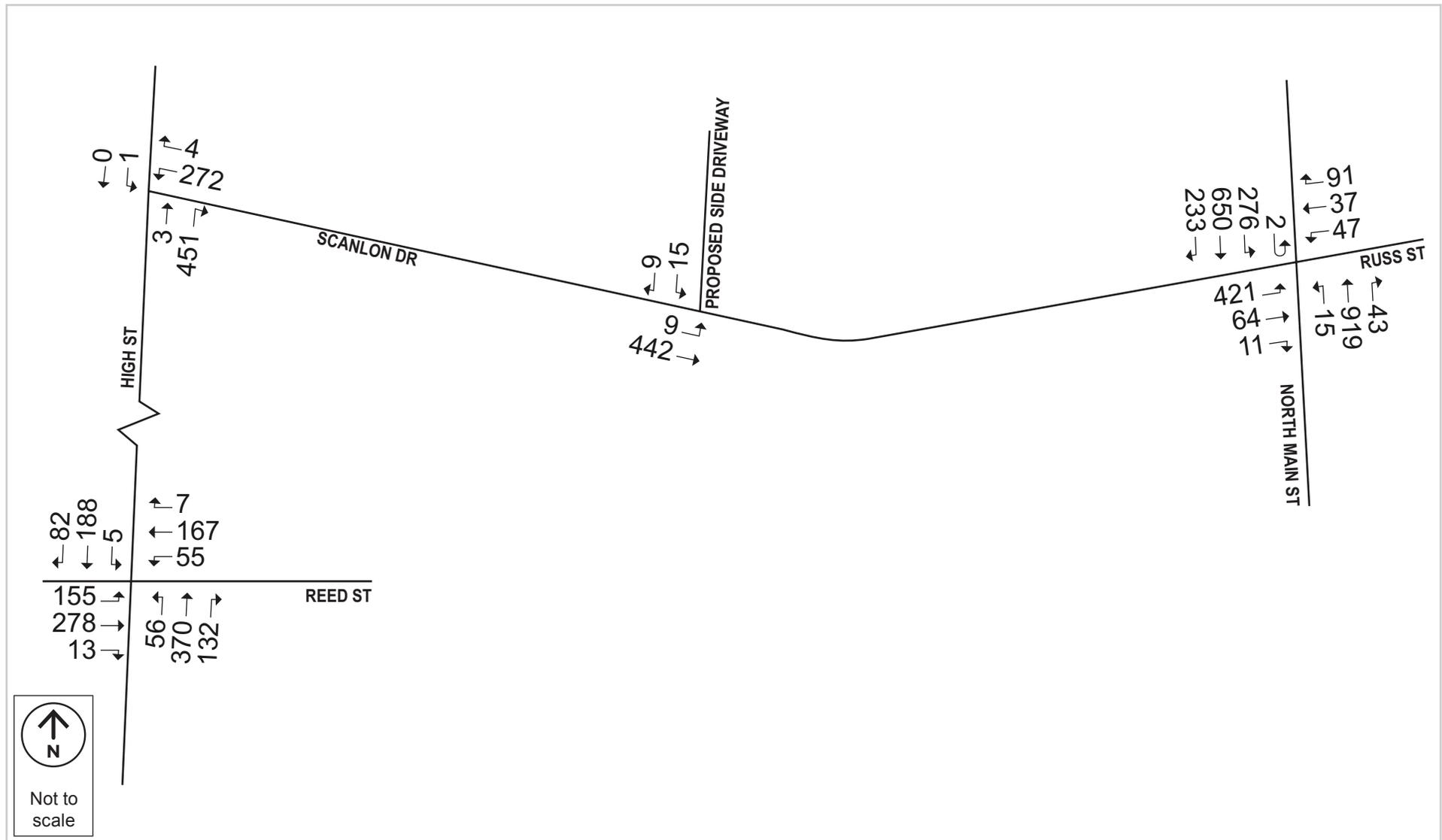
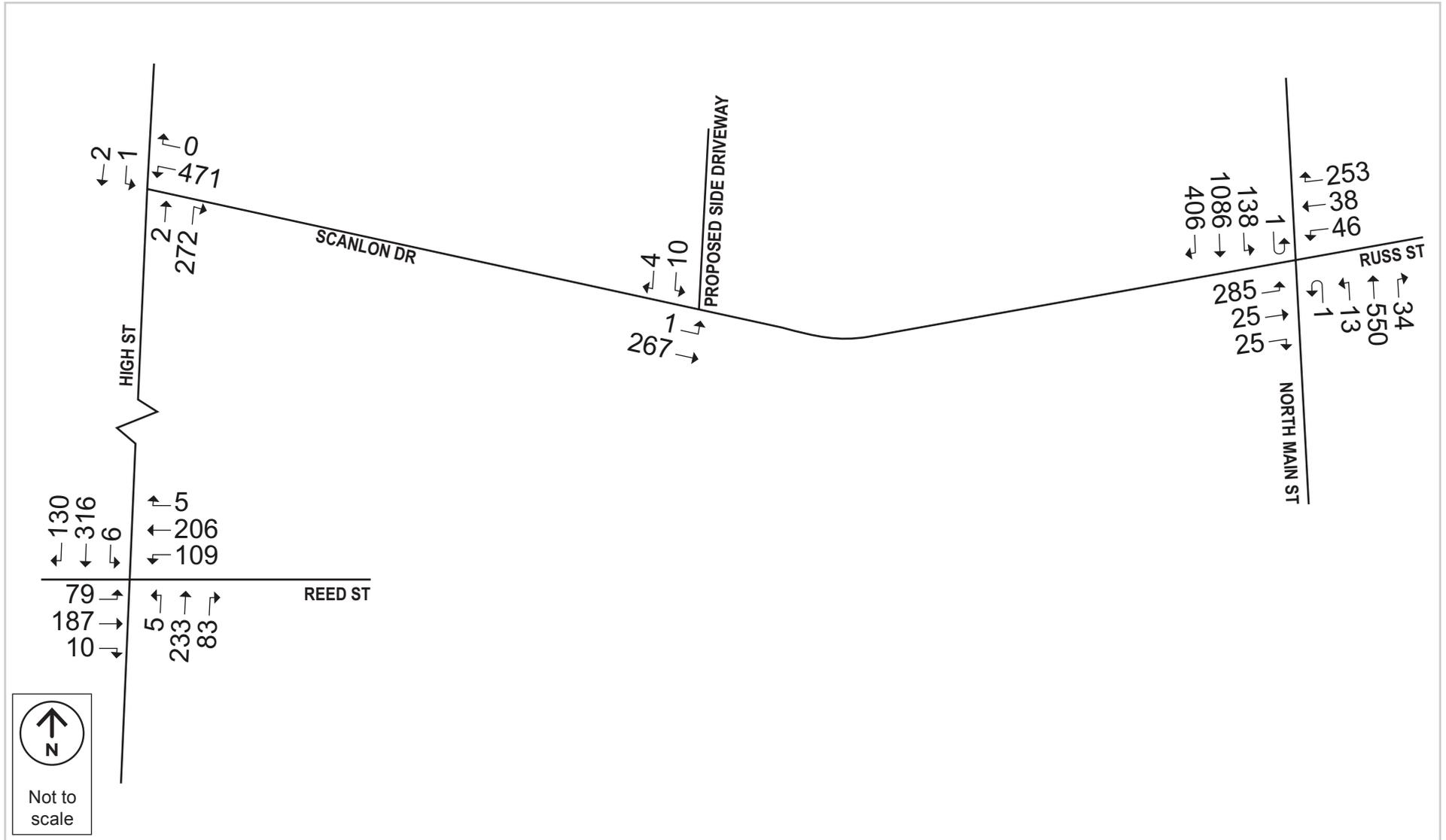




Figure 6. Existing (2023) Condition Vehicle Volumes, Weekday p.m. Peak Hour





## BICYCLE COUNT DATA

Bicycle counts were conducted concurrently with the vehicular traffic data collection. Bicycle activity within the study area was generally low, as shown in **Figure 7**. Cyclists share the road with vehicles on all study area roadways under current conditions.

## PEDESTRIAN COUNT DATA

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted as part of the traffic data collection at the study area intersections. Counts occurred on a cloudy day with temperatures around 70°F. Pedestrian volumes were highest along North Main Street. The weekday a.m. and p.m. peak hour pedestrian volumes are shown in **Figure 8**.

---

## Existing Public Transportation

---

The Massachusetts Bay Transportation Authority (MBTA) and the Brockton Area Transit Authority (BAT) operate buses with stops at the North Main Street at Scanlon Drive bus stop. This bus stop is located an approximately 4-minute (0.2-mile) walk from the Project site. The bus stop is served by MTBA Bus Route 240, which operates between Ashmont and Avon Square; and BAT Bus Route 12, which operates between Ashmont Station and BAT Center hub in Brockton.

Approximately four miles to the south of the site is the Holbrook/Randolph MBTA Station, which is served by the Middleborough/Lakeville Commuter Rail Line. There is also a stop for MBTA Bus Route 240 at this station for potential regional connections.

---

## Off-street Parking

---

The existing off-street parking supply was documented at the following parking facilities closest to the Site:

- Lantana - 23 Scanlon Drive Lot (115 spaces);
- Lombardo's Front Lot (approximately 265 spaces); and
- Lombardo's Back Lot (approximately 234 spaces).



Figure 7. Existing (2023) Condition Bicycle Volumes, Weekday a.m. and p.m. Peak Hours

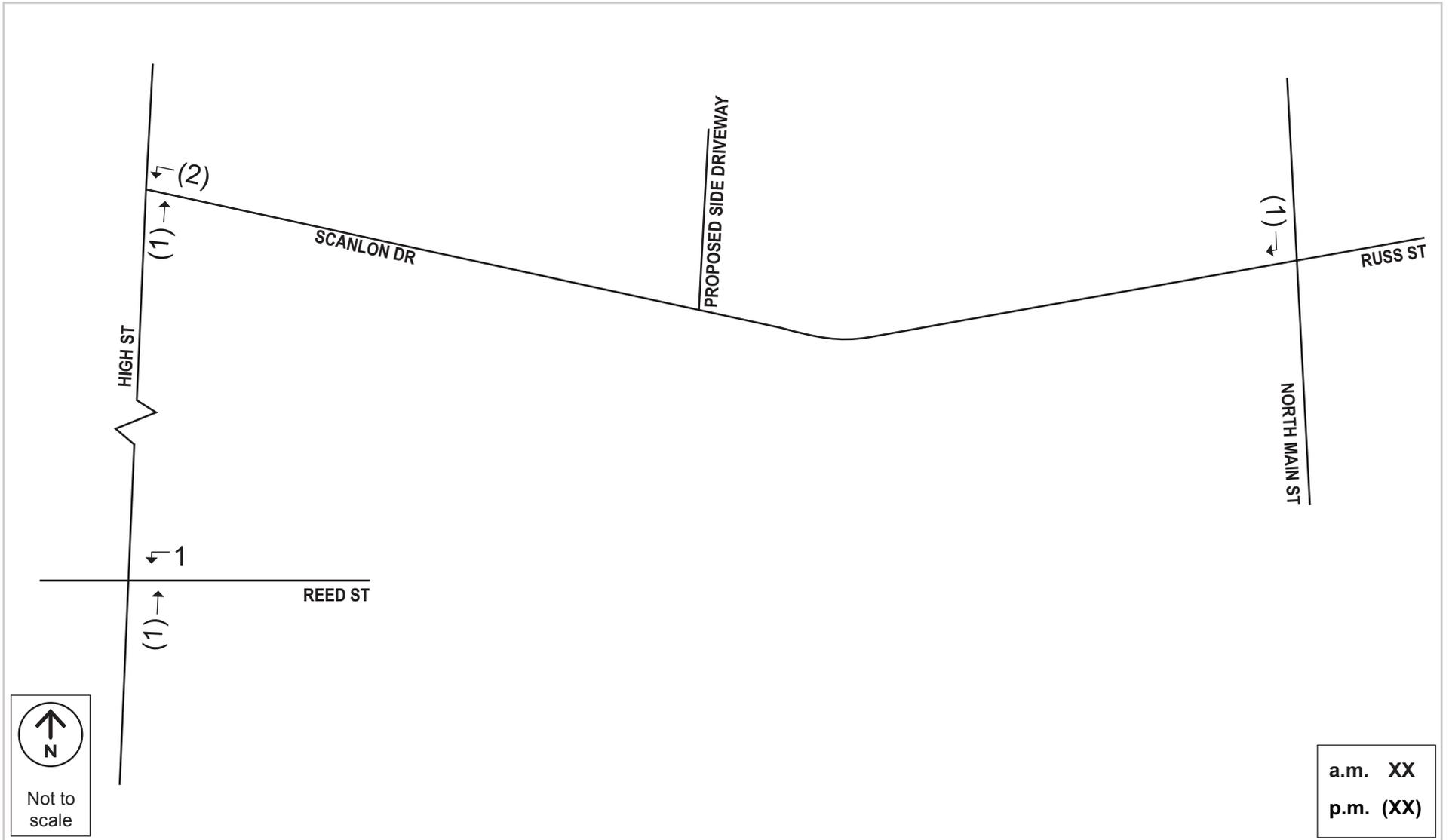
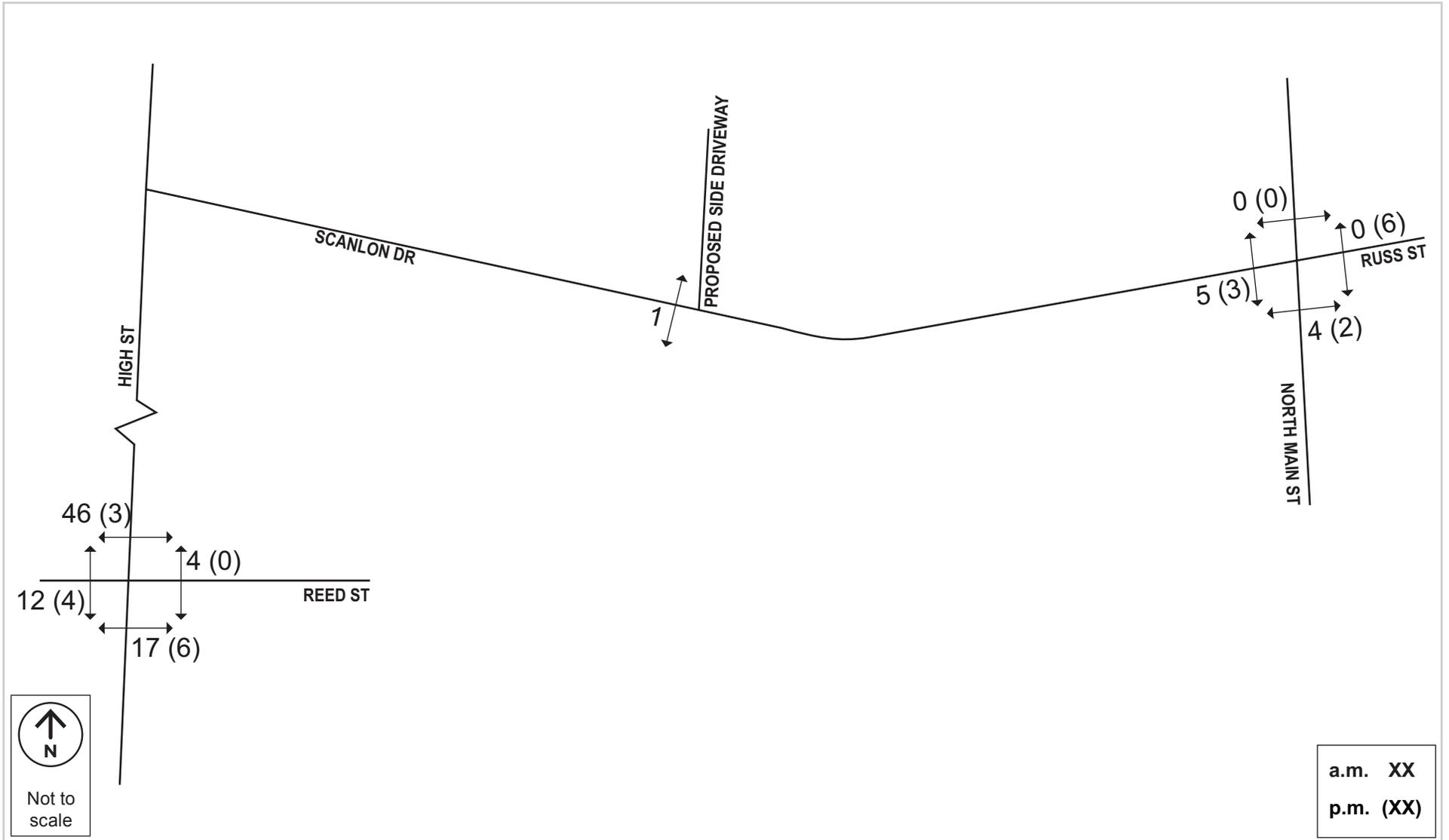




Figure 8. Existing (2023) Condition Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours





## Safety Analysis

HSH performed a safety analysis at all study area intersections to identify and evaluate possible safety issues that exist. Crash data for this corridor was obtained from the MassDOT crash portal database for the most recent period available (2016-2020). **Table 3** summarizes the 86 crashes recorded between 2016 and 2020 at the study area intersections. Most of the crashes reported at the signalized intersection were rear-end crashes (38%) or angle crashes (35%). Two crashes occurred at the study area unsignalized intersections both of which were rear-end crashes. Most crashes were reported with clear weather conditions (62%) and occurred during daylight hours (56%). Most crashes (58%) did not result in any injuries and resulted in property damage only (PDO). No fatalities were recorded. One pedestrian crash was reported.

Crash rates are determined for an intersection based on the number of crashes per million entering vehicles (MEV). The MassDOT District 6 crash rate for signalized intersections is 0.71, and the District 6 crash rate for unsignalized intersections is 0.52. The average crash rates at the signalized intersections are both above the MassDOT District 6 average:

- **Scanlon Drive/North Main Street.** Between 2016 and 2020, 59 crashes occurred at this location. One crash involved a pedestrian. Most (61%) of the crashes occurred during daylight hours. The weather during most (83%) crashes was either clear or cloudy. Based on crash data, crashes often occurred when vehicles had to slow down during heavy traffic. No crashes were fatal.
- **Reed Street/High Street.** Between 2016 and 2020, 25 crashes occurred at this location. No crashes involved pedestrians. Half (48%) of crashes occurred during the night. Over half (56%) of crashes were angle crashes. Crashes were often caused by negligent driving. No crashes were fatal.

Crash data and the crash rate worksheets are provided in **Appendix C**.



**Table 3. Crash Data Summary**

Characteristic	Scanlon Dr/ N Main St	Reed St/ High St	Scanlon Dr/ High St
	Signalized	Signalized	Unsignalized
<b>Total Crashes</b>	59	25	1
<b>Year</b>			
2016	19	2	0
2017	17	7	1
2018	8	6	0
2019	10	3	0
2020	5	7	0
<b>Severity</b>			
PDO	38	10	1
Non-fatal Injury	19	15	0
Not Reported	2	0	0
Fatality	0	0	0
<b>Crash Type</b>			
Angle	15	14	0
Sideswipe, same direction	8	1	0
Rear-end	26	6	1
Single vehicle	7	0	0
Head-on	2	3	0
Sideswipe, opposite direction	1	0	0
Not Reported	0	1	0
<b>Weather</b>			
Clear	40	13	0
Cloudy	9	4	0
Rain	7	5	1
Snow	3	1	0
Sleet/Hail	0	1	0
Other	0	1	0
Not Reported	0	0	0

Characteristic	Scanlon Dr/ N Main St	Reed St/ High St	Scanlon Dr/ High St
	Signalized	Signalized	Unsignalized
<b>Light Conditions</b>			
Daylight	36	11	0
Dark w/ lighted roadway	17	12	1
Dark w/ unlighted roadway	0	1	0
Dark w/ unknown lighting	0	1	0
Dawn	4	0	0
Dusk	2	0	0
Not Reported	0	0	0
<b>Hit and Run</b>	0	0	0
<b>Non-motorist</b>			
Pedestrian	1	0	0
Bicyclist	0	0	0
<b>Crash Rate per MEV</b>	1.00	0.90	0.07
<b>District 6 Average</b>	0.71	0.71	0.52

## No-build (2030) Condition

The methodology to account for future traffic growth, independent of the Project, consists of two components. The first part of the methodology accounts for general background traffic growth that may be affected by changes in demographics, automobile usage, and automobile ownership. The second part of the methodology identifies any specific planned developments that are expected to affect traffic patterns throughout the study area within the future analysis time horizon.

### Background Growth

The baseline 2030 traffic volumes have been estimated by applying a 1% annual growth factor to the existing year volumes. The 1% growth rate was determined based on data from 2013 to 2022, collected from a MassDOT continuous count station located along Route 24 (the Fall River Expressway). This data can be found in **Appendix D**. A 1% growth rate is also consistent with the rate used for the adjacent and recently approved 34 Scanlon Drive project.



---

## Future Development Projects

---

Within the study area, the following development projects were identified that could impact the traffic patterns throughout the study area:

- **34 Scanlon Drive (Yankee Bus Line Headquarters).** The development consists of a 54,700 square foot (sf) maintenance and repair facility as well as parking areas for approximately 75 buses and staff vehicles. This site is located across from the Project.
- **Hotel Restaurant.** Currently, adjacent to the Comfort Inn hotel there is a site that is not in use but used to operate as a restaurant. Per direction from the Randolph Town Planner, there could be the potential for it to be reopened given recent development in the area, therefore the study conservatively estimated trips for a 200-seat restaurant.
- **Lyons Elementary.** The development consists of a 497-student elementary school that will be built on the site of a different school that has been closed since 2008. This development was reviewed, but analysis showed that its trips did not overlap with the study area.

Project trips from the two background developments noted above that pass through the study area and the annual growth rate of 1% were added to the Existing (2023) Condition to develop the No-Build (2030) Condition. The No-Build (2030) Condition volumes for the morning and evening peak hours are presented in **Figure 9** and **Figure 10**, respectively.



Figure 9. No-build (2030) Condition Vehicle Volumes, Weekday a.m. Peak Hour

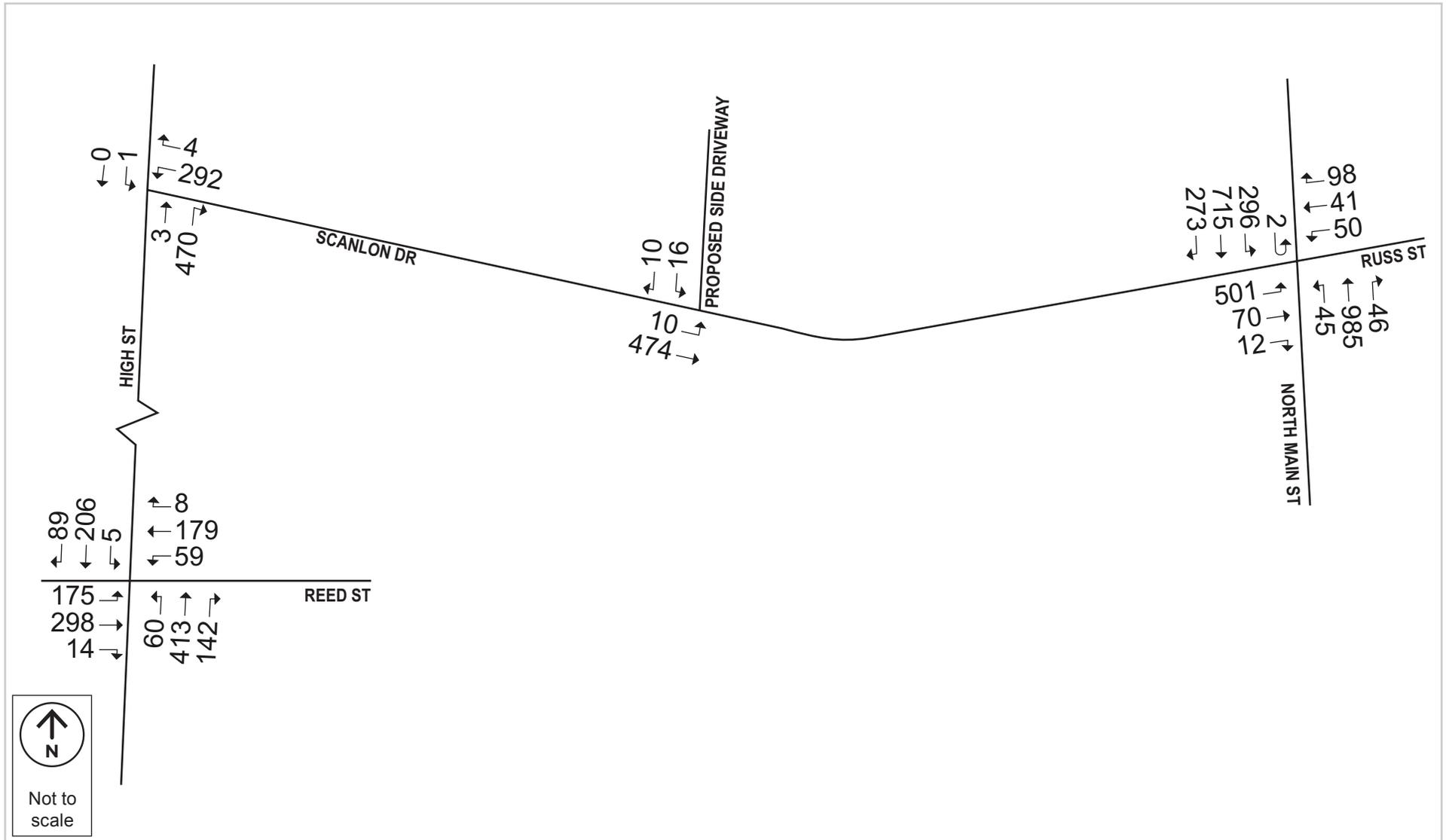
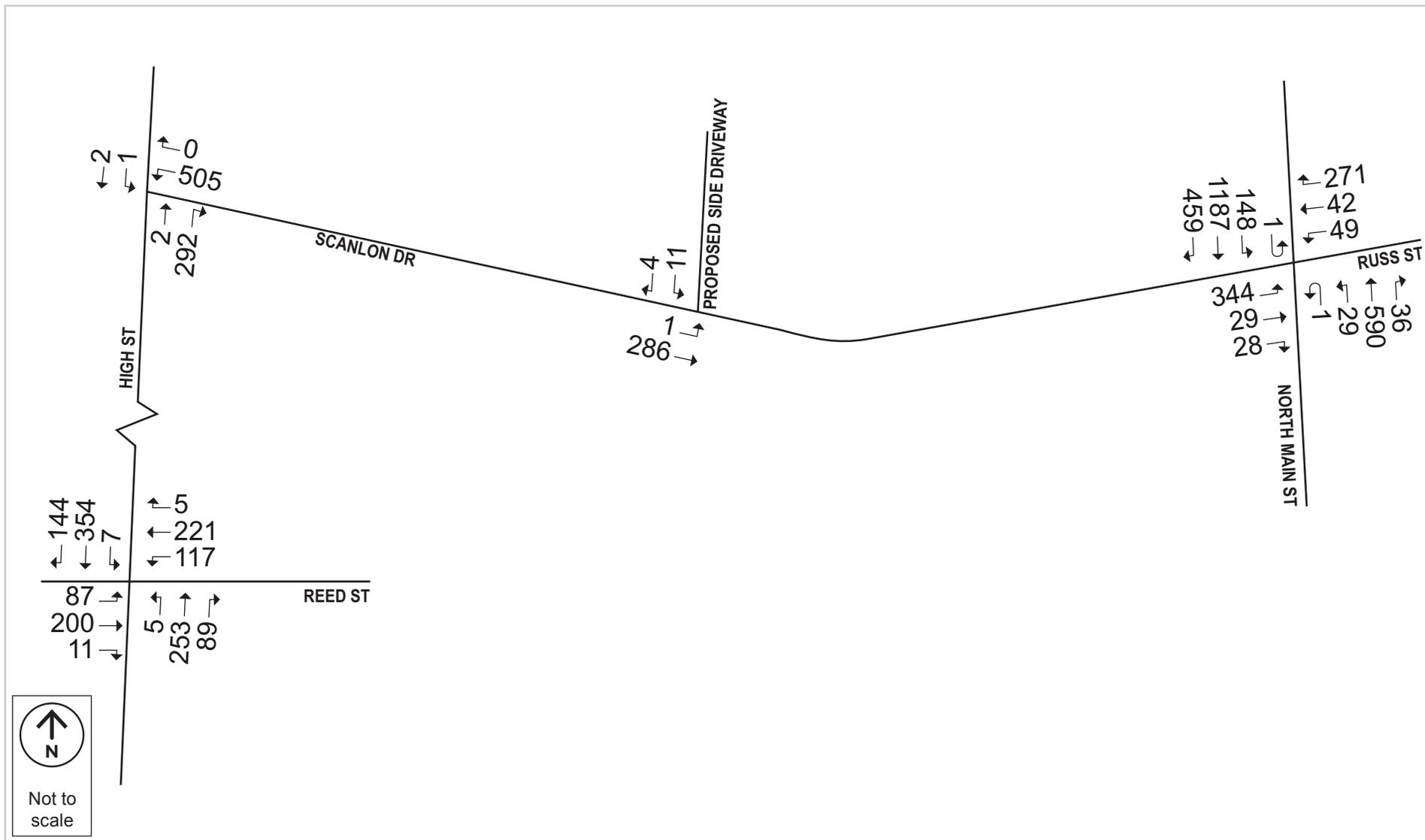




Figure 10. *No-build (2030) Condition Vehicle Volumes, Weekday p.m. Peak Hour*



# Build (2030) Condition

---

## Project Description

---

The Project site, located in Randolph, is bounded by the I-93 interchange ramps to the north, Scanlon Drive to the south, a hotel to the east, and undeveloped land to the west. The existing site is occupied by an event space and an unoccupied second event venue. The Project consists of constructing two buildings, Building A and Building B, which total approximately 68,000 sf of general office space, 110,000 sf of manufacturing space, 75,000 sf of research and development space, and 22,000 sf of warehousing space with 324 parking spaces. The site's front parking lot, which is in front of Building B, consists of 104 spaces and will be accessible by two driveways off Scanlon Drive. Both driveways will be two-way. There will also be a two-way driveway to the west of the front parking lot leading to a parking lot behind Building B. This parking lot will consist of 136 spaces. There will be parking spaces along this driveway consisting of 29 more spaces. Trucks and other service vehicles will use a two-way driveway located to the east of the front parking lot to drive to the service/loading area. Building A will be served by a separate parking lot located to the west of Building A consisting of 35 spaces and features a crane laydown area with access opposite the intersection of High Street at Scanlon Drive. Site access is illustrated on the Site Plan shown in **Figure 11**.



Figure 11. Site Plan





## Vehicle Parking

The Town of Randolph Zoning By-Law establishes requirements for off-street parking spaces for new developments. For proposed warehouse/industrial developments, one space is required for every two employees, plus space for every company-owned and -operated vehicle, as well as spaces for customers as determined by the Building Commissioner or Site Plan Administrator. For commercial/business developments, one space is required for each 200 square feet of gross floor area on the first floor of a building, and one space is required for each 400 square feet of gross floor area for subsequent floors, excluding storage area. (Zoning Bylaws Section 200-22). **Table 4** summarizes the required parking spaces as provided by the Town of Randolph’s standards.

*Table 4. Parking Requirements*

Development Type	Spaces per unit (per zoning)	Units Provided	Spaces Required
<b>Warehouse/Industrial</b>	One space per employee One space per company-owned vehicle	14 truck bays	-
<b>Commercial/Business</b>	One space per 200 sf first floor area One space per 400 sf above-first floor area.	19,355 sf first floor area 12,000 sf second floor area	127 spaces

## LOADING/SERVICE

A maintenance bay is located on the southwest side of Building A. The facility will be handling the storage and maintenance of large pieces of construction equipment. A large lot is available to the west of the building for the storage of this equipment. This lot is accessible from an entrance/exit off the intersection of High Street and Scanlon Drive.

Designated loading/service areas are located on the east side of Building B. Loading and service operations such as deliveries, trash pickup, and recycling will occur in the designated loading/service areas. Service vehicles will enter and exit the site from Scanlon Drive on the east side of Building B.

## Trip Generation Methodology

The traffic expected to be generated by the proposed Project was determined based on industry standards. The trip generation estimates were based on data published within the latest Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11<sup>th</sup> Edition. No direct land use code is



available for the proposed cGMP facility, based on expected building components a mix of manufacturing, general office and research and development center uses were utilized as interpreted by cGMP regulations<sup>2</sup>. No direct land use code is available for the proposed crane operation building, based on expected tenant use a mix of warehousing for crane equipment maintenance and general office for management were utilized in the estimates.

To estimate the number of vehicular trips that will be generated by the project, the following ITE land use codes (LUC) were used:

- **Land Use Code 140 – Manufacturing.** A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, a manufacturing facility typically has an office and may provide space for warehouse, research, and associated functions. The development is a Current Goods Manufacturing Practice (cGMP).
- **Land Use Code 710 – General Office.** A general office building is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building houses multiple tenants that can include, as examples, professional services, insurance companies, investment brokers, a banking institution, a restaurant, or other service retailers.
- **Land Use Code 150 – Warehousing.** A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas.
- **Land Use Code 760 – Research and Development Center.** A research and development center is a facility or group of facilities devoted almost exclusively to research and development activities. The range of specific types of businesses contained in this land use category varies significantly. Research and development centers may contain offices and light fabrication areas.

## MODE SHARE

A mode share is the percentage of trips at a site using various modes of transportation such as vehicle, transit, walking, or biking. The Project mode share was determined using the 2021 American Community Survey (ACS) Means of Transportation to Work (data table B08301) for Census Tract 4202.02, published by the U.S. Census Bureau. Commuting census data includes a percentage of “work from home” responses (9.5%); mode share was adjusted based on commuting

---

<sup>2</sup> Current Good Manufacturing Practice (CGMP) Regulations. <https://www.fda.gov/drugs/pharmaceutical-quality-resources/current-good-manufacturing-practice-cgmp-regulations>

travel choices and was proportionally assigned to all other modes. The mode shares are shown in **Table 5**.

*Table 5. Mode Share*

Mode Type	Mode Share
Vehicle	91%
Public Transportation	7%
Bicycle/Walk	2%
Total	<b>100%</b>

*\* Based on U.S. Census 2021: ACS 5-Year Estimates for Means of Transportation to Work for Census Tract 4202.02 (Table B08301).*

### PROJECT-GENERATED VEHICLE TRIPS

The unadjusted vehicle trips calculated using the ITE rates described previously were converted to person trips by using vehicle occupancy rates of 1.18 for home-to-work based trips, as published by the Federal Highway Administration (FHWA).<sup>3</sup> **Table 6** presents a summary of the Project-generated person trips assigned to transit trips, bike/walk trips, and adjusted primary vehicle trips for the project based on the mode share distribution applied to the ITE LUCs, and includes daily, a.m. peak hour, and p.m. peak hour trips. Trip generation calculations are provided in **Appendix D**.

*Table 6. Project-generated Person Trips by Mode*

Time Period	Direction	Person Trips		Vehicle Trips
		Transit	Walk/Bike	Vehicle
Daily	In	100	30	977
	Out	<u>100</u>	<u>30</u>	<u>977</u>
	Total	200	60	1,954
Weekday a.m. Peak Hour	In	20	5	197
	Out	<u>4</u>	<u>1</u>	<u>45</u>
	Total	24	6	242
	In	5	1	54

<sup>3</sup> Summary of Travel Trends: 2017 National Household Travel Survey; FHWA; Washington, D.C.; July 2018



Time Period	Direction	Person Trips		Vehicle Trips
		Transit	Walk/Bike	Vehicle
Weekday p.m. Peak Hour	<u>Out</u>	<u>18</u>	<u>5</u>	<u>187</u>
	Total	23	6	241

**EXISTING TRIPS**

The sites previous uses included two event venues called Lombardo’s and Lantana, and their supporting parking lots. No ITE land use code is available for these style of event venues, so as to estimate existing trips, the land use code for a Hotel was used as it most closely represented the meeting and conference facilities of the previous event venues. Existing trips were estimated to be 948 daily trips with 58 trips during the a.m. peak hour and 70 vehicle trips during the p.m. peak hour. Count data at the site driveway was collected. As shown in **Table 7**, the proposed Project is expected to generate approximately 184 net new vehicle trips during the weekday a.m. peak hour (12 entering and 172 exiting), and 171 net new vehicle trips during the weekday p.m. peak hour (19 entering and 152 exiting). While the net new trip forecasts are presented, given at the time of traffic counts Lantana was closed and Lombardo’s was winding down operations, the full Project trips in **Table 7** were used for all traffic analysis scenarios.

*Table 7. Net New Vehicle Trips*

Time Period	Direction	Existing	Proposed	Net New
Weekday Daily	In	474	977	503
	<u>Out</u>	<u>474</u>	<u>977</u>	<u>503</u>
	<b>Total</b>	<b>948</b>	<b>1,954</b>	<b>1,006</b>
Weekday a.m. Peak Hour	In	33	197	12
	<u>Out</u>	<u>25</u>	<u>45</u>	<u>172</u>
Weekday p.m. Peak Hour	In	<u>35</u>	<u>54</u>	<u>19</u>
	<u>Out</u>	<u>35</u>	<u>187</u>	<u>152</u>



## TRIP DISTRIBUTION

The trips generated by the site are expected to be primarily work-based trips. The vehicle trip distribution is based on U.S. Census Journey-to-Work data. The trip distribution for entering and exiting vehicles is illustrated in **Figure 12**. The Project-generated trips were assigned to the parking lot driveways. The Project-generated trips at the study area intersections are shown in **Figure 13**. Project-generated vehicle trips were added to the No-build (2030) Condition vehicle volumes to produce the Build (2030) Condition a.m. and p.m. peak hour vehicle volumes as shown in **Figure 14** and **Figure 15** respectively.

Figure 12. Trip Distribution

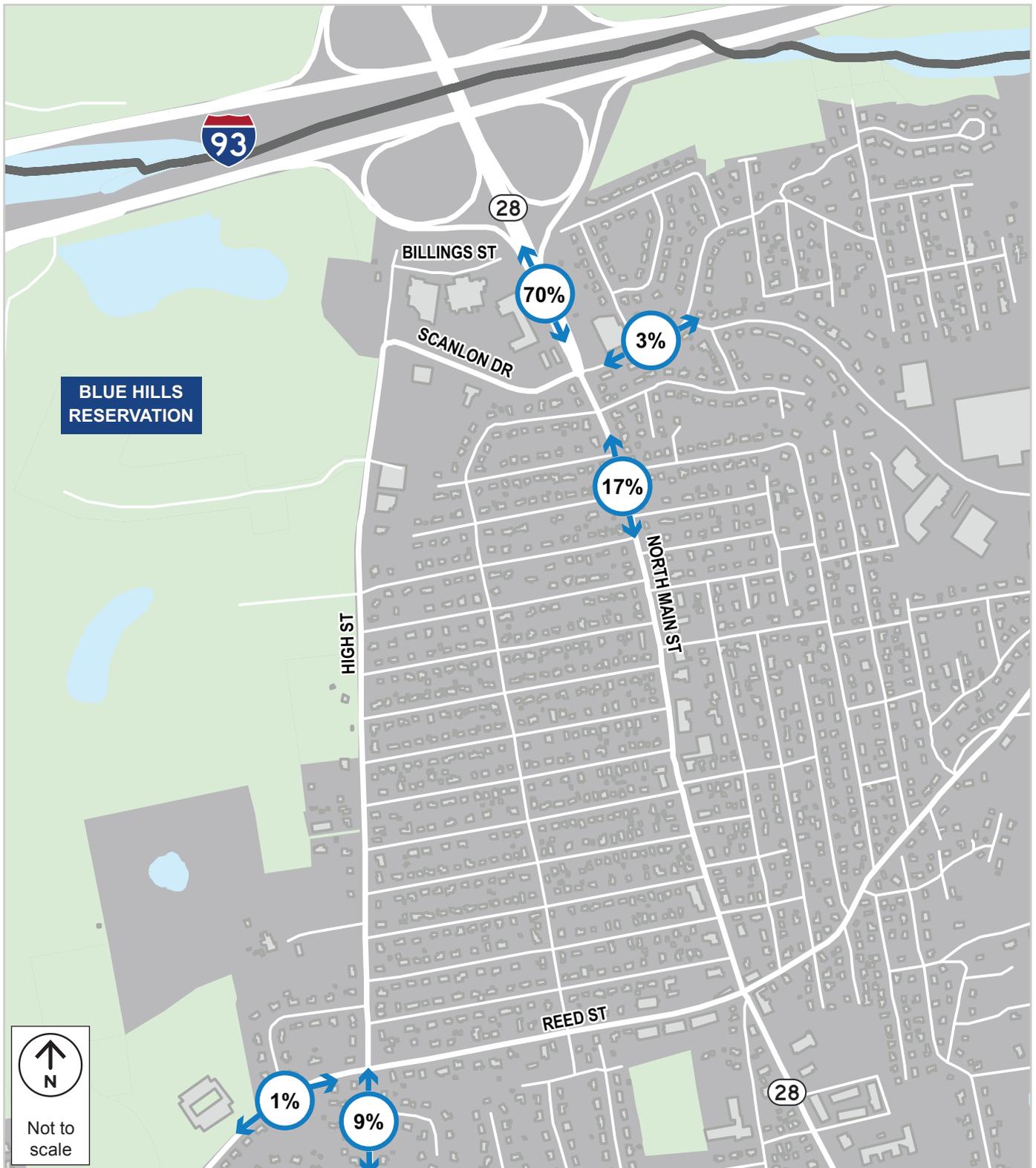




Figure 13. Project-generated Vehicle Trips, Weekday a.m. and p.m. Peak Hours

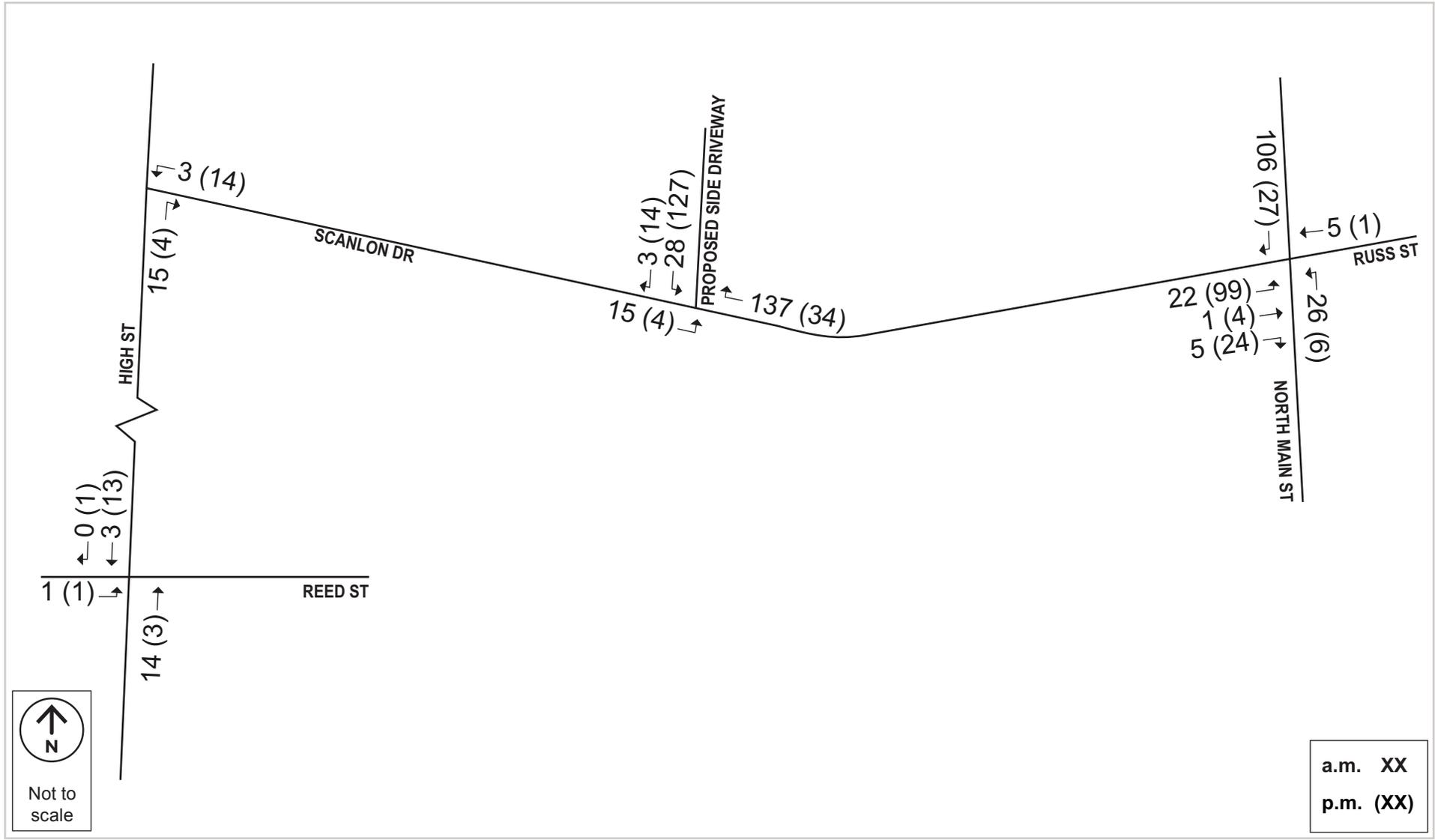




Figure 14. *Build (2030) Condition Vehicle Volumes, Weekday a.m. Peak Hour*

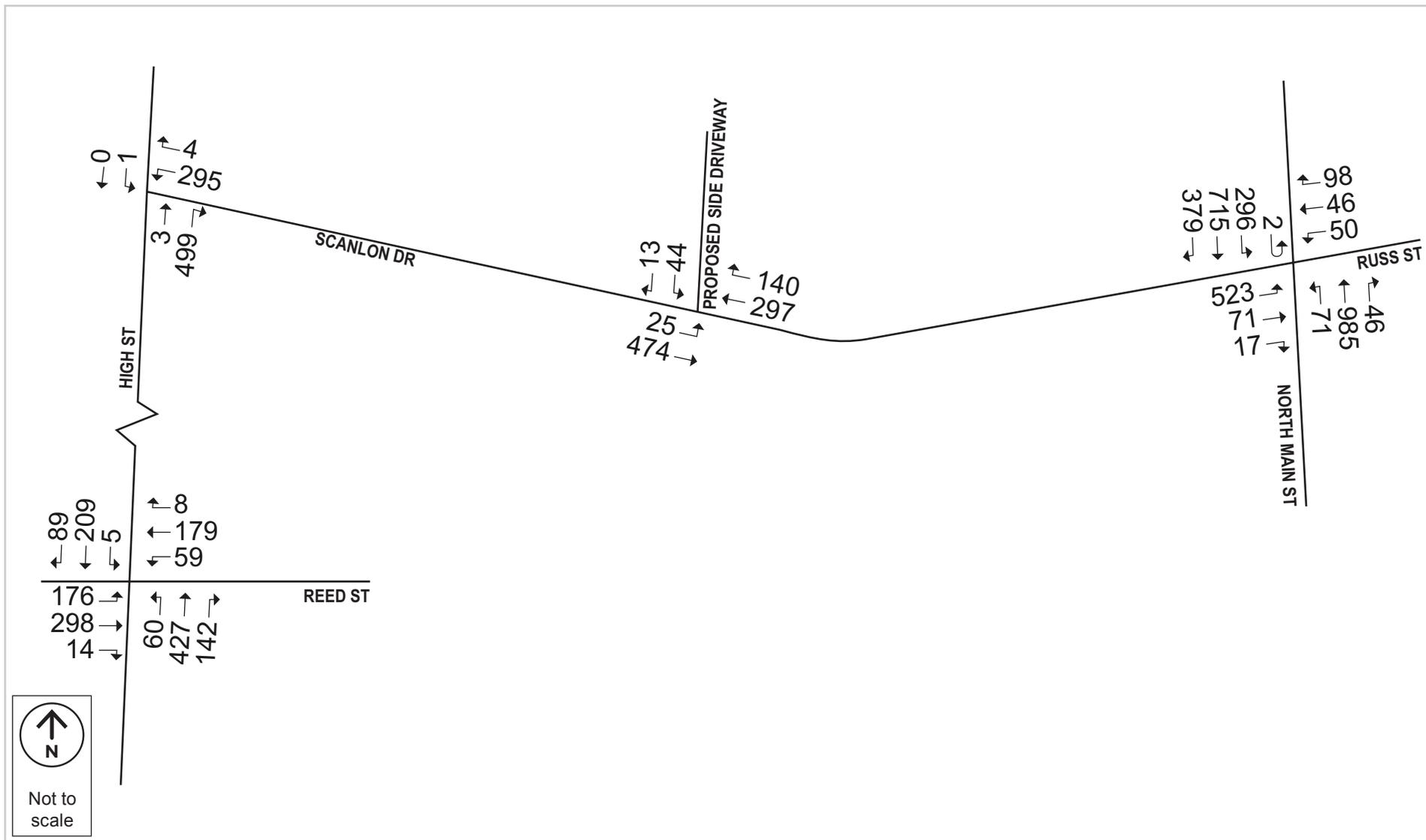
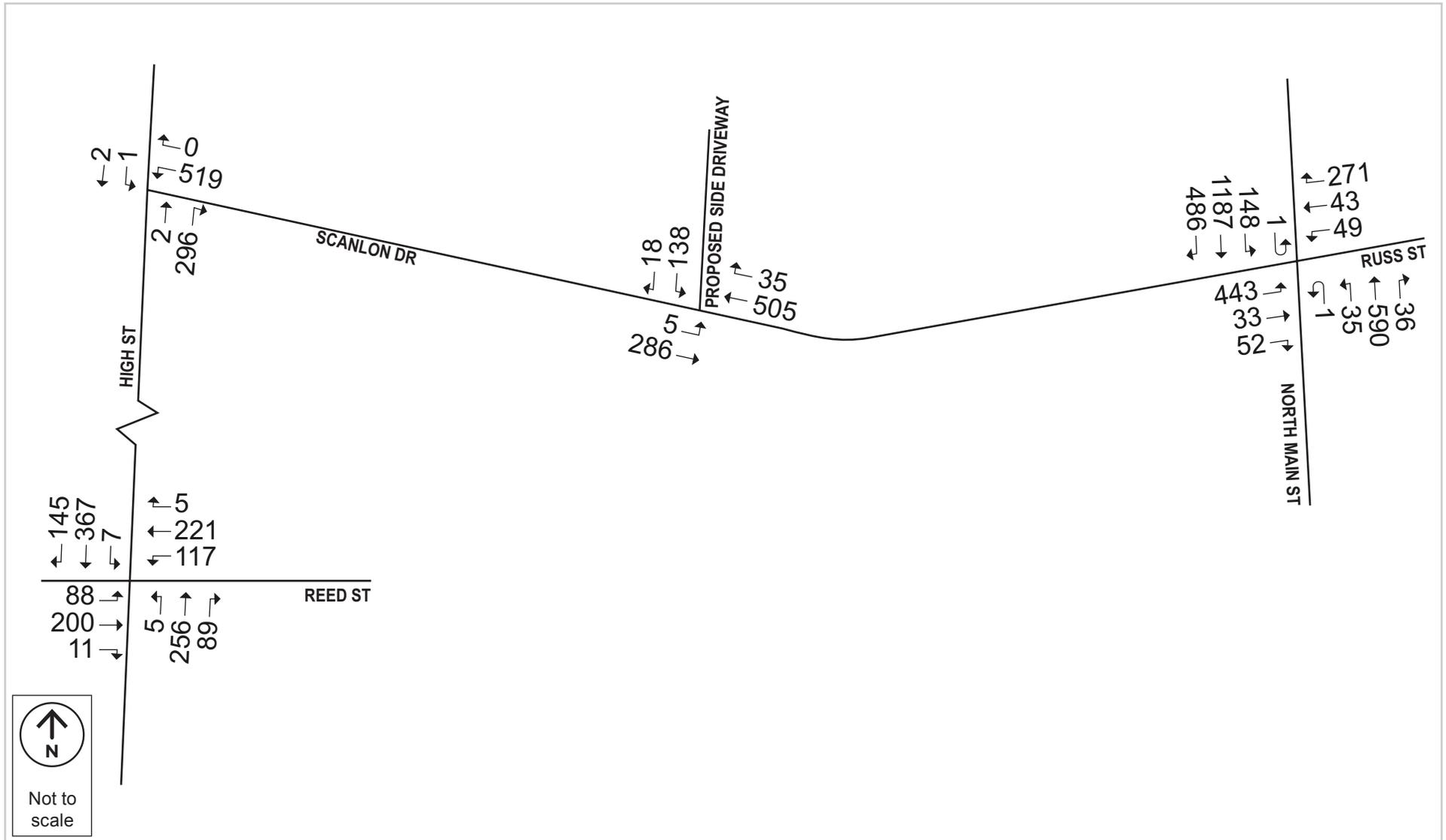




Figure 15. *Build (2030) Condition Vehicle Volumes, Weekday p.m. Peak Hour*





# Transportation Impact Analysis

This section discusses the analysis results for motor vehicle networks. Each section explains the analysis methodology used to evaluate the respective mode and then presents the results.

## Motor Vehicle Operations Analysis

Traffic operations are determined through an analysis of intersection Level of Service (LOS) calculations. LOS at the intersection was calculated using Synchro 11.0, which is based on the traffic operational analysis methodology of the HCM. The LOS and delay (in seconds) are based on intersection geometry and traffic volumes. **Table 8**, an excerpt from the HCM, provides LOS criteria for both signalized and unsignalized intersections. LOS A defines the most favorable condition, with minimum traffic delay. LOS F represents the worst condition, with significant traffic delays. LOS D is generally considered acceptable. However, LOS E or F is often typical for a stop-controlled minor street that intersects a major roadway and does not necessarily indicate that the operations at the intersection are poor or failing.

*Table 8. Level of Service Criteria*

Level of Service	Average Stopped Delay (sec.)	
	Signalized Intersections	Unsignalized Intersections
<b>A</b>	0.0–10.0	0.0–10.0
<b>B</b>	10.1–20.0	10.1–15.0
<b>C</b>	20.1–35.0	15.1–25.0
<b>D</b>	35.1–55.0	25.1–35.0
<b>E</b>	55.1–80.0	35.1–50.0
<b>F</b>	>80.0	>50.0

In accordance with MassDOT guidelines, the peak 15 minutes of data collected during the peak hour were isolated to calculate the peak-hour factors (PHFs) for each approach. The percentage of heavy vehicles was calculated for each peak hour turning movement. PHFs for No-Build and Build scenarios were changed to 0.92 for all approaches per MassDOT guidelines. **Table 9** and **Table 10** summarize the Existing (2023) Condition, No-build (2030) Condition, and Build (2030) Condition LOS, delay, volume to capacity (v/c) ratio, and queue analysis during the a.m. and p.m. peak hours, respectively. Detailed analysis sheets are provided in **Appendix E**.

Table 9. Capacity Analysis Summary, a.m. Peak Hour

Intersection/Movement	Existing (2023) Condition					No-build (2030) Condition					Build (2030) Condition				
	LOS	Delay (s)	V/C Ratio	Queues (ft)		LOS	Delay (s)	V/C Ratio	Queues (ft)		LOS	Delay (s)	V/C Ratio	Queues (ft)	
				50th %	95th %				50th %	95th %				50th %	95th %
<b>Signalized Intersections</b>															
<b>Reed Street/High Street</b>	C	31.9				C	29.4				C	32.0			
Reed Street Eastbound Left/Through/Right	C	24.3	0.81	146	#264	C	22.4	0.78	141	#294	C	22.7	0.79	142	#295
Reed Street Westbound Left/Through/Right	B	14.4	0.50	69	100	B	13.3	0.43	58	111	B	13.3	0.43	58	111
Reed Street Northbound Left/Through/Right	D	54.0	1.01	~218	#358	D	48.7	0.99	207	#407	D	55.0	1.02	~223	#421
Reed Street Southbound Left/Through/Right	B	13.9	0.45	71	124	B	14.1	0.47	74	134	B	14.3	0.48	76	136
North Main Street/Scanlon Drive/Russ Street	D	43.5				D	47.7				D	51.0			
Scanlon Drive Eastbound Left	E	69.1	0.90	202	#357	E	75.1	0.94	229	#436	F	90.1	0.99	246	#471
Scanlon Drive Eastbound Left/Through/Right	E	61.7	0.86	197	#345	E	67.4	0.90	227	#431	F	84.1	0.98	249	#475
Russ Street Westbound Left	E	70.3	0.69	42	#91	E	61.5	0.61	37	#103	E	61.6	0.61	37	#103
Russ Street Westbound Through/Right	F	140.4	0.98	58	#149	F	102.4	0.86	51	#185	F	148.5	1.01	~62	#210
N Main Street Northbound U-Turn/Left	B	18.3	0.06	5	14	B	17.8	0.16	14	31	B	18.4	0.29	25	48
N Main Street Northbound Through   Through/Right	C	32.3	0.80	345	431	D	36.4	0.86	371	461	D	36.3	0.86	371	461
N Main Street Southbound U-Turn/Left	F	80.3	0.99	155	#353	F	123.5	1.12	~218	#414	F	123.6	1.12	~218	#414
N Main Street Southbound Through   Through	B	16.8	0.46	130	230	B	19.9	0.54	198	256	B	20.0	0.54	198	256
N Main Street Southbound Right	A	3.5	0.17	0	19	A	4.4	0.20	0	20	A	4.7	0.30	0	24
<b>Unsignalized Intersections</b>															
<b>High Street/Scanlon Drive</b>															
Scanlon Drive Eastbound Through/Right	-	-	-	-	-	-	-	-	-	-	A	8.9	0.02	-	0
Scanlon Drive Westbound Left/Right	C	16.8	0.70	-	150	B	13.3	0.60	-	103					
Scanlon Drive Westbound Left/Through	-	-	-	-	-	-	-	-	-	-	C	15.7	0.57	-	3.7
High Street Northbound Through/Right	B	14.0	0.50	-	70	B	13	0.47	-	63					
High Street Northbound Left/Right	-	-	-	-	-	-	-	-	-	-	C	16.1	0.68	-	5.3
High Street Southbound Left/Through	A	8.9	0.01	-	0	A	8.7	0.00	-	0					

~ = Volume exceeds capacity, queue is theoretically infinite.

# = 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after 2 cycles.

Grey = Indicates a lane movement that decreased to LOS E or LOS F from the Existing Condition to the No-build Condition or decreased to LOS E or LOS F from the No-build Condition to the Build Condition.



Table 10. Capacity Analysis Summary, p.m. Peak Hour

Intersection/Movement	Existing (2023) Condition					No-build (2030) Condition					Build (2030) Condition				
	LOS	Delay (s)	V/C Ratio	Queues (ft)		LOS	Delay (s)	V/C Ratio	Queues (ft)		LOS	Delay (s)	V/C Ratio	Queues (ft)	
				50th %	95th %				50th %	95th %				50th %	95th %
<b>Signalized Intersections</b>															
<b>Reed Street/High Street</b>	B	14.5				B	16.2				B	16.8			
Reed Street Eastbound Left/Through/Right	B	11.9	0.44	55	106	B	12.4	0.48	58	112	B	12.	0.48	58	112
Reed Street Westbound Left/Through/Right	B	15.4	0.61	68	135	B	16.7	0.65	74	#156	B	16.7	0.65	74	#156
Reed Street Northbound Left/Through/Right	B	12.9	0.52	68	121	B	13.0	0.53	70	131	B	13.1	0.53	71	133
Reed Street Southbound Left/Through/Right	B	16.7	0.69	98	#194	C	20.3	0.78	117	#259	C	21.9	0.81	123	#272
North Main Street/Scanlon Drive/Russ Street	C	28.3				D	37.4				D	47.5			
Scanlon Drive Eastbound Left	D	39.3	0.67	107	185	D	41.5	0.69	138	224	E	58.7	0.88	211	#374
Scanlon Drive Eastbound Left/Through/Right	D	37.1	0.62	101	176	D	38.5	0.63	129	211	D	48.2	0.80	193	#341
Russ Street Westbound Left	D	36.6	0.25	25	67	D	37.4	0.24	31	68	D	38.2	0.23	31	68
Russ Street Westbound Through/Right	D	47.1	0.68	57	#197	E	55.7	0.77	88	#241	E	65.2	0.84	111	#275
N Main Street Northbound U-Turn/Left	C	21.4	0.13	5	17	C	23.8	0.25	11	29	C	27.1	0.34	15	35
N Main Street Northbound Through   Through/Right	C	26.2	0.58	167	258	C	28.3	0.63	200	281	C	31.5	0.67	201	281
N Main Street Southbound U-Turn/Left	B	14.4	0.42	50	96	B	15.9	0.48	61	103	B	18.4	0.52	61	103
N Main Street Southbound Through   Through	C	30.3	0.87	277	#556	D	51.2	0.99	~510	#646	E	69.8	1.05	~512	#646
N Main Street Southbound Right	A	6.4	0.29	0	34	A	7.3	0.33	0	36	A	7.8	0.36	0	37
<b>Unsignalized Intersections</b>															
<b>High Street/Scanlon Drive</b>															
Scanlon Drive Eastbound Through/Right	-	-	-	-	-	-	-	-	-	-	A	9.1	0.09	-	0.3
Scanlon Drive Westbound Left/Right	B	11	0.42	-	53	B	11.2	0.42	-	53					
Scanlon Drive Westbound Left/Through	-	-	-	-	-	-	-	-	-	-	D	26.5	0.81	-	8.6
High Street Northbound Through/Right	C	18.3	0.69	-	140	C	21.0	0.75	-	170					
High Street Northbound Left/Right	-	-	-	-	-	-	-	-	-	-	B	12.0	0.45	-	2.3
High Street Southbound Left/Through	A	8.9	0.02	-	3	A	8.9	0.01	-	0					

~ = Volume exceeds capacity, queue is theoretically infinite.

# = 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after 2 cycles.

Grey = Indicates a lane movement that decreased to LOS E or LOS F from the Existing Condition to the No-build Condition or decreased to LOS E or LOS F from the No-build Condition to the Build Condition.

## EXISTING OPERATIONS ANALYSIS SUMMARY

All study area intersections and approaches operate at acceptable levels of service (LOS D or better) during the a.m. and p.m. peak hours in the Existing (2023) Condition except:

- North Main Street/Scanlon Drive/Russ Street
  - The Scanlon Drive Eastbound movements operate at LOS E during the a.m. peak hour.
  - The Russ Street Westbound Left movement operates at LOS E during the a.m. peak hour.
  - The Russ Street Westbound Through/Right movement operates at LOS F during the a.m. peak hour.
  - The North Main Street Southbound U-Turn/Left movement operates at LOS F during the a.m. peak hour.

## NO-BUILD OPERATIONS ANALYSIS SUMMARY

All study area intersections and approaches continue to operate at the same LOS in the No-build Condition as they do in the Existing (2023) Condition during the a.m. and p.m. peak hours except:

- Reed Street/High Street
  - The Reed Street Southbound movement changes from LOS B to LOS C during the p.m. peak hour.
- North Main Street/Scanlon Drive/Russ Street
  - The Russ Street Westbound Through/Right movement changes from LOS D to LOS E during the p.m. peak hour.
  - The North Main Street Northbound Through movement changes from LOS C to LOS D during the a.m. peak hour.
  - The North Main Street Southbound Through movement changes from LOS C to LOS D during the a.m. peak hour.
- Scanlon Drive/High Street
  - The Scanlon Drive westbound through/right changes from LOS C to LOS B during the a.m. peak hour.

## BUILD OPERATIONS ANALYSIS SUMMARY

All study area intersections and approaches continue to operate at the same LOS in the Build Condition as they do in the No-build Condition during the a.m. and p.m. peak hours except:

- North Main Street/Scanlon Drive/Russ Street
  - The Scanlon Drive Eastbound Left movement changes from LOS E to the LOS F during the a.m. peak hour and from LOS D to LOS E during the p.m. peak hour.



- The Scanlon Drive Eastbound Left/Through/Right movement changes from LOS E to LOS F during the a.m. peak hour.
- The North Main Street Southbound Through movement changes from LOS D to LOS E during the p.m. peak hour.

## Transportation Mitigation

---

The Proponent will work with the Town of Randolph to create a Project that provides safe access for vehicle trips, improves the pedestrian environment, and encourages carpooling to reduce single occupancy trips to the Project Site. As a means of supporting the extensive existing DCR trails/paths in the area, the project is proposing to construct a trailhead parking area off High Street with approximately 18 parking spaces. Currently there is no way to easily get access to the trails from this area of Randolph, so this improvement will not only create a formal entrance, but also make this nearby amenity more known and visible.

Adjusting the timings at the North Main Street/Scanlon Drive intersection can allow for the eastbound left movement at Scanlon Drive to remain below a forecasted LOS F during the a.m. peak hour. **Table 11** shows the improvements made by these new signal timings.



Table 11. Mitigation at North Main Street/Scanlon Drive

Movement	Unmitigated (a.m.)					Mitigated (a.m.)				
	LOS	Delay (s)	V/C Ratio	Queues (ft)		LOS	Delay (s)	V/C Ratio	Queues (ft)	
				50th %	95th %				50th %	95th %
<b>North Main Street/Scanlon Drive</b>	<b>D</b>	<b>51.0</b>				<b>D</b>	<b>49.2</b>			
Scanlon Drive Eastbound Left	F	90.1	0.99	246	#471	E	76.6	0.94	256	#449
Scanlon Drive Eastbound Left/Through/Right	F	84.1	0.98	249	#475	E	71.2	0.93	260	#451
Russ Street Westbound Left	E	61.6	0.61	37	#103	E	56.3	0.53	39	#92
Russ Street Westbound Through/Right	F	148.5	1.01	~62	#210	F	106.1	0.89	64	#198
N Main Street Northbound U-Turn/Left	B	18.4	0.29	25	48	B	19.7	0.30	27	51
N Main Street Northbound Through   Through Right	D	36.3	0.86	371	461	D	39.5	0.88	389	484
N Main Street Southbound U-Turn/Left	F	123.6	1.12	~218	#414	F	138.1	1.16	~238	#420
N Main Street Southbound Through   Through	B	20.0	0.54	198	256	C	21.6	0.55	210	271
N Main Street Southbound Right	A	4.7	0.30	0	24	A	5.1	0.30	0	25



# Conclusion and Recommendations

---

A detailed traffic operations analysis was conducted for the nearby intersections. The Project is expected to have minimal impacts on traffic operations at the study area intersections. ). The Project is expected to generate approximately 242 new vehicle trips, 24 new transit trips, and 6 new walk/bicycle trips during the weekday a.m. peak hour, and 241 new vehicle trips, 23 new transit trips, and 6 new walk/bicycle trips during the weekday p.m. peak hour. The Project is expected to see 184 net new trips for the a.m. peak hour and 171 net new trips during the p.m. peak hour compared to the existing conditions. Parking will be reduced to 324 spaces. Placement of loading operations at the back of the site will maintain a welcoming frontage along Scanlon Drive and the extensive landscaping will add much needed green elements to a street that today is overwhelmed by pavement. The Project's construction of a DCR trailhead will support more recreational use of park facilities in the area for residents and new employees of the site.



# Appendix A

## Traffic Count Data

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 1  
 Location: Randolph, MA  
 Street 1: High Street  
 Street 2: Reed Street  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
7:00 AM	0	1	88	19	0	1	41	12	0	54	46	1	0	6	35	4
7:15 AM	0	2	74	27	0	3	55	19	0	41	52	0	0	19	36	1
7:30 AM	0	4	93	32	0	4	46	19	0	51	76	1	0	9	43	2
7:45 AM	0	4	82	31	0	1	39	17	0	35	58	1	0	15	52	2
8:00 AM	0	17	93	35	0	4	50	22	0	34	57	0	0	11	48	2
8:15 AM	0	24	74	20	0	0	62	16	0	34	70	7	0	12	62	2
8:30 AM	0	11	83	31	0	1	39	25	0	49	81	4	0	13	27	1
8:45 AM	0	4	120	46	0	0	37	19	0	38	70	2	0	19	30	2

Start Time	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
4:00 PM	0	1	44	11	0	2	83	30	0	20	30	1	0	29	45	0
4:15 PM	0	4	49	18	0	0	97	32	0	15	43	2	0	26	41	1
4:30 PM	0	1	50	19	0	0	68	37	0	18	51	4	0	31	57	0
4:45 PM	0	2	51	21	0	2	81	29	0	21	48	2	0	21	50	2
5:00 PM	0	1	73	18	0	1	86	26	0	21	53	3	0	27	53	0
5:15 PM	0	1	59	25	0	3	81	38	0	19	35	1	0	30	46	3
5:30 PM	0	1	42	16	0	1	64	37	0	21	44	0	0	13	38	4
5:45 PM	0	3	39	15	0	1	77	26	0	15	39	2	0	25	24	3

AM PEAK HOUR 8:00 AM to 9:00 AM	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
	0	56	370	132	0	5	188	82	0	155	278	13	0	55	167	7
<b>PHF</b>	0.82			0.88			0.83			0.75						
<b>HV %</b>	0.0%	0.0%	4.6%	2.3%	0.0%	0.0%	6.9%	1.2%	0.0%	1.3%	1.4%	0.0%	0.0%	10.9%	3.0%	0.0%

PM PEAK HOUR 4:30 PM to 5:30 PM	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
	0	5	233	83	0	6	316	130	0	79	187	10	0	109	206	5
<b>PHF</b>	0.87			0.93			0.90			0.91						
<b>HV %</b>	0.0%	0.0%	2.1%	1.2%	0.0%	0.0%	2.5%	1.5%	0.0%	0.0%	1.1%	0.0%	0.0%	3.7%	0.0%	0.0%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTM #: Location 1  
 Location: Randolph, MA  
 Street 1: High Street  
 Street 2: Reed Street  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**HEAVY VEHICLES**

Start Time	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
7:00 AM	0	0	3	3	0	0	0	0	0	2	1	0	0	1	1	0
7:15 AM	0	0	1	1	0	0	3	0	0	0	2	0	0	2	4	0
7:30 AM	0	0	4	4	0	0	1	0	0	2	2	0	0	0	0	0
7:45 AM	0	0	1	2	0	0	0	0	0	2	1	0	0	0	1	0
8:00 AM	0	0	3	0	0	0	2	1	0	1	1	0	0	1	2	0
8:15 AM	0	0	4	0	0	0	4	0	0	0	0	0	0	2	1	0
8:30 AM	0	0	5	2	0	0	4	0	0	1	2	0	0	1	1	0
8:45 AM	0	0	5	1	0	0	3	0	0	0	1	0	0	2	1	0

Start Time	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
4:00 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	1	0	0	0	6	0	0	0	2	0	0	0	2	0
4:30 PM	0	0	2	0	0	0	2	0	0	0	1	0	0	3	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0
5:00 PM	0	0	2	0	0	0	2	2	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	1	0	0	3	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	0	0	1	1	0	1	0	0	0	0	2	0
5:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	1	4	0

AM PEAK HOUR 8:00 AM to 9:00 AM PHF	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
	0	0	17	3	0	0	13	1	0	2	4	0	0	6	5	0
	0.71			0.88			0.50			0.92						

PM PEAK HOUR 4:00 PM to 5:00 PM PHF	High Street Northbound			High Street Southbound			Reed Street Eastbound			Reed Street Westbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right				
	0	0	3	0	0	0	13	0	0	0	4	0	0	4	5	0
	0.38			0.54			0.50			0.75						

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 1  
 Location: Randolph, MA  
 Street 1: High Street  
 Street 2: Reed Street  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## PEDESTRIANS & BICYCLES

Start Time	High Street Northbound				High Street Southbound				Reed Street Eastbound				Reed Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	10	0	0	0	0	1	0	0	2
8:15 AM	0	0	0	6	0	0	0	31	0	0	0	5	0	0	0	0
8:30 AM	0	0	0	9	0	0	0	5	0	0	0	7	0	0	0	2
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	High Street Northbound				High Street Southbound				Reed Street Eastbound				Reed Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	High Street Northbound				High Street Southbound				Reed Street Eastbound				Reed Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	17	0	0	0	46	0	0	0	12	1	0	0	4

PM PEAK HOUR <sup>1</sup> 4:30 PM to 5:30 PM	High Street Northbound				High Street Southbound				Reed Street Eastbound				Reed Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	0	6	0	0	0	3	0	0	0	4	0	0	0	0

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 2  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: High Street  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	4	141	0	2	2	0	0	0	0	0	0	49	0	1
7:15 AM	0	0	0	115	0	0	0	0	0	0	0	0	0	52	0	1
7:30 AM	0	0	4	102	0	0	1	0	0	0	0	0	0	55	0	0
7:45 AM	0	0	1	117	0	0	1	0	0	0	0	0	0	54	0	0
8:00 AM	0	0	2	105	0	0	0	0	0	0	0	0	0	75	0	3
8:15 AM	0	0	1	89	0	0	0	0	0	0	0	0	0	80	0	1
8:30 AM	0	0	0	99	0	1	0	0	0	0	0	0	0	64	0	0
8:45 AM	0	0	0	145	0	0	0	0	0	0	0	0	0	53	0	0

Start Time	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	57	0	0	0	0	0	0	0	0	0	121	0	0
4:15 PM	0	0	0	65	0	0	0	0	0	0	0	0	0	125	0	0
4:30 PM	0	0	1	57	0	1	2	0	0	0	0	0	0	117	0	0
4:45 PM	0	0	1	58	0	0	0	0	0	0	0	0	0	115	0	0
5:00 PM	0	0	0	82	0	0	0	0	0	0	0	0	0	127	0	0
5:15 PM	0	0	0	75	0	0	0	0	0	0	0	0	0	112	0	0
5:30 PM	0	0	1	56	0	0	0	0	0	0	0	0	0	102	0	0
5:45 PM	0	0	0	49	0	0	0	0	0	0	0	0	0	127	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	3	438	0	1	0	0	0	0	0	0	0	272	0	4
<b>PHF</b>	0.76				0.25				0.00				0.85			
<b>HV %</b>	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	0.0%	0.0%

PM PEAK HOUR 4:15 PM to 5:15 PM	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	2	262	0	1	2	0	0	0	0	0	0	484	0	0
<b>PHF</b>	0.80				0.25				0.00				0.95			
<b>HV %</b>	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 2  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: High Street  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0
7:30 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	5	0	0
8:30 AM	0	0	0	6	0	0	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	3	0	0

Start Time	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0	0
4:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	4	0	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0
5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM PHF	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	16	0	0	0	0	0	0	0	0	0	14	0	0
	0.67				0.00				0.00				0.70			

PM PEAK HOUR 4:00 PM to 5:00 PM PHF	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	3	0	0	0	0	0	0	0	0	0	17	0	0
	0.38				0.00				0.00				0.61			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 2  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: High Street  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR <sup>1</sup> 4:15 PM to 5:15 PM	High Street Northbound				High Street Southbound				Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 3A  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #1 combine 2 driveways  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	1	142	0	0	0	50	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	117	0	0	0	53	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	100	0	0	0	55	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	120	0	1	0	54	0
8:00 AM	0	0	0	0	0	0	0	0	1	0	104	0	0	0	78	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	90	0	1	0	81	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	98	0	0	0	64	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	145	0	0	0	53	0

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	56	0	0	0	122	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	65	0	0	0	125	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	57	0	0	0	117	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	58	0	0	0	115	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	82	0	0	0	127	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	74	0	0	0	113	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	57	0	0	0	102	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	50	0	0	0	124	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	1	1	437	0	1	0	276	0
<b>PHF</b>	0.00				0.00				0.76				0.84			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	5.1%	0.0%

PM PEAK HOUR 4:15 PM to 5:15 PM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	1	0	0	0	1	262	0	0	0	484	1
<b>PHF</b>	0.00				0.25				0.80				0.95			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	2.7%	0.0%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 3A  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #1 combine 2 driveways  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right												
<b>PHF</b>	<b>0.00</b>				<b>0.00</b>				<b>0.67</b>				<b>0.70</b>			

PM PEAK HOUR 4:00 PM to 5:00 PM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right												
<b>PHF</b>	<b>0.00</b>				<b>0.00</b>				<b>0.38</b>				<b>0.57</b>			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 3A  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #1 combine 2 driveways  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

PM PEAK HOUR <sup>1</sup> 4:15 PM to 5:15 PM	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 3B  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #1 combine 2 driveways  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	142	0	0	0	50	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	118	0	0	0	54	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	99	0	0	0	56	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	122	0	0	0	55	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	104	0	1	0	78	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	92	0	0	0	82	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	97	0	0	0	63	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	145	0	0	0	54	0

Start Time	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	56	0	0	0	123	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	66	0	0	0	125	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	57	0	0	0	118	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	58	0	0	0	115	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	82	0	0	0	127	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	73	0	0	0	112	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	57	0	0	0	102	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	51	0	0	0	124	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	438	0	1	0	277	0
<b>PHF</b>	0.00				0.00				0.76				0.85			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	5.1%	0.0%

PM PEAK HOUR 4:15 PM to 5:15 PM	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	263	0	0	0	485	0
<b>PHF</b>	0.00				0.00				0.80				0.95			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	2.7%	0.0%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 3B  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #1 combine 2 driveways  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right												
<b>PHF</b>	<b>0.00</b>				<b>0.00</b>				<b>0.67</b>				<b>0.70</b>			

PM PEAK HOUR 5:00 PM to 6:00 PM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right												
<b>PHF</b>	<b>0.00</b>				<b>0.00</b>				<b>0.58</b>				<b>0.81</b>			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 3B  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #1 combine 2 driveways  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR <sup>1</sup> 4:15 PM to 5:15 PM	Northbound				Driveway #1 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 4  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #2 combine 2 driveways  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	2	0	0	0	1	142	0	0	0	50	2
7:15 AM	0	0	0	0	0	1	0	2	0	6	111	0	0	0	53	2
7:30 AM	0	0	0	0	0	5	0	0	0	2	99	0	0	0	53	2
7:45 AM	0	0	0	0	0	1	0	3	0	4	117	0	0	0	52	3
8:00 AM	0	0	0	0	0	4	0	5	0	4	96	0	0	0	75	1
8:15 AM	0	0	0	0	0	4	0	1	0	1	103	0	0	0	83	1
8:30 AM	0	0	0	0	0	3	0	1	0	3	95	0	0	0	63	0
8:45 AM	0	0	0	0	0	4	0	2	0	1	143	0	0	0	54	1

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	2	0	0	57	0	0	0	123	1
4:15 PM	0	0	0	0	0	0	0	1	0	1	65	0	0	0	122	0
4:30 PM	0	0	0	0	0	1	0	3	0	0	57	0	0	0	117	0
4:45 PM	0	0	0	0	0	3	0	0	0	1	56	0	0	0	116	0
5:00 PM	0	0	0	0	0	2	0	1	0	0	81	0	0	0	126	1
5:15 PM	0	0	0	0	0	4	0	0	0	0	74	0	0	0	111	0
5:30 PM	0	0	0	0	0	2	0	5	0	0	58	0	0	0	97	3
5:45 PM	0	0	0	0	0	2	0	1	0	0	51	0	0	0	123	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	15	0	9	0	9	437	0	0	0	275	3
<b>PHF</b>	0.00				0.67				0.77				0.83			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	0.0%	0.0%	0.0%	5.1%	0.0%

PM PEAK HOUR 4:15 PM to 5:15 PM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	6	0	5	0	2	259	0	0	0	481	1
<b>PHF</b>	0.00				0.69				0.81				0.95			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	2.7%	0.0%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 4  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #2 combine 2 driveways  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	1	0	0	0	0	5	0	0	0	1	0
7:15 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0

Start Time	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
5:45 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	0	3	1

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
<b>PHF</b>	<b>0.00</b>				<b>0.00</b>				<b>0.71</b>				<b>0.70</b>			

PM PEAK HOUR 5:00 PM to 6:00 PM	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
<b>PHF</b>	<b>0.00</b>				<b>0.25</b>				<b>0.58</b>				<b>0.88</b>			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 4  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #2 combine 2 driveways  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR <sup>1</sup> 4:15 PM to 5:15 PM	Northbound				Driveway #2 combine 2 driveways Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	1

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 5  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #3  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	1	0	0	0	0	140	0	0	0	53	2
7:15 AM	0	0	0	0	0	2	0	1	0	1	112	0	0	0	55	3
7:30 AM	0	0	0	0	0	1	0	0	0	0	110	0	0	0	55	4
7:45 AM	0	0	0	0	0	4	0	0	0	0	119	0	1	0	55	3
8:00 AM	0	0	0	0	0	2	0	0	0	0	108	0	0	0	78	9
8:15 AM	0	0	0	0	0	3	0	0	0	0	106	0	0	0	83	4
8:30 AM	0	0	0	0	0	3	0	0	0	0	100	0	0	0	63	3
8:45 AM	0	0	0	0	0	1	0	1	0	1	145	0	0	0	54	1

Start Time	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	3	0	1	57	0	0	0	121	5
4:15 PM	0	0	0	0	0	1	0	0	0	0	65	0	0	0	122	2
4:30 PM	0	0	0	0	0	3	0	1	0	1	56	0	0	0	116	2
4:45 PM	0	0	0	0	0	3	0	3	0	0	59	0	0	0	113	1
5:00 PM	0	0	0	0	0	7	0	3	0	0	82	0	0	0	124	2
5:15 PM	0	0	0	0	0	3	0	1	0	0	78	0	0	0	111	8
5:30 PM	0	0	0	0	0	3	0	1	0	1	59	0	0	0	99	3
5:45 PM	0	0	0	0	0	3	0	3	0	0	52	0	0	0	119	1

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	9	0	1	0	1	459	0	0	0	278	17
<b>PHF</b>	0.00				0.83				0.79				0.85			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	5.0%	11.8%

PM PEAK HOUR 4:30 PM to 5:30 PM	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	16	0	8	0	1	275	0	0	0	464	13
<b>PHF</b>	0.00				0.60				0.84				0.95			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	2.4%	7.7%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 5  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #3  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	1
7:45 AM	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0
8:15 AM	0	0	0	0	0	2	0	0	0	0	3	0	0	0	5	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	4	0	0	0	3	0

Start Time	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0
4:30 PM	0	0	0	0	0	2	0	0	0	0	2	0	0	0	3	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	1

AM PEAK HOUR 8:00 AM to 9:00 AM PHF	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	3	0	0	0	0	17	0	0	0	14	2
	0.00				0.38				0.71				0.57			

PM PEAK HOUR 5:00 PM to 6:00 PM PHF	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	9	0	0	0	15	1
	0.00				0.00				0.75				0.80			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 5  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #3  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR <sup>1</sup> 4:30 PM to 5:30 PM	Northbound				Driveway #3 Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 6  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #4 (Shell Gas Station)  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	9	0	8	0	2	133	0	0	0	47	5
7:15 AM	0	0	0	0	0	10	0	7	0	3	110	0	0	0	51	1
7:30 AM	0	0	0	0	0	5	0	11	0	1	117	0	0	0	48	4
7:45 AM	0	0	0	0	0	5	0	6	0	3	119	0	0	0	53	3
8:00 AM	0	0	0	0	0	10	0	5	0	1	112	0	0	0	82	3
8:15 AM	0	0	0	0	0	13	0	7	0	6	91	0	0	0	80	4
8:30 AM	0	0	0	0	0	17	0	10	0	7	108	0	0	0	56	3
8:45 AM	0	0	0	0	0	13	0	5	0	8	132	0	0	0	51	6

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	12	0	4	0	1	56	0	0	0	124	3
4:15 PM	0	0	0	0	0	12	0	2	0	2	68	0	1	0	121	6
4:30 PM	0	0	0	0	0	11	0	8	0	3	49	0	0	0	110	1
4:45 PM	0	0	0	0	0	13	0	12	0	1	67	0	0	0	103	5
5:00 PM	0	0	0	0	0	12	0	14	0	2	82	0	0	0	112	6
5:15 PM	0	0	0	0	0	16	0	6	0	3	85	0	0	0	113	8
5:30 PM	0	0	0	0	0	16	0	4	0	3	53	0	0	0	99	3
5:45 PM	0	0	0	0	0	12	0	7	0	3	58	0	0	0	112	5

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	53	0	27	0	22	443	0	0	0	269	16
<b>PHF</b>	0.00				0.74				0.83				0.84			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	5.9%	0.0%

PM PEAK HOUR 4:30 PM to 5:30 PM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	52	0	40	0	9	283	0	0	0	438	20
<b>PHF</b>	0.00				0.88				0.83				0.95			
<b>HV %</b>	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	0.0%	2.7%	0.0%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 6  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #4 (Shell Gas Station)  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1
8:00 AM	0	0	0	0	0	1	0	0	0	0	4	0	0	0	3	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0

Start Time	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	3	0	0	0	4	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right												
<b>PHF</b>	<b>0.00</b>				<b>0.25</b>				<b>0.71</b>				<b>0.57</b>			

PM PEAK HOUR 5:00 PM to 6:00 PM	Northbound				Southbound				Eastbound				Westbound			
	U-Turn	Left	Thru	Right												
<b>PHF</b>	<b>0.00</b>				<b>0.50</b>				<b>0.75</b>				<b>0.94</b>			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 6  
 Location: Randolph, MA  
 Street 1: Scanlon Drive  
 Street 2: Driveway #4 (Shell Gas Station)  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	Northbound				Driveway #4 (Shell Gas Station) Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Northbound				Driveway #4 (Shell Gas Station) Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	Northbound				Driveway #4 (Shell Gas Station) Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR <sup>1</sup> 4:30 PM to 5:30 PM	Northbound				Driveway #4 (Shell Gas Station) Southbound				Scanlon Drive Eastbound				Scanlon Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 7  
 Location: Randolph, MA  
 Street 1: North Main Street  
 Street 2: Scanlon Drive & Russ Street  
 Count Date: 9/13/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

### PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	2	337	9	0	27	80	42	0	133	6	0	0	6	8	43
7:15 AM	0	1	285	7	0	29	115	44	0	110	8	2	0	13	7	18
7:30 AM	0	2	242	8	0	59	150	44	0	107	12	2	0	10	3	28
7:45 AM	0	5	214	18	1	62	120	43	0	107	14	1	0	4	8	16
8:00 AM	0	4	255	11	1	66	180	72	0	105	16	0	0	6	9	20
8:15 AM	0	4	238	12	0	63	187	70	0	88	13	3	0	14	10	20
8:30 AM	0	4	210	5	1	76	140	45	0	99	20	6	0	14	10	33
8:45 AM	0	3	216	15	0	71	143	46	0	128	15	2	0	13	8	18

Start Time	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	5	158	8	0	45	237	109	0	53	5	8	0	14	14	65
4:15 PM	1	4	168	6	0	24	235	105	0	70	10	3	0	11	17	75
4:30 PM	0	0	151	11	0	33	257	102	0	54	3	3	0	10	10	63
4:45 PM	0	2	116	7	0	47	296	96	0	72	3	6	0	13	8	65
5:00 PM	0	4	140	10	1	37	292	103	0	76	8	7	0	9	11	75
5:15 PM	1	7	143	6	0	21	241	105	0	83	11	9	0	14	9	50
5:30 PM	0	8	163	10	0	29	233	89	0	53	5	7	0	7	6	60
5:45 PM	0	6	99	12	0	28	237	99	0	57	10	6	0	10	11	34

AM PEAK HOUR 8:00 AM to 9:00 AM	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	15	919	43	2	276	650	233	0	420	64	11	0	47	37	91
<b>PHF</b>	0.90				0.91				0.85				0.77			
<b>HV %</b>	0.0%	6.7%	4.8%	7.0%	0.0%	2.5%	11.7%	6.4%	0.0%	4.0%	6.3%	9.1%	0.0%	4.3%	0.0%	4.4%

PM PEAK HOUR 4:15 PM to 5:15 PM	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	10	575	34	1	141	1080	406	0	272	24	19	0	43	46	278
<b>PHF</b>	0.87				0.93				0.87				0.89			
<b>HV %</b>	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	4.3%	3.7%	0.0%	3.7%	0.0%	0.0%	0.0%	2.3%	0.0%	1.1%

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 7  
 Location: Randolph, MA  
 Street 1: North Main Street  
 Street 2: Scanlon Drive & Russ Street  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F

# BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701  
 Office: 978-746-1259  
 DataRequest@BostonTrafficData.com  
 www.BostonTrafficData.com

## HEAVY VEHICLES

Start Time	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	10	1	0	0	6	1	0	5	0	0	0	0	0	0
7:15 AM	0	0	10	0	0	0	9	2	0	2	0	0	0	1	1	0
7:30 AM	0	1	14	0	0	0	1	1	0	2	0	0	0	1	0	0
7:45 AM	0	1	6	1	0	0	11	0	0	5	0	0	0	0	0	1
8:00 AM	0	1	15	1	0	1	16	2	0	4	1	0	0	0	0	1
8:15 AM	0	0	13	2	0	2	21	7	0	3	2	1	0	0	0	2
8:30 AM	0	0	8	0	0	1	23	3	0	7	0	0	0	2	0	0
8:45 AM	0	0	8	0	0	3	16	3	0	3	1	0	0	0	0	1

Start Time	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	6	0	0	0	6	7	0	1	0	0	0	0	0	1
4:15 PM	0	0	6	0	0	0	7	5	0	2	0	0	0	0	0	1
4:30 PM	0	0	3	0	0	0	11	4	0	4	0	0	0	0	0	0
4:45 PM	0	0	4	0	0	0	17	1	0	0	0	0	0	1	0	1
5:00 PM	0	0	6	0	0	0	11	5	0	4	0	0	0	0	0	1
5:15 PM	0	0	2	0	0	0	4	2	0	2	0	0	0	0	0	0
5:30 PM	0	1	2	0	0	0	3	3	0	2	0	0	0	0	0	1
5:45 PM	0	0	6	0	0	0	3	5	0	1	1	1	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM PHF	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	44	3	0	7	76	15	0	17	4	1	0	2	0	4
	0.71				0.82				0.79				0.75			

PM PEAK HOUR 4:15 PM to 5:15 PM PHF	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	19	0	0	0	46	15	0	10	0	0	0	1	0	3
	0.79				0.85				0.63				0.50			

Client: Vannesa Methoxha, EIT  
 Project #: 1329\_1\_HSH  
 BTD #: Location 7  
 Location: Randolph, MA  
 Street 1: North Main Street  
 Street 2: Scanlon Drive & Russ Street  
 Count Date: 13/09/2023  
 Day of Week: Wednesday  
 Weather: Mostly Cloudy, 70°F



**PEDESTRIANS & BICYCLES**

Start Time	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	1
7:45 AM	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	4	0	0	0	0	0	0	0	4	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	2	0	0	1	0	0	0	0	3	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0

AM PEAK HOUR <sup>1</sup> 8:00 AM to 9:00 AM	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	4	0	0	0	0	0	0	0	5	0	0	0	0

PM PEAK HOUR <sup>1</sup> 4:15 PM to 5:15 PM	North Main Street Northbound				North Main Street Southbound				Scanlon Drive Eastbound				Russ Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	3	0	0	1	0	0	0	0	3	0	0	0	4

<sup>1</sup> NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.



## Appendix B

### MassDOT Seasonal Factors

Massachusetts Highway Department  
 Statewide Traffic Data Collection  
 2019 Weekday Seasonal Factors

Section E, Item 1.

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.22	1.14	1.12	1.06	1.00	0.96	0.87	0.85	0.96	0.99	1.04	1.12	0.85
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.15	1.06	1.07	1.00	0.89	0.88	0.89	0.89	0.95	0.92	1.02	1.01	0.97
R4-R7	1.09	1.09	1.11	1.02	0.96	0.92	0.89	0.89	0.99	0.98	1.09	1.13	0.98
U1-Boston	1.03	1.01	0.98	0.94	0.94	0.92	0.95	0.93	0.94	0.94	0.97	1.04	0.96
U1-Essex	1.09	1.06	1.03	0.99	0.94	0.90	0.88	0.86	0.93	0.94	0.99	1.06	0.93
U1-Southeast	1.06	1.05	1.01	0.97	0.95	0.93	0.93	0.90	0.94	0.94	0.98	1.04	0.98
U1-West	1.19	1.14	1.09	0.95	0.92	0.89	0.89	0.86	0.91	0.95	0.97	1.07	0.84
U1-Worcester	1.02	1.04	0.97	0.94	0.93	0.91	0.95	0.91	0.93	0.92	0.95	1.10	0.88
U2	1.01	1.00	0.94	0.93	0.91	0.89	0.93	0.90	0.90	0.91	0.94	1.02	0.99
U3	1.06	1.03	0.98	0.94	0.93	0.91	0.95	0.91	0.92	0.93	0.97	1.00	0.98
U4-U7	1.01	1.00	0.95	0.92	0.88	0.86	0.92	0.91	0.92	0.94	0.99	1.04	0.99
Rec - East	1.04	1.16	1.12	0.98	0.92	0.88	0.77	0.81	0.94	1.02	1.08	1.12	0.99
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.98

Round off:

0-999 = 10

>1000 = 100

U = Urban

R = Rural

1 - Interstate

2 - Freeway and Expressway

3 - Other Principal Arterial

4 - Minor Arterial

5 - Major Collector

6 - Minor Collector

7 - Local Road and Street

**Recreational - East Group** - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

**Recreational - West Group** - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114,1116,2196,2197 and 2198.



## Appendix C

### Crash Data and Worksheets











# Appendix D

## Trip Generation

HOWARD STEIN HUDSON  
14-Dec-2023

XXX Means Columns U, X, and AA do not sum to Column R; hard code adjustments are needed  
XX HARD CODED TO BALANCE (Manually change formatting)

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate <sup>1</sup>	Unadjusted Person-Trips	Primary Person Trips	Transit Share <sup>2</sup>	Transit Person-Trips	Walk/Bike/Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Auto Share <sup>2</sup>	Auto Person-Trips	% Taxi/ TNC <sup>3</sup>	Taxi/TNC Person-Trips	Assumed Local Auto Occupancy Rate for Taxis <sup>5</sup>	Assumed Local Auto Occupancy Rate <sup>4</sup>	Taxi/TNC Auto Trips	Primary Non-Taxi Auto Trips	Primary AutoTrips
<b>Daily</b>																					
Hotel <sup>6</sup>	130,468	Total		7,990	1,042	2.10	2,188	2,188	7%	154	2%	44	91%	1,990	0	0	2.10	2.10	0	948	948
	KSF	In	50%	3,995	521	2.10	1,094	1,094	7%	77	2%	22	91%	995	0%	0	2.10	2.10	0	474	474
		Out	50%	3,995	521	2.10	1,094	1,094	7%	77	2%	22	91%	995	0%	0	2.10	2.10	0	474	474
<b>Total</b>		<b>Total</b>			<b>1,042</b>		<b>2,188</b>	<b>2,188</b>		<b>154</b>		<b>44</b>		<b>1,990</b>					<b>0</b>	<b>948</b>	<b>948</b>
		In			<b>521</b>		<b>1,094</b>	<b>1,094</b>		<b>77</b>		<b>22</b>		<b>995</b>					<b>0</b>	<b>474</b>	<b>474</b>
		Out			<b>521</b>		<b>1,094</b>	<b>1,094</b>		<b>77</b>		<b>22</b>		<b>995</b>					<b>0</b>	<b>474</b>	<b>474</b>
<b>AM Peak Hour</b>																					
Hotel <sup>6</sup>	130,468	Total		0.46	60	2.10	126	126	7%	9	2%	2	91%	115	0	0	2.10	2.10	0	55	55
	KSF	In	56%	0.258	34	2.10	71	71	7%	5	2%	1	91%	65	0%	0	2.10	2.10	0	31	31
		Out	44%	0.202	26	2.10	55	55	7%	4	2%	1	91%	50	0%	0	2.10	2.10	0	24	24
<b>Total</b>		<b>Total</b>			<b>60</b>		<b>126</b>	<b>126</b>		<b>9</b>		<b>2</b>		<b>118</b>					<b>0</b>	<b>58</b>	<b>58</b>
		In			<b>34</b>		<b>71</b>	<b>71</b>		<b>5</b>		<b>1</b>		<b>67</b>					<b>0</b>	<b>33</b>	<b>33</b>
		Out			<b>26</b>		<b>55</b>	<b>55</b>		<b>4</b>		<b>1</b>		<b>51</b>					<b>0</b>	<b>25</b>	<b>25</b>
<b>PM Peak Hour</b>																					
Hotel <sup>6</sup>	130,468	Total		0.59	77	2.10	162	162	7%	12	2%	4	91%	146	0	0	2.10	2.10	0	69	69
	KSF	In	51%	0.301	39	2.10	82	82	7%	6	2%	2	91%	74	0%	0	2.10	2.10	0	35	35
		Out	49%	0.289	38	2.10	80	80	7%	6	2%	2	91%	72	0%	0	2.10	2.10	0	34	34
<b>Total</b>		<b>Total</b>			<b>77</b>		<b>162</b>	<b>162</b>		<b>12</b>		<b>4</b>		<b>147</b>					<b>0</b>	<b>70</b>	<b>70</b>
		In			<b>39</b>		<b>82</b>	<b>82</b>		<b>6</b>		<b>2</b>		<b>74</b>					<b>0</b>	<b>35</b>	<b>35</b>
		Out			<b>38</b>		<b>80</b>	<b>80</b>		<b>6</b>		<b>2</b>		<b>73</b>					<b>0</b>	<b>34</b>	<b>34</b>

- 2017 National vehicle occupancy rates - 1.18:home to work; 1.82: family/personal business; 1.82: shopping; 2.1 social/recreational
- Mode shares based on Census Data for Tract 4202.02 (2021 ACS 5 Year Tables)
- Taxi/TNC Percentage based on Census Data for Tract 4202.02
- Local vehicle occupancy rates based on 2017 National vehicle occupancy rates
- For taxi cabs, 1.2 passengers per cab. (2.2 minus 1 driver equals 1.2)
- ITE Trip Generation Manual, 11th Edition, LUC 310 (Hotel), average rate

Randolph North  
Trip Generation Assessment

HOWARD STEIN HUDSON  
25-Oct-2023

XXX Means Columns U, X, and AA do not sum to Column R; hard code adjustments are needed  
XX HARD CODED TO BALANCE (Manually change formatting)

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate <sup>1</sup>	Unadjusted Person-Trips	Primary Person Trips	Transit Share <sup>2</sup>	Transit Person-Trips	Walk/Bike/ Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Auto Share <sup>2</sup>	Auto Person-Trips	% Taxi/ TNC <sup>3</sup>	Taxi/TNC Person-Trips	Assumed Local Auto Occupancy Rate for Taxis <sup>5</sup>	Assumed Local Auto Occupancy Rate <sup>4</sup>	Taxi/TNC Auto Trips	Primary Non-Taxi Auto Trips	Primary Auto Trips
<b>Daily</b>																					
Manufacturing <sup>6</sup>	110	Total		4,750	522	1.82	950	950	7%	66	2%	20	91%	864	1%	8	1.82	1.82	8	470	478
	KSF	In	50%	2,375	261	1.82	475	475	7%	33	2%	10	91%	432	1%	4	1.82	1.82	4	235	239
		Out	50%	2,375	261	1.82	475	475	7%	33	2%	10	91%	432	1%	4	1.82	1.82	4	235	239
General Office <sup>7</sup>	68	Total		10,840	738	1.18	870	870	7%	60	2%	18	91%	792	1%	8	1.18	1.18	12	664	676
	KSF	In	50%	5,420	369	1.18	435	435	7%	30	2%	9	91%	396	1%	4	1.18	1.18	6	332	338
		Out	50%	5,420	369	1.18	435	435	7%	30	2%	9	91%	396	1%	4	1.18	1.18	6	332	338
Research & Development Center <sup>8</sup>	75	Total		11,080	832	1.18	982	982	7%	68	2%	20	91%	894	1%	8	1.18	1.18	12	750	762
	KSF	In	50%	5,540	416	1.18	491	491	7%	34	2%	10	91%	447	1%	4	1.18	1.18	6	375	381
		Out	50%	5,540	416	1.18	491	491	7%	34	2%	10	91%	447	1%	4	1.18	1.18	6	375	381
Warehousing <sup>9</sup>	22	Total		1,710	38	1.82	70	70	7%	4	2%	2	91%	64	0%	0	1.82	1.82	0	36	36
	KSF	In	50%	0,855	19	1.82	35	35	7%	2	2%	1	91%	32	0%	0	1.82	1.82	0	18	18
		Out	50%	0,855	19	1.82	35	35	7%	2	2%	1	91%	32	0%	0	1.82	1.82	0	18	18
<b>Total</b>	Total				<b>2,130</b>		<b>2,872</b>	<b>2,872</b>		<b>198</b>		<b>60</b>		<b>2,614</b>					<b>32</b>		<b>1,952</b>
	In				<b>1,065</b>		<b>1,436</b>	<b>1,436</b>		<b>99</b>		<b>30</b>		<b>1,307</b>					<b>16</b>		<b>976</b>
	Out				<b>1,065</b>		<b>1,436</b>	<b>1,436</b>		<b>99</b>		<b>30</b>		<b>1,307</b>					<b>16</b>		<b>976</b>
<b>AM Peak Hour</b>																					
Manufacturing <sup>6</sup>	110	Total		0.68	75	1.82	137	137	7%	9	2%	3	91%	125	1%	1	1.82	1.82	2	68	70
	KSF	In	76%	0.517	57	1.82	104	104	7%	7	2%	2	91%	95	1%	1	1.82	1.82	1	52	53
		Out	24%	0.163	18	1.82	33	33	7%	2	2%	1	91%	30	1%	0	1.82	1.82	1	16	17
General Office <sup>7</sup>	68	Total		1.52	103	1.18	121	121	7%	8	2%	2	91%	111	1%	1	1.18	1.18	2	93	95
	KSF	In	88%	1.338	91	1.18	107	107	7%	7	2%	2	91%	98	1%	1	1.18	1.18	1	82	83
		Out	12%	0.182	12	1.18	14	14	7%	1	2%	0	91%	13	1%	0	1.18	1.18	1	11	12
Research & Development Center <sup>8</sup>	75	Total		1.030	77	1.18	91	91	7%	6	2%	1	91%	84	1%	1	1.18	1.18	2	71	73
	KSF	In	82%	0.845	63	1.18	74	74	7%	5	2%	1	91%	68	1%	1	1.18	1.18	1	57	58
		Out	18%	0.185	14	1.18	17	17	7%	1	2%	0	91%	16	1%	0	1.18	1.18	1	14	15
Warehousing <sup>9</sup>	22	Total		0.17	4	1.82	7	7	7%	0	2%	0	91%	7	0%	0	1.82	1.82	0	4	4
	KSF	In	77%	0.131	3	1.82	5	5	7%	0	2%	0	91%	5	0%	0	1.82	1.82	0	3	3
		Out	23%	0.039	1	1.82	2	2	7%	0	2%	0	91%	2	0%	0	1.82	1.82	0	1	1
<b>Total</b>	Total				<b>259</b>		<b>356</b>	<b>356</b>		<b>23</b>		<b>6</b>		<b>327</b>					<b>6</b>		<b>242</b>
	In				<b>214</b>		<b>290</b>	<b>290</b>		<b>19</b>		<b>5</b>		<b>266</b>					<b>3</b>		<b>197</b>
	Out				<b>45</b>		<b>66</b>	<b>66</b>		<b>4</b>		<b>1</b>		<b>61</b>					<b>3</b>		<b>45</b>
<b>PM Peak Hour</b>																					
Manufacturing <sup>6</sup>	110	Total		0.74	81	1.82	148	148	7%	10	2%	3	91%	135	1%	1	1.82	1.82	2	74	76
	KSF	In	31%	0.229	25	1.82	46	46	7%	3	2%	1	91%	42	1%	0	1.82	1.82	1	23	24
		Out	69%	0.511	56	1.82	102	102	7%	7	2%	2	91%	93	1%	1	1.82	1.82	1	51	52
General Office <sup>7</sup>	68	Total		1.44	98	1.18	116	116	7%	8	2%	2	91%	106	1%	1	1.18	1.18	2	89	91
	KSF	In	17%	0.245	17	1.18	20	20	7%	1	2%	0	91%	19	1%	0	1.18	1.18	1	16	17
		Out	83%	1.195	81	1.18	96	96	7%	7	2%	2	91%	87	1%	1	1.18	1.18	1	73	74
Research & Development Center <sup>8</sup>	75	Total		0.980	74	1.18	87	87	7%	6	2%	1	91%	80	1%	1	1.18	1.18	2	67	69
	KSF	In	16%	0.157	12	1.18	14	14	7%	1	2%	0	91%	13	1%	0	1.18	1.18	1	11	12
		Out	84%	0.823	62	1.18	73	73	7%	5	2%	1	91%	67	1%	1	1.18	1.18	1	56	57
Warehousing <sup>9</sup>	22	Total		0.18	4	1.82	7	7	7%	0	2%	0	91%	7	0%	0	1.82	1.82	0	4	4
	KSF	In	28%	0.050	1	1.82	2	2	7%	0	2%	0	91%	2	0%	0	1.82	1.82	0	1	1
		Out	72%	0.130	3	1.82	5	5	7%	0	2%	0	91%	5	0%	0	1.82	1.82	0	3	3
<b>Total</b>	Total				<b>257</b>		<b>358</b>	<b>358</b>		<b>24</b>		<b>6</b>		<b>328</b>					<b>6</b>		<b>240</b>
	In				<b>55</b>		<b>82</b>	<b>82</b>		<b>5</b>		<b>1</b>		<b>76</b>					<b>3</b>		<b>54</b>
	Out				<b>202</b>		<b>276</b>	<b>276</b>		<b>19</b>		<b>5</b>		<b>252</b>					<b>3</b>		<b>186</b>

- 2017 National vehicle occupancy rates - 1.18:home to work; 1.82: family/personal business; 1.82: shopping; 2.1 social/recreational
- Mode shares based on Census Data for Tract 4202.02 (2021 ACS 5 Year Tables)
- Taxi/TNC Percentage based on Census Data for Tract 4202.02
- Local vehicle occupancy rates based on 2017 National vehicle occupancy rates
- For taxi cabs, 1.2 passengers per cab. (2.2 minus 1 driver equals 1.2)
- ITE Trip Generation Manual, 11th Edition, LUC 140 (Manufacturing), average rate
- ITE Trip Generation Manual, 11th Edition, LUC 710 (General Office), average rate
- ITE Trip Generation Manual, 11th Edition, LUC 150 (Warehousing), average rate
- ITE Trip Generation Manual, 11th Edition, LUC 760 (Research & Development Center), average rate



# Appendix E

## Synchro Reports

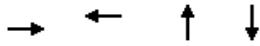
Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			L
Traffic Vol, veh/h	272	4	3	451	1	0
Future Vol, veh/h	272	4	3	451	1	0
Peak Hour Factor	0.85	0.85	0.76	0.76	0.25	0.25
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	320	5	4	593	4	0
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	14	16.8	8.9
HCM LOS	B	C	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	1%	0%	0%
Vol Right, %	99%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	454	276	1
LT Vol	0	272	1
Through Vol	3	0	0
RT Vol	451	4	0
Lane Flow Rate	597	325	4
Geometry Grp	1	1	1
Degree of Util (X)	0.703	0.501	0.006
Departure Headway (Hd)	4.234	5.558	5.804
Convergence, Y/N	Yes	Yes	Yes
Cap	848	653	618
Service Time	2.293	3.558	3.827
HCM Lane V/C Ratio	0.704	0.498	0.006
HCM Control Delay	16.8	14	8.9
HCM Lane LOS	C	B	A
HCM 95th-tile Q	6	2.8	0

Queues  
3: Reed Street & High Street



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	538	305	680	313
v/c Ratio	0.81	0.50	1.01	0.45
Control Delay	26.6	15.1	58.2	14.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.6	15.1	58.2	14.4
Queue Length 50th (ft)	146	69	~218	71
Queue Length 95th (ft)	#264	100	#358	124
Internal Link Dist (ft)	410	2031	474	3954
Turn Bay Length (ft)				
Base Capacity (vph)	662	609	672	693
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	0.81	0.50	1.01	0.45

**Intersection Summary**

~ 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.

HCM Signalized Intersection Capacity Analysis  
 3: Reed Street & High Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	155	278	13	55	167	7	56	370	132	5	188	82
Future Volume (vph)	155	278	13	55	167	7	56	370	132	5	188	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	11	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		0.99			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.96	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1995			1716			1751			1714	
Flt Permitted		0.76			0.82			0.93			0.99	
Satd. Flow (perm)		1551			1425			1645			1695	
Peak-hour factor, PHF	0.83	0.83	0.83	0.75	0.75	0.75	0.82	0.82	0.82	0.88	0.88	0.88
Adj. Flow (vph)	187	335	16	73	223	9	68	451	161	6	214	93
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	538	0	0	305	0	0	680	0	0	313	0
Confl. Peds. (#/hr)	46		17	17		46	12		4	4		12
Heavy Vehicles (%)	1%	1%	0%	11%	3%	0%	0%	5%	2%	0%	7%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		23.5			23.5			22.5			22.5	
Effective Green, g (s)		23.5			23.5			22.5			22.5	
Actuated g/C Ratio		0.43			0.43			0.41			0.41	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		662			608			672			693	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.21			c0.41			0.18	
v/c Ratio		0.81			0.50			1.01			0.45	
Uniform Delay, d1		13.8			11.5			16.2			11.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		10.5			2.9			37.7			2.1	
Delay (s)		24.3			14.4			54.0			13.9	
Level of Service		C			B			D			B	
Approach Delay (s)		24.3			14.4			54.0			13.9	
Approach LOS		C			B			D			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			31.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			55.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			94.9%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

9: N Main Street & Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	292	291	61	166	17	1069	305	714	256
v/c Ratio	0.87	0.83	0.66	0.97	0.05	0.86	0.99	0.44	0.21
Control Delay	66.8	61.3	83.1	88.6	11.2	38.0	77.0	16.7	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	61.3	83.1	88.6	11.2	38.0	77.0	16.7	0.9
Queue Length 50th (ft)	202	197	42	58	5	345	155	130	0
Queue Length 95th (ft)	#357	#345	#91	#149	14	431	#353	230	19
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	351	366	93	172	328	1521	309	1664	1231
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.80	0.66	0.97	0.05	0.70	0.99	0.43	0.21

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖	↕		↗	↖		↗	↕			↗	↕	↖
Traffic Volume (vph)	421	64	11	47	37	91	15	919	43	2	276	650	233
Future Volume (vph)	421	64	11	47	37	91	15	919	43	2	276	650	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frft	1.00	0.99		1.00	0.89		1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00		0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1653		1620	1650		1572	3298			1636	3008	1473
Flt Permitted	0.95	0.97		0.95	1.00		0.38	1.00			0.10	1.00	1.00
Satd. Flow (perm)	1594	1653		1620	1650		629	3298			174	3008	1473
Peak-hour factor, PHF	0.85	0.85	0.85	0.77	0.77	0.77	0.90	0.90	0.90	0.91	0.91	0.91	0.91
Adj. Flow (vph)	495	75	13	61	48	118	17	1021	48	2	303	714	256
RTOR Reduction (vph)	0	2	0	0	77	0	0	3	0	0	0	0	60
Lane Group Flow (vph)	292	289	0	61	89	0	17	1066	0	0	305	714	196
Confl. Peds. (#/hr)			4	4			5						5
Heavy Vehicles (%)	4%	6%	9%	4%	0%	4%	7%	5%	7%	2%	3%	12%	6%
Turn Type	Split	NA		Split	NA		pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4		5	2			1	6	6 3
Permitted Phases							2			1	6		
Actuated Green, G (s)	22.2	22.2		6.0	6.0		46.4	43.9			66.0	56.5	83.7
Effective Green, g (s)	22.2	22.2		6.0	6.0		46.4	43.9			66.0	56.5	83.7
Actuated g/C Ratio	0.20	0.20		0.05	0.05		0.42	0.40			0.60	0.52	0.77
Clearance Time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	324	336		89	90		288	1325			307	1556	1129
v/s Ratio Prot	c0.18	0.18		0.04	c0.05		0.00	0.32			c0.14	0.24	0.13
v/s Ratio Perm							0.02				c0.46		
v/c Ratio	0.90	0.86		0.69	0.98		0.06	0.80			0.99	0.46	0.17
Uniform Delay, d1	42.4	42.0		50.7	51.6		18.3	28.9			31.0	16.7	3.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	26.6	19.6		19.7	88.9		0.1	3.4			49.3	0.1	0.0
Delay (s)	69.1	61.7		70.3	140.4		18.3	32.3			80.3	16.8	3.5
Level of Service	E	E		E	F		B	C			F	B	A
Approach Delay (s)		65.4			121.6			32.1				29.3	
Approach LOS		E			F			C				C	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			43.5				HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			1.00										
Actuated Cycle Length (s)			109.2				Sum of lost time (s)				22.0		
Intersection Capacity Utilization			82.1%				ICU Level of Service					E	
Analysis Period (min)			15										
c Critical Lane Group													



Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			4
Traffic Vol, veh/h	471	0	2	272	1	2
Future Vol, veh/h	471	0	2	272	1	2
Peak Hour Factor	0.93	0.93	0.84	0.84	0.25	0.25
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	506	0	2	324	4	8
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	18.3	11	8.9
HCM LOS	C	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	33%
Vol Thru, %	1%	0%	67%
Vol Right, %	99%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	274	471	3
LT Vol	0	471	1
Through Vol	2	0	2
RT Vol	272	0	0
Lane Flow Rate	326	506	12
Geometry Grp	1	1	1
Degree of Util (X)	0.419	0.69	0.019
Departure Headway (Hd)	4.625	4.906	5.801
Convergence, Y/N	Yes	Yes	Yes
Cap	773	729	621
Service Time	2.679	2.986	3.801
HCM Lane V/C Ratio	0.422	0.694	0.019
HCM Control Delay	11	18.3	8.9
HCM Lane LOS	B	C	A
HCM 95th-tile Q	2.1	5.6	0.1

Queues

3: Reed Street & High Street



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	307	351	369	486
v/c Ratio	0.44	0.61	0.52	0.69
Control Delay	12.4	16.2	13.4	18.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.4	16.2	13.4	18.1
Queue Length 50th (ft)	55	68	68	98
Queue Length 95th (ft)	106	135	121	#194
Internal Link Dist (ft)	410	2031	474	3954
Turn Bay Length (ft)				
Base Capacity (vph)	691	578	715	702
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	0.44	0.61	0.52	0.69

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: Reed Street & High Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	79	187	10	109	206	5	5	233	83	6	316	130	
Future Volume (vph)	79	187	10	109	206	5	5	233	83	6	316	130	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	15	12	12	11	12	12	12	12	12	12	12	
Total Lost time (s)		4.5			4.5			4.5			4.5		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		1.00			1.00			1.00			0.99		
Flpb, ped/bikes		1.00			1.00			1.00			1.00		
Frt		1.00			1.00			0.97			0.96		
Flt Protected		0.99			0.98			1.00			1.00		
Satd. Flow (prot)		2034			1754			1802			1765		
Flt Permitted		0.84			0.81			0.99			0.99		
Satd. Flow (perm)		1728			1445			1788			1757		
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.87	0.87	0.87	0.93	0.93	0.93	
Adj. Flow (vph)	88	208	11	120	226	5	6	268	95	6	340	140	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	307	0	0	351	0	0	369	0	0	486	0	
Confl. Peds. (#/hr)	3		6	6		3	4					4	
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	2%	1%	0%	3%	2%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		18.0			18.0			18.0			18.0		
Effective Green, g (s)		18.0			18.0			18.0			18.0		
Actuated g/C Ratio		0.40			0.40			0.40			0.40		
Clearance Time (s)		4.5			4.5			4.5			4.5		
Lane Grp Cap (vph)		691			578			715			702		
v/s Ratio Prot													
v/s Ratio Perm		0.18			c0.24			0.21			c0.28		
v/c Ratio		0.44			0.61			0.52			0.69		
Uniform Delay, d1		9.9			10.7			10.2			11.2		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		2.1			4.7			2.7			5.5		
Delay (s)		11.9			15.4			12.9			16.7		
Level of Service		B			B			B			B		
Approach Delay (s)		11.9			15.4			12.9			16.7		
Approach LOS		B			B			B			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			14.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.65										
Actuated Cycle Length (s)			45.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			60.0%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group

Queues

9: N Main Street & Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	208	206	52	327	15	635	149	1168	437
v/c Ratio	0.64	0.60	0.24	0.82	0.08	0.66	0.44	0.83	0.37
Control Delay	43.0	39.6	39.8	31.9	17.0	32.7	19.5	31.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	39.6	39.8	31.9	17.0	32.7	19.5	31.3	1.7
Queue Length 50th (ft)	107	101	25	57	5	167	50	277	0
Queue Length 95th (ft)	185	176	67	#197	17	258	96	#556	34
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	433	455	292	463	182	1134	415	1433	1255
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.45	0.18	0.71	0.08	0.56	0.36	0.82	0.35

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	285	25	25	46	38	253	1	13	550	34	1	138	1086	406
Future Volume (vph)	285	25	25	46	38	253	1	13	550	34	1	138	1086	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0			7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00			1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00			1.00	1.00	1.00
Frft	1.00	0.98		1.00	0.87			1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00			0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1655		1652	1619			1685	3357			1685	3240	1516
Flt Permitted	0.95	0.97		0.95	1.00			0.14	1.00			0.23	1.00	1.00
Satd. Flow (perm)	1594	1655		1652	1619			240	3357			408	3240	1516
Peak-hour factor, PHF	0.81	0.81	0.81	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93
Adj. Flow (vph)	352	31	31	52	43	284	1	14	598	37	1	148	1168	437
RTOR Reduction (vph)	0	6	0	0	188	0	0	0	4	0	0	0	0	146
Lane Group Flow (vph)	208	200	0	52	139	0	0	15	631	0	0	149	1168	291
Confl. Peds. (#/hr)			2	2				3		6		6		3
Confl. Bikes (#/hr)						1								
Heavy Vehicles (%)	4%	0%	0%	2%	0%	1%	0%	0%	3%	0%	0%	0%	4%	3%
Turn Type	Split	NA		Split	NA		custom	pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4			5	2			1	6	6.3
Permitted Phases							5	2			1	6		
Actuated Green, G (s)	17.8	17.8		11.5	11.5			31.5	29.5			46.9	37.9	60.7
Effective Green, g (s)	17.8	17.8		11.5	11.5			31.5	29.5			46.9	37.9	60.7
Actuated g/C Ratio	0.20	0.20		0.13	0.13			0.35	0.32			0.51	0.42	0.67
Clearance Time (s)	5.0	5.0		5.0	5.0			7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	311	323		208	204			114	1085			355	1346	1009
v/s Ratio Prot	c0.13	0.12		0.03	c0.09			0.00	0.19			c0.05	c0.36	0.19
v/s Ratio Perm								0.04				0.17		
v/c Ratio	0.67	0.62		0.25	0.68			0.13	0.58			0.42	0.87	0.29
Uniform Delay, d1	34.0	33.6		36.0	38.1			20.9	25.7			13.6	24.4	6.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	5.4	3.5		0.6	9.0			0.5	0.5			0.8	6.0	0.1
Delay (s)	39.3	37.1		36.6	47.1			21.4	26.2			14.4	30.3	6.4
Level of Service	D	D		D	D			C	C			B	C	A
Approach Delay (s)		38.2			45.7				26.1				23.0	
Approach LOS		D			D				C				C	

Intersection Summary	
HCM 2000 Control Delay	28.3 HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.80
Actuated Cycle Length (s)	91.2 Sum of lost time (s) 22.0
Intersection Capacity Utilization	79.9% ICU Level of Service D
Analysis Period (min)	15

c Critical Lane Group



Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

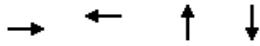
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			↑
Traffic Vol, veh/h	292	4	3	470	1	0
Future Vol, veh/h	292	4	3	470	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	317	4	3	511	1	0
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	13	13.3	8.7
HCM LOS	B	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	1%	0%	0%
Vol Right, %	99%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	473	296	1
LT Vol	0	292	1
Through Vol	3	0	0
RT Vol	470	4	0
Lane Flow Rate	514	322	1
Geometry Grp	1	1	1
Degree of Util (X)	0.599	0.47	0.002
Departure Headway (Hd)	4.194	5.258	5.563
Convergence, Y/N	Yes	Yes	Yes
Cap	859	679	637
Service Time	2.227	3.35	3.649
HCM Lane V/C Ratio	0.598	0.474	0.002
HCM Control Delay	13.3	13	8.7
HCM Lane LOS	B	B	A
HCM 95th-tile Q	4.1	2.5	0

Queues

3: Reed Street & High Street



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	529	268	668	326
v/c Ratio	0.78	0.43	0.99	0.47
Control Delay	24.5	13.9	52.9	14.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.5	13.9	52.9	14.7
Queue Length 50th (ft)	141	58	207	74
Queue Length 95th (ft)	#294	111	#407	134
Internal Link Dist (ft)	410	2031	474	3954
Turn Bay Length (ft)				
Base Capacity (vph)	675	617	674	695
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	0.78	0.43	0.99	0.47

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 3: Reed Street & High Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	175	298	14	59	179	8	60	413	142	5	206	89	
Future Volume (vph)	175	298	14	59	179	8	60	413	142	5	206	89	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	15	12	12	11	12	12	12	12	12	12	12	
Total Lost time (s)		4.5			4.5			4.5			4.5		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		1.00			1.00			0.99			0.99		
Flpb, ped/bikes		0.98			1.00			1.00			1.00		
Frt		1.00			1.00			0.97			0.96		
Flt Protected		0.98			0.99			1.00			1.00		
Satd. Flow (prot)		1991			1715			1752			1714		
Flt Permitted		0.78			0.83			0.94			0.99		
Satd. Flow (perm)		1581			1446			1648			1700		
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)	190	324	15	64	195	9	65	449	154	5	224	97	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	529	0	0	268	0	0	668	0	0	326	0	
Confl. Peds. (#/hr)	46		17	17		46	12		4	4		12	
Heavy Vehicles (%)	1%	1%	0%	11%	3%	0%	0%	5%	2%	0%	7%	1%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		23.5			23.5			22.5			22.5		
Effective Green, g (s)		23.5			23.5			22.5			22.5		
Actuated g/C Ratio		0.43			0.43			0.41			0.41		
Clearance Time (s)		4.5			4.5			4.5			4.5		
Lane Grp Cap (vph)		675			617			674			695		
v/s Ratio Prot													
v/s Ratio Perm		c0.33			0.19			c0.41			0.19		
v/c Ratio		0.78			0.43			0.99			0.47		
Uniform Delay, d1		13.6			11.1			16.2			11.9		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		8.9			2.2			32.6			2.3		
Delay (s)		22.4			13.3			48.7			14.1		
Level of Service		C			B			D			B		
Approach Delay (s)		22.4			13.3			48.7			14.1		
Approach LOS		C			B			D			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			29.4									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.88										
Actuated Cycle Length (s)			55.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			103.5%									ICU Level of Service	G
Analysis Period (min)			15										

c Critical Lane Group

## 9: N Main Street &amp; Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	316	318	54	152	49	1121	324	777	297
v/c Ratio	0.92	0.89	0.60	0.92	0.16	0.88	1.12	0.53	0.25
Control Delay	76.4	70.1	78.7	77.5	12.2	39.8	122.1	21.1	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.4	70.1	78.7	77.5	12.2	39.8	122.1	21.1	1.0
Queue Length 50th (ft)	229	227	37	51	14	371	~218	198	0
Queue Length 95th (ft)	#436	#431	#103	#185	31	461	#414	256	20
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	342	356	90	166	309	1479	288	1571	1174
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.89	0.60	0.92	0.16	0.76	1.13	0.49	0.25

## Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	501	70	12	50	41	98	45	985	46	2	296	715	273
Future Volume (vph)	501	70	12	50	41	98	45	985	46	2	296	715	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.89		1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00		0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1653		1620	1653		1572	3298			1636	3008	1473
Flt Permitted	0.95	0.97		0.95	1.00		0.34	1.00			0.08	1.00	1.00
Satd. Flow (perm)	1594	1653		1620	1653		567	3298			138	3008	1473
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	0.92
Adj. Flow (vph)	545	76	13	54	45	107	49	1071	50	2	322	777	297
RTOR Reduction (vph)	0	2	0	0	75	0	0	3	0	0	0	0	77
Lane Group Flow (vph)	316	316	0	54	77	0	49	1118	0	0	324	777	220
Confl. Peds. (#/hr)			4	4			5						5
Heavy Vehicles (%)	4%	6%	9%	4%	0%	4%	7%	5%	7%	2%	3%	12%	6%
Turn Type	Split	NA		Split	NA		pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4		5	2			1	6	6 3
Permitted Phases							2			1	6		
Actuated Green, G (s)	23.1	23.1		6.0	6.0		48.1	42.8			64.9	52.6	80.7
Effective Green, g (s)	23.1	23.1		6.0	6.0		48.1	42.8			64.9	52.6	80.7
Actuated g/C Ratio	0.21	0.21		0.06	0.06		0.44	0.39			0.60	0.48	0.74
Clearance Time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	337	350		89	90		299	1294			289	1451	1090
v/s Ratio Prot	c0.20	0.19		0.03	c0.05		0.01	0.34			c0.15	0.26	0.15
v/s Ratio Perm							0.06				c0.51		
v/c Ratio	0.94	0.90		0.61	0.86		0.16	0.86			1.12	0.54	0.20
Uniform Delay, d1	42.2	41.9		50.3	51.1		17.6	30.4			33.9	19.7	4.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	32.9	25.6		11.2	51.3		0.3	6.0			89.6	0.2	0.0
Delay (s)	75.1	67.4		61.5	102.4		17.8	36.4			123.5	19.9	4.4
Level of Service	E	E		E	F		B	D			F	B	A
Approach Delay (s)		71.3			91.7			35.7				40.6	
Approach LOS		E			F			D				D	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			47.7				HCM 2000 Level of Service						D
HCM 2000 Volume to Capacity ratio			1.09										
Actuated Cycle Length (s)			109.0				Sum of lost time (s)					22.0	
Intersection Capacity Utilization			87.9%				ICU Level of Service						E
Analysis Period (min)			15										
c Critical Lane Group													



Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			L
Traffic Vol, veh/h	505	0	2	292	1	2
Future Vol, veh/h	505	0	2	292	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	549	0	2	317	1	2
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	21	11.2	8.9
HCM LOS	C	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	33%
Vol Thru, %	1%	0%	67%
Vol Right, %	99%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	294	505	3
LT Vol	0	505	1
Through Vol	2	0	2
RT Vol	292	0	0
Lane Flow Rate	320	549	3
Geometry Grp	1	1	1
Degree of Util (X)	0.418	0.745	0.005
Departure Headway (Hd)	4.714	4.884	5.918
Convergence, Y/N	Yes	Yes	Yes
Cap	761	736	608
Service Time	2.771	2.96	3.918
HCM Lane V/C Ratio	0.42	0.746	0.005
HCM Control Delay	11.2	21	8.9
HCM Lane LOS	B	C	A
HCM 95th-tile Q	2.1	6.8	0

Queues

3: Reed Street & High Street



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	324	372	377	550
v/c Ratio	0.48	0.65	0.53	0.78
Control Delay	12.9	18.0	13.6	22.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.9	18.0	13.6	22.7
Queue Length 50th (ft)	58	74	70	117
Queue Length 95th (ft)	112	#156	131	#259
Internal Link Dist (ft)	410	2031	474	3954
Turn Bay Length (ft)				
Base Capacity (vph)	680	570	716	702
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	0.48	0.65	0.53	0.78

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 3: Reed Street & High Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	87	200	11	117	221	5	5	253	89	7	354	144
Future Volume (vph)	87	200	11	117	221	5	5	253	89	7	354	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	11	12	12	12	12	12	12	12
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frft		0.99			1.00			0.97			0.96	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		2033			1754			1802			1765	
Flt Permitted		0.83			0.80			0.99			0.99	
Satd. Flow (perm)		1702			1425			1790			1755	
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	217	12	127	240	5	5	275	97	8	385	157
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	324	0	0	372	0	0	377	0	0	550	0
Confl. Peds. (#/hr)	3		6	6		3	4					4
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	2%	1%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			18.0			18.0	
Effective Green, g (s)		18.0			18.0			18.0			18.0	
Actuated g/C Ratio		0.40			0.40			0.40			0.40	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		680			570			716			702	
v/s Ratio Prot												
v/s Ratio Perm		0.19			c0.26			0.21			c0.31	
v/c Ratio		0.48			0.65			0.53			0.78	
Uniform Delay, d1		10.0			11.0			10.3			11.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.4			5.7			2.8			8.5	
Delay (s)		12.4			16.7			13.0			20.3	
Level of Service		B			B			B			C	
Approach Delay (s)		12.4			16.7			13.0			20.3	
Approach LOS		B			B			B			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.2			HCM 2000 Level of Service					B	
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			45.0			Sum of lost time (s)					9.0	
Intersection Capacity Utilization			65.0%			ICU Level of Service					C	
Analysis Period (min)			15									

c Critical Lane Group

Queues

9: N Main Street & Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	221	215	53	341	33	680	162	1290	499
v/c Ratio	0.67	0.62	0.24	0.86	0.19	0.69	0.50	0.96	0.42
Control Delay	45.8	41.7	41.1	39.2	18.8	34.3	21.3	47.3	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	41.7	41.1	39.2	18.8	34.3	21.3	47.3	1.9
Queue Length 50th (ft)	138	129	31	88	11	200	61	~510	0
Queue Length 95th (ft)	224	211	68	#241	29	281	103	#646	36
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	409	431	277	440	176	1092	390	1340	1238
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.50	0.19	0.78	0.19	0.62	0.42	0.96	0.40

**Intersection Summary**

~ 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.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	344	29	28	49	42	271	1	29	590	36	1	148	1187	459
Future Volume (vph)	344	29	28	49	42	271	1	29	590	36	1	148	1187	459
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0			7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00			1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00			1.00	1.00	1.00
Frft	1.00	0.98		1.00	0.87			1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00			0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1656		1652	1620			1685	3357			1685	3240	1516
Flt Permitted	0.95	0.97		0.95	1.00			0.13	1.00			0.20	1.00	1.00
Satd. Flow (perm)	1594	1656		1652	1620			234	3357			361	3240	1516
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	0.92	0.92
Adj. Flow (vph)	374	32	30	53	46	295	1	32	641	39	1	161	1290	499
RTOR Reduction (vph)	0	6	0	0	176	0	0	0	4	0	0	0	0	172
Lane Group Flow (vph)	221	209	0	53	165	0	0	33	676	0	0	162	1290	327
Confl. Peds. (#/hr)			2	2				3		6		6		3
Confl. Bikes (#/hr)						1								
Heavy Vehicles (%)	4%	0%	0%	2%	0%	1%	0%	0%	3%	0%	0%	0%	4%	3%
Turn Type	Split	NA		Split	NA		custom	pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4			5	2			1	6	6 3
Permitted Phases							5	2			1	6		
Actuated Green, G (s)	19.0	19.0		12.5	12.5			33.5	30.3			48.2	38.0	62.0
Effective Green, g (s)	19.0	19.0		12.5	12.5			33.5	30.3			48.2	38.0	62.0
Actuated g/C Ratio	0.20	0.20		0.13	0.13			0.35	0.32			0.51	0.40	0.65
Clearance Time (s)	5.0	5.0		5.0	5.0			7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	319	332		218	213			131	1074			336	1300	992
v/s Ratio Prot	c0.14	0.13		0.03	c0.10			0.01	0.20			c0.06	c0.40	0.22
v/s Ratio Perm								0.08				0.19		
v/c Ratio	0.69	0.63		0.24	0.77			0.25	0.63			0.48	0.99	0.33
Uniform Delay, d1	35.1	34.6		36.9	39.7			22.7	27.4			14.9	28.2	7.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	6.4	3.9		0.6	15.9			1.0	0.8			1.1	23.0	0.1
Delay (s)	41.5	38.5		37.4	55.7			23.8	28.3			15.9	51.2	7.3
Level of Service	D	D		D	E			C	C			B	D	A
Approach Delay (s)		40.0			53.2				28.0				37.0	
Approach LOS		D			D				C				D	

Intersection Summary	
HCM 2000 Control Delay	37.4 HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.88
Actuated Cycle Length (s)	94.7 Sum of lost time (s) 22.0
Intersection Capacity Utilization	85.8% ICU Level of Service E
Analysis Period (min)	15

c Critical Lane Group



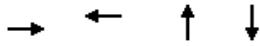
Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			L
Traffic Vol, veh/h	297	4	3	504	1	0
Future Vol, veh/h	297	4	3	504	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	323	4	3	548	1	0
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	13.7	14.7	8.8
HCM LOS	B	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	99%	100%
Vol Thru, %	1%	0%	0%
Vol Right, %	99%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	507	301	1
LT Vol	0	297	1
Through Vol	3	0	0
RT Vol	504	4	0
Lane Flow Rate	551	327	1
Geometry Grp	1	1	1
Degree of Util (X)	0.646	0.495	0.002
Departure Headway (Hd)	4.221	5.442	5.754
Convergence, Y/N	Yes	Yes	Yes
Cap	849	667	626
Service Time	2.276	3.442	3.754
HCM Lane V/C Ratio	0.649	0.49	0.002
HCM Control Delay	14.7	13.7	8.8
HCM Lane LOS	B	B	A
HCM 95th-tile Q	4.8	2.8	0

Queues  
3: Reed Street & High Street



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	531	268	687	331
v/c Ratio	0.79	0.43	1.02	0.48
Control Delay	24.7	13.9	59.3	14.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.7	13.9	59.3	14.8
Queue Length 50th (ft)	142	58	~223	76
Queue Length 95th (ft)	#295	111	#421	136
Internal Link Dist (ft)	410	2031	474	3954
Turn Bay Length (ft)				
Base Capacity (vph)	674	617	676	695
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	0.79	0.43	1.02	0.48

Intersection Summary

- ~ 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.

HCM Signalized Intersection Capacity Analysis  
3: Reed Street & High Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	177	298	14	59	179	8	60	431	142	5	211	89	
Future Volume (vph)	177	298	14	59	179	8	60	431	142	5	211	89	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	15	12	12	11	12	12	12	12	12	12	12	
Total Lost time (s)		4.5			4.5			4.5			4.5		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		1.00			1.00			0.99			0.99		
Flpb, ped/bikes		0.98			1.00			1.00			1.00		
Frt		1.00			1.00			0.97			0.96		
Flt Protected		0.98			0.99			1.00			1.00		
Satd. Flow (prot)		1991			1715			1754			1715		
Flt Permitted		0.78			0.83			0.94			0.99		
Satd. Flow (perm)		1579			1445			1653			1700		
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)	192	324	15	64	195	9	65	468	154	5	229	97	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	531	0	0	268	0	0	687	0	0	331	0	
Confl. Peds. (#/hr)	46		17	17		46	12		4	4		12	
Heavy Vehicles (%)	1%	1%	0%	11%	3%	0%	0%	5%	2%	0%	7%	1%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		23.5			23.5			22.5			22.5		
Effective Green, g (s)		23.5			23.5			22.5			22.5		
Actuated g/C Ratio		0.43			0.43			0.41			0.41		
Clearance Time (s)		4.5			4.5			4.5			4.5		
Lane Grp Cap (vph)		674			617			676			695		
v/s Ratio Prot													
v/s Ratio Perm		c0.34			0.19			c0.42			0.19		
v/c Ratio		0.79			0.43			1.02			0.48		
Uniform Delay, d1		13.6			11.1			16.2			11.9		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		9.1			2.2			38.7			2.3		
Delay (s)		22.7			13.3			55.0			14.3		
Level of Service		C			B			D			B		
Approach Delay (s)		22.7			13.3			55.0			14.3		
Approach LOS		C			B			D			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			32.0									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			55.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			105.1%									ICU Level of Service	G
Analysis Period (min)			15										

c Critical Lane Group

Queues

9: N Main Street & Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	336	342	54	158	85	1121	324	777	447
v/c Ratio	0.98	0.96	0.60	1.00	0.28	0.88	1.12	0.53	0.37
Control Delay	88.8	82.8	78.7	101.7	13.8	39.8	122.1	21.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.8	82.8	78.7	101.7	13.8	39.8	122.1	21.2	1.3
Queue Length 50th (ft)	247	249	37	-62	25	371	-218	198	0
Queue Length 95th (ft)	#473	#475	#103	#210	47	461	#414	256	24
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	342	355	90	158	308	1479	288	1571	1210
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.96	0.60	1.00	0.28	0.76	1.13	0.49	0.37

Intersection Summary

- ~ 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.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	533	71	20	50	47	98	78	985	46	2	296	715	411
Future Volume (vph)	533	71	20	50	47	98	78	985	46	2	296	715	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.90		1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00		0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1646		1620	1662		1572	3298			1636	3008	1473
Flt Permitted	0.95	0.97		0.95	1.00		0.34	1.00			0.08	1.00	1.00
Satd. Flow (perm)	1594	1646		1620	1662		563	3298			138	3008	1473
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	0.92
Adj. Flow (vph)	579	77	22	54	51	107	85	1071	50	2	322	777	447
RTOR Reduction (vph)	0	2	0	0	66	0	0	3	0	0	0	0	117
Lane Group Flow (vph)	336	340	0	54	92	0	85	1118	0	0	324	777	330
Confl. Peds. (#/hr)			4	4			5						5
Heavy Vehicles (%)	4%	6%	9%	4%	0%	4%	7%	5%	7%	2%	3%	12%	6%
Turn Type	Split	NA		Split	NA		pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4		5	2			1	6	6 3
Permitted Phases							2			1	6		
Actuated Green, G (s)	23.1	23.1		6.0	6.0		48.4	42.9			65.0	52.5	80.6
Effective Green, g (s)	23.1	23.1		6.0	6.0		48.4	42.9			65.0	52.5	80.6
Actuated g/C Ratio	0.21	0.21		0.05	0.05		0.44	0.39			0.60	0.48	0.74
Clearance Time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	337	348		89	91		300	1296			289	1447	1088
v/s Ratio Prot	c0.21	0.21		0.03	c0.06		0.01	0.34			c0.15	0.26	0.22
v/s Ratio Perm							0.11				c0.51		
v/c Ratio	1.00	0.98		0.61	1.01		0.28	0.86			1.12	0.54	0.30
Uniform Delay, d1	43.0	42.7		50.4	51.5		17.9	30.4			34.0	19.8	4.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	47.9	41.4		11.2	96.9		0.5	6.0			89.6	0.2	0.1
Delay (s)	90.9	84.1		61.6	148.5		18.4	36.3			123.6	20.0	4.9
Level of Service	F	F		E	F		B	D			F	B	A
Approach Delay (s)		87.5			126.3			35.1					37.3
Approach LOS		F			F			D					D
<b>Intersection Summary</b>													
HCM 2000 Control Delay			51.1			HCM 2000 Level of Service							D
HCM 2000 Volume to Capacity ratio			1.12										
Actuated Cycle Length (s)			109.1			Sum of lost time (s)			22.0				
Intersection Capacity Utilization			89.3%			ICU Level of Service							E
Analysis Period (min)			15										
c Critical Lane Group													

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			Y
Traffic Vol, veh/h	524	0	2	297	1	2
Future Vol, veh/h	524	0	2	297	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	570	0	2	323	1	2
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	23	11.4	9
HCM LOS	C	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	100%	33%
Vol Thru, %	1%	0%	67%
Vol Right, %	99%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	299	524	3
LT Vol	0	524	1
Through Vol	2	0	2
RT Vol	297	0	0
Lane Flow Rate	325	570	3
Geometry Grp	1	1	1
Degree of Util (X)	0.431	0.776	0.005
Departure Headway (Hd)	4.769	4.902	6
Convergence, Y/N	Yes	Yes	Yes
Cap	751	729	600
Service Time	2.831	2.986	4
HCM Lane V/C Ratio	0.433	0.782	0.005
HCM Control Delay	11.4	23	9
HCM Lane LOS	B	C	A
HCM 95th-tile Q	2.2	7.6	0

Queues

3: Reed Street & High Street



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	324	372	382	570
v/c Ratio	0.48	0.65	0.53	0.81
Control Delay	12.9	18.0	13.7	24.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.9	18.0	13.7	24.5
Queue Length 50th (ft)	58	74	71	123
Queue Length 95th (ft)	112	#156	133	#272
Internal Link Dist (ft)	410	2031	474	3954
Turn Bay Length (ft)				
Base Capacity (vph)	680	570	716	702
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	0.48	0.65	0.53	0.81

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: Reed Street & High Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	87	200	11	117	221	5	5	258	89	7	371	146	
Future Volume (vph)	87	200	11	117	221	5	5	258	89	7	371	146	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	15	12	12	11	12	12	12	12	12	12	12	
Total Lost time (s)		4.5			4.5			4.5			4.5		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		1.00			1.00			1.00			0.99		
Flpb, ped/bikes		1.00			1.00			1.00			1.00		
Frft		0.99			1.00			0.97			0.96		
Flt Protected		0.99			0.98			1.00			1.00		
Satd. Flow (prot)		2033			1754			1803			1767		
Flt Permitted		0.83			0.80			0.99			0.99		
Satd. Flow (perm)		1702			1425			1791			1757		
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	217	12	127	240	5	5	280	97	8	403	159	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	324	0	0	372	0	0	382	0	0	570	0	
Confl. Peds. (#/hr)	3		6	6		3	4					4	
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	2%	1%	0%	3%	2%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		18.0			18.0			18.0			18.0		
Effective Green, g (s)		18.0			18.0			18.0			18.0		
Actuated g/C Ratio		0.40			0.40			0.40			0.40		
Clearance Time (s)		4.5			4.5			4.5			4.5		
Lane Grp Cap (vph)		680			570			716			702		
v/s Ratio Prot													
v/s Ratio Perm		0.19			0.26			0.21			0.32		
v/c Ratio		0.48			0.65			0.53			0.81		
Uniform Delay, d1		10.0			11.0			10.3			12.0		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		2.4			5.7			2.8			9.9		
Delay (s)		12.4			16.7			13.1			21.9		
Level of Service		B			B			B			C		
Approach Delay (s)		12.4			16.7			13.1			21.9		
Approach LOS		B			B			B			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			16.8		HCM 2000 Level of Service							B	
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			45.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			66.0%		ICU Level of Service						C		
Analysis Period (min)			15										

c Critical Lane Group

Queues

9: N Main Street & Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	314	303	53	343	42	680	162	1290	540
v/c Ratio	0.86	0.78	0.22	0.89	0.25	0.73	0.53	1.02	0.45
Control Delay	59.9	50.1	41.0	47.0	20.6	37.0	23.3	61.2	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	50.1	41.0	47.0	20.6	37.0	23.3	61.2	2.0
Queue Length 50th (ft)	211	192	31	111	15	201	61	~512	0
Queue Length 95th (ft)	#374	#337	68	#277	34	281	103	#646	37
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	386	407	261	404	167	1032	362	1268	1209
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.74	0.20	0.85	0.25	0.66	0.45	1.02	0.45

**Intersection Summary**

~ 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.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	473	35	60	49	44	271	1	38	590	36	1	148	1187	497
Future Volume (vph)	473	35	60	49	44	271	1	38	590	36	1	148	1187	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0			7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00			1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99			1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00			1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.87			1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00			0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1642		1652	1622			1685	3357			1685	3240	1516
Flt Permitted	0.95	0.97		0.95	1.00			0.13	1.00			0.19	1.00	1.00
Satd. Flow (perm)	1594	1642		1652	1622			238	3357			335	3240	1516
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	0.92	0.92
Adj. Flow (vph)	514	38	65	53	48	295	1	41	641	39	1	161	1290	540
RTOR Reduction (vph)	0	9	0	0	151	0	0	0	4	0	0	0	0	187
Lane Group Flow (vph)	314	294	0	53	192	0	0	42	676	0	0	162	1290	353
Confl. Peds. (#/hr)			2	2				3		6		6		3
Confl. Bikes (#/hr)						1								
Heavy Vehicles (%)	4%	0%	0%	2%	0%	1%	0%	0%	3%	0%	0%	0%	4%	3%
Turn Type	Split	NA		Split	NA		custom	pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4			5	2			1	6	6 3
Permitted Phases							5	2			1	6		
Actuated Green, G (s)	22.1	22.1		13.8	13.8			33.2	29.8			47.9	37.5	64.6
Effective Green, g (s)	22.1	22.1		13.8	13.8			33.2	29.8			47.9	37.5	64.6
Actuated g/C Ratio	0.22	0.22		0.14	0.14			0.34	0.30			0.48	0.38	0.65
Clearance Time (s)	5.0	5.0		5.0	5.0			7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	356	367		230	226			129	1012			314	1229	991
v/s Ratio Prot	c0.20	0.18		0.03	c0.12			0.01	0.20			c0.06	c0.40	0.23
v/s Ratio Perm								0.10				0.19		
v/c Ratio	0.88	0.80		0.23	0.85			0.33	0.67			0.52	1.05	0.36
Uniform Delay, d1	37.1	36.3		37.8	41.5			25.5	30.2			16.9	30.6	7.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	21.7	11.8		0.5	24.3			1.5	1.3			1.4	39.7	0.1
Delay (s)	58.8	48.1		38.3	65.8			26.9	31.5			18.3	70.4	7.8
Level of Service	E	D		D	E			C	C			B	E	A
Approach Delay (s)		53.5			62.1				31.2				49.2	
Approach LOS		D			E				C				D	
<b>Intersection Summary</b>														
HCM 2000 Control Delay			47.8			HCM 2000 Level of Service			D					
HCM 2000 Volume to Capacity ratio			0.97											
Actuated Cycle Length (s)			98.8			Sum of lost time (s)			22.0					
Intersection Capacity Utilization			90.3%			ICU Level of Service			E					
Analysis Period (min)			15											

c Critical Lane Group



Queues

9: N Main Street & Scanlon Drive/Russ Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	336	342	54	158	85	1121	324	777	447
v/c Ratio	0.93	0.91	0.53	0.92	0.29	0.90	1.16	0.54	0.37
Control Delay	76.7	72.0	70.7	81.2	15.2	43.7	134.7	23.0	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	72.0	70.7	81.2	15.2	43.7	134.7	23.0	1.3
Queue Length 50th (ft)	257	260	39	64	27	389	~238	210	0
Queue Length 95th (ft)	#450	#451	#92	#198	51	484	#420	271	25
Internal Link Dist (ft)		42		451		3510		583	
Turn Bay Length (ft)	50		60		200		180		
Base Capacity (vph)	360	375	102	171	295	1346	280	1455	1204
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.91	0.53	0.92	0.29	0.83	1.16	0.53	0.37

Intersection Summary

- ~ 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.

HCM Signalized Intersection Capacity Analysis  
 9: N Main Street & Scanlon Drive/Russ Street

Section E, Item 1.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖	↕		↗	↖		↗	↕			↗	↕	↖
Traffic Volume (vph)	533	71	20	50	47	98	78	985	46	2	296	715	411
Future Volume (vph)	533	71	20	50	47	98	78	985	46	2	296	715	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	10	12	12	10	11	11	12	10	10	11
Total Lost time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	5.0
Lane Util. Factor	0.95	0.95		1.00	1.00		1.00	0.95			1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.90		1.00	0.99			1.00	1.00	0.85
Flt Protected	0.95	0.97		0.95	1.00		0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1594	1646		1620	1662		1572	3298			1636	3008	1473
Flt Permitted	0.95	0.97		0.95	1.00		0.33	1.00			0.08	1.00	1.00
Satd. Flow (perm)	1594	1646		1620	1662		550	3298			138	3008	1473
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	0.92
Adj. Flow (vph)	579	77	22	54	51	107	85	1071	50	2	322	777	447
RTOR Reduction (vph)	0	2	0	0	67	0	0	3	0	0	0	0	118
Lane Group Flow (vph)	336	340	0	54	91	0	85	1118	0	0	324	777	329
Confl. Peds. (#/hr)			4	4			5						5
Heavy Vehicles (%)	4%	6%	9%	4%	0%	4%	7%	5%	7%	2%	3%	12%	6%
Turn Type	Split	NA		Split	NA		pm+pt	NA		custom	pm+pt	NA	pt+ov
Protected Phases	3	3		4	4		5	2			1	6	6 3
Permitted Phases							2			1	6		
Actuated Green, G (s)	25.0	25.0		7.0	7.0		48.5	43.0			65.0	52.5	82.5
Effective Green, g (s)	25.0	25.0		7.0	7.0		48.5	43.0			65.0	52.5	82.5
Actuated g/C Ratio	0.22	0.22		0.06	0.06		0.43	0.38			0.58	0.47	0.74
Clearance Time (s)	5.0	5.0		5.0	5.0		7.0	5.0			7.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	2.0			3.0	2.0	
Lane Grp Cap (vph)	355	367		101	103		288	1266			280	1410	1085
v/s Ratio Prot	c0.21	0.21		0.03	c0.06		0.01	0.34			c0.15	0.26	0.22
v/s Ratio Perm							0.11				c0.52		
v/c Ratio	0.95	0.93		0.53	0.89		0.30	0.88			1.16	0.55	0.30
Uniform Delay, d1	42.8	42.6		50.9	52.1		19.1	32.2			34.9	21.3	5.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2	33.8	28.7		5.4	54.0		0.6	7.4			103.2	0.3	0.1
Delay (s)	76.6	71.2		56.3	106.1		19.7	39.5			138.1	21.6	5.1
Level of Service	E	E		E	F		B	D			F	C	A
Approach Delay (s)		73.9			93.4			38.1				41.2	
Approach LOS		E			F			D				D	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			49.3				HCM 2000 Level of Service						D
HCM 2000 Volume to Capacity ratio			1.11										
Actuated Cycle Length (s)			112.0				Sum of lost time (s)					22.0	
Intersection Capacity Utilization			89.3%				ICU Level of Service						E
Analysis Period (min)			15										
c Critical Lane Group													



**HOWARD STEIN HUDSON**

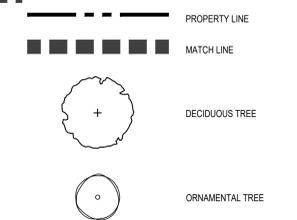
11 Beacon Street, Suite 1010  
Boston, Massachusetts 02108  
617.482.7080

[www.hshassoc.com](http://www.hshassoc.com)

REFER TO SHEET L-102  
REFER TO SHEET L-101

BUILDING B

LEGEND



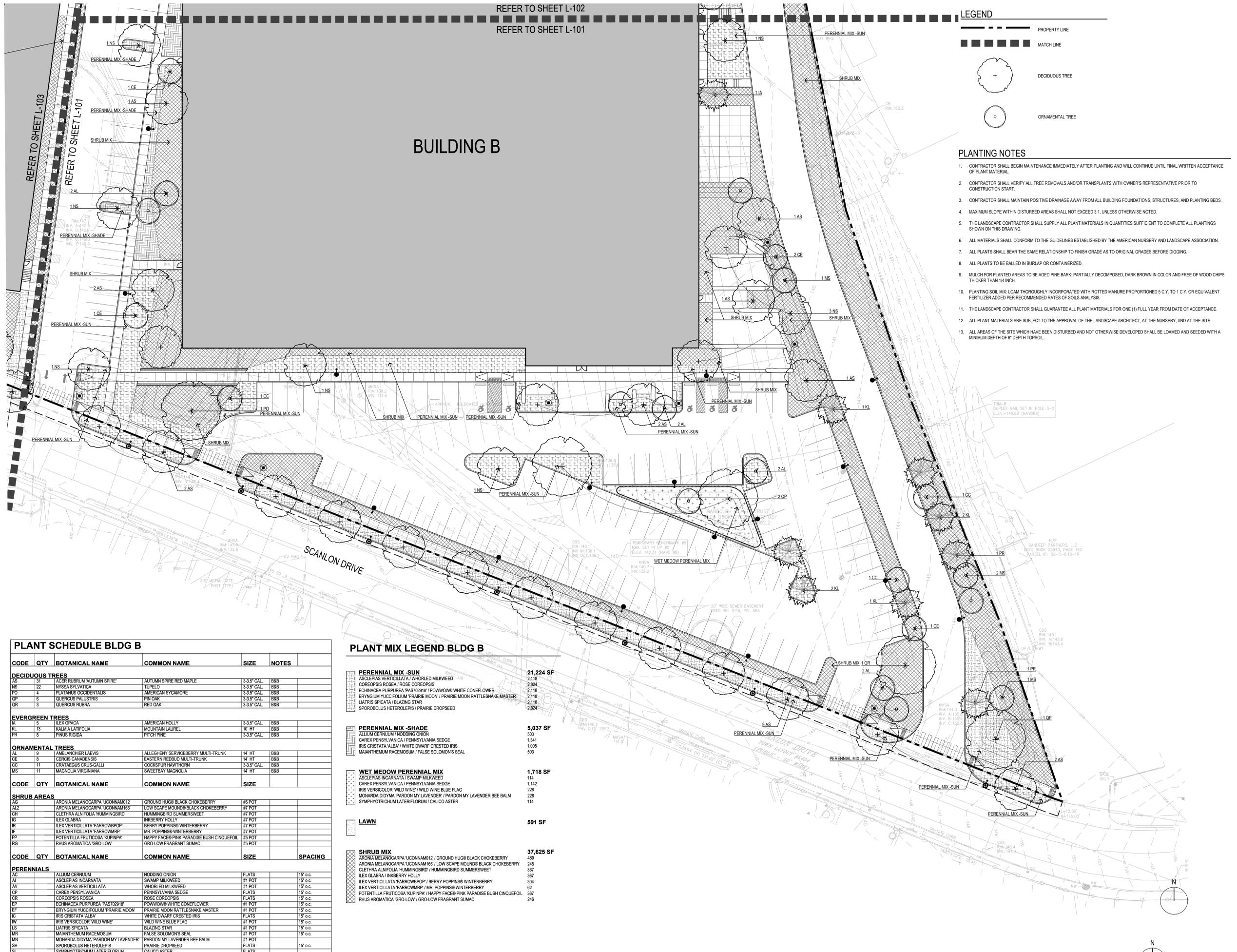
PLANTING NOTES

- CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL WRITTEN ACCEPTANCE OF PLANT MATERIAL.
- CONTRACTOR SHALL VERIFY ALL TREE REMOVALS AND/OR TRANSPLANTS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION START.
- CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES, AND PLANTING BEDS.
- MAXIMUM SLOPE WITHIN DISTURBED AREAS SHALL NOT EXCEED 3:1, UNLESS OTHERWISE NOTED.
- THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN ON THIS DRAWING.
- ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
- ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
- ALL PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
- MULCH FOR PLANTED AREAS TO BE AGED PINE BARK, PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
- PLANTING SOIL MIX: LOAM THOROUGHLY INCORPORATED WITH ROTTED MANURE PROPORTIONED 5 C.Y. TO 1 C.Y. OR EQUIVALENT. FERTILIZER ADDED PER RECOMMENDED RATES OF SOILS ANALYSIS.
- THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
- ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT, AT THE NURSERY AND AT THE SITE.
- ALL AREAS OF THE SITE WHICH HAVE BEEN DISTURBED AND NOT OTHERWISE DEVELOPED SHALL BE LOAMED AND SEEDED WITH A MINIMUM DEPTH OF 6" DEPTH TOPSOIL.



Key Plan

Notes



PLANT SCHEDULE BLDG B

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
<b>DECIDUOUS TREES</b>					
NS	131	ACER RUBRUM 'AUTUMN SPIRE'	AUTUMN SPIRE RED MAPLE	3.3.5" CAL.	B&B
NS	22	NYSSA SYLVATICA	TUPLO	3.3.5" CAL.	B&B
PO	4	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	3.3.5" CAL.	B&B
OP	6	QUERCUS PALUSTRIS	PIN OAK	3.3.5" CAL.	B&B
OR	3	QUERCUS RUBRA	RED OAK	3.3.5" CAL.	B&B
<b>EVERGREEN TREES</b>					
IA	5	ILEX OPACA	AMERICAN HOLLY	3.3.5" CAL.	B&B
KL	15	KALMIA LATIFOLIA	MOUNTAIN LAUREL	10" HT	B&B
PR	8	PINUS RIGIDA	PITCH PINE	3.3.5" CAL.	B&B
<b>ORNAMENTAL TREES</b>					
AL	9	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY MULTI-TRUNK	14" HT	B&B
CE	8	CERCIS CANADENSIS	EASTERN REDBUD MULTI-TRUNK	14" HT	B&B
CC	11	CRATAEGUS CRUS-GALLI	COCKSPUR HAWTHORN	3.3.5" CAL.	B&B
MS	11	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	14" HT	B&B
<b>SHRUB AREAS</b>					
AG		ARONIA MELANOCARPA 'UCONN012'	GROUND HUG® BLACK CHOKEBERRY	#6 POT	
ALZ		ARONIA MELANOCARPA 'UCONN0165'	LOW SCAPE MOUND® BLACK CHOKEBERRY	#7 POT	
CH		CLETHRA ALNFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	#7 POT	
IG		ILEX GLABRA	INKBERRY HOLLY	#7 POT	
IR		ILEX VERTICILLATA 'FARROWPOP'	BERRY POPPINS® WINTERBERRY	#7 POT	
IF		ILEX VERTICILLATA 'FARROWMRP'	MR. POPPINS® WINTERBERRY	#7 POT	
PP		POTENTILLA FRUTICOSA 'KUPINPA'	HAPPY FACE® PINK PARADISE BUSH CINQUEFOIL	#5 POT	
RS		RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	#5 POT	
<b>PERENNIALS</b>					
AC		ALLIUM CERNUM	NODDING ONION	FLATS	15" o.c.
AI		ASCLEPIAS INCARNATA	SWAMP MILKWEED	#1 POT	15" o.c.
AV		ASCLEPIAS VERTICILLATA	WHORLED MILKWEED	#1 POT	15" o.c.
CP		CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	FLATS	15" o.c.
CR		COREOPSIS ROSEA	ROSE COREOPSIS	FLATS	15" o.c.
EP		ECHINACEA PURPUREA 'PASTY2818'	POWOW® WHITE CONEFLOWER	#1 POT	15" o.c.
EF		ERYNGIUM YUCCIFOLIUM 'PRAIRIE MOON'	PRAIRIE MOON RATTLESNAKE MASTER	#1 POT	15" o.c.
IC		IRIS CRISTATA 'ALBA'	WHITE DWARF 'CRESTED' IRIS	FLATS	15" o.c.
IW		IRIS VERSICOLOR 'WILD WINE'	WILD WINE BLUE FLAG	#1 POT	15" o.c.
LS		LIATRIS SPICATA	BLAZING STAR	#1 POT	15" o.c.
MR		MAIANTHEMUM RACEMOSUM	FALSE SOLOMONS SEAL	#1 POT	15" o.c.
MN		MONARDRA DIDYMA 'PARDON MY LAVENDER'	PARDON MY LAVENDER BEE BALM	#1 POT	15" o.c.
SH		SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSIED	FLATS	15" o.c.
SL		SYMPHYOTRICHUM LATERIFLORUM	CALICO ASTER	FLATS	15" o.c.

PLANT MIX LEGEND BLDG B

<b>PERENNIAL MIX -SUN</b>	21,224 SF
ASCLEPIAS VERTICILLATA / WHORLED MILKWEED	2,118
COREOPSIS ROSEA / ROSE COREOPSIS	2,824
ECHINACEA PURPUREA 'PASTY2818' / POWOW® WHITE CONEFLOWER	2,118
ERYNGIUM YUCCIFOLIUM 'PRAIRIE MOON' / PRAIRIE MOON RATTLESNAKE MASTER	2,118
LIATRIS SPICATA / BLAZING STAR	2,118
SPOROBOLUS HETEROLEPIS / PRAIRIE DROPSIED	2,824
<b>PERENNIAL MIX -SHADE</b>	5,037 SF
ALLIUM CERNUM / NODDING ONION	503
CAREX PENNSYLVANICA / PENNSYLVANIA SEDGE	1,341
IRIS CRISTATA 'ALBA' / WHITE DWARF 'CRESTED' IRIS	1,005
MAIANTHEMUM RACEMOSUM / FALSE SOLOMONS SEAL	503
<b>WET MADOW PERENNIAL MIX</b>	1,718 SF
ASCLEPIAS INCARNATA / SWAMP MILKWEED	114
CAREX PENNSYLVANICA / PENNSYLVANIA SEDGE	1,142
IRIS VERSICOLOR 'WILD WINE' / WILD WINE BLUE FLAG	228
MONARDRA DIDYMA 'PARDON MY LAVENDER' / PARDON MY LAVENDER BEE BALM	228
SYMPHYOTRICHUM LATERIFLORUM / CALICO ASTER	114
<b>LAWN</b>	591 SF
<b>SHRUB MIX</b>	37,625 SF
ARONIA MELANOCARPA 'UCONN012' / GROUND HUG® BLACK CHOKEBERRY	489
ARONIA MELANOCARPA 'UCONN0165' / LOW SCAPE MOUND® BLACK CHOKEBERRY	245
CLETHRA ALNFOLIA 'HUMMINGBIRD' / HUMMINGBIRD SUMMERSWEET	367
ILEX GLABRA / INKBERRY HOLLY	367
ILEX VERTICILLATA 'FARROWPOP' / BERRY POPPINS® WINTERBERRY	304
ILEX VERTICILLATA 'FARROWMRP' / MR. POPPINS® WINTERBERRY	62
POTENTILLA FRUTICOSA 'KUPINPA' / HAPPY FACE® PINK PARADISE BUSH CINQUEFOIL	367
RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	246



PLANNING BOARD SUBMISSION	2023.12.26
Issued/Revision	YYYY.MMMM
Permit/Seal	

Scale 1"=20'  
Project No. 218421418

PLANTING PLAN 1







Planning Board  
Town of Randolph

January 12, 2024

Re: Lantana and Lombardo's Redevelopment

Respectfully submitted,

Please accept this letter on behalf of Comfort Inn Randolph located at 1374 North Main Street. My family purchased the property in 2006. The hotel was built in 1969 and has operated as a hotel for nearly 55 years. We have accounted for a substantial amount of lodging and property tax revenue to the Town. We have hosted countless family events, weddings, corporate meetings, etc. through our years of operating the hotel.

As developers ourselves, we welcome the major redevelopment and the future of this section of Randolph. We have been fortunate to meet the developer and have nothing but positive feedback to provide. The properties are in good hands, and we feel the redevelopment will be great for the Town and the area. However, it has come to our attention the redevelopment of the Lantana and Lombardo's properties would include discontinuances of Billings Street and a portion of High Street. We have yet to review any final plans for the future of the properties, but we know this will have a major impact on our site and will be a disruption to our business.

The entire Northern entrance and exit of our property will be blocked, which will cause major issues with the flow of our site. We often house utility crews and transportation groups that depend on being able to drive through our site to access our main entrance. Without the access to Billings Street, no large vehicle such as Fire engines will be able to turn around on the Route 28 facing portion of our property after entering. I would equate the removal of these streets to one day removing Depot Street or Diauto Drive. The impact may be perceived as limited, but in reality would be substantial to the small businesses these streets serve. The continuation of use of Billings Street and High Street is extremely important to our team and the guests we serve. I appreciate the consideration of our concerns and thank you for your time.

Sincerely,

---

Jiten Patel  
President

Jiten Hotel Management



**TOWN OF RANDOLPH  
MASSACHUSETTS**

**FIRE DEPARTMENT**  
10 MEMORIAL PARKWAY RANDOLPH, MA 02368-4506  
**RONALD J. CASSFORD, CHIEF OF DEPARTMENT**  
BUSINESS: 781.961.0991 / 0992  
FAX: 781.961.FIRE (3473)  
WWW.RANDOLPHFIRE.COM

**MICHAEL J. AUSTRINO**  
FIRE CAPTAIN  
FirePrevention1@RandolphFire.com

**PATRICK J. CONNORS**  
FIRE LIEUTENANT  
FirePrevention2@RandolphFire.com

---

**OFFICE OF FIRE PREVENTION  
AND CODE ENFORCEMENT**

January 18, 2024

Michelle Tyler  
Director of Planning  
Town of Randolph  
41 South Main Street

Dear Ms. Tyler,

The Randolph Fire Departments Office of Fire Prevention and Code Enforcement has reviewed the Billings/Scanlon/High Street proposal. The fire apparatus mentioned on Exhibit E3.0, identified as the "Spartan Gladiator Star Series Aerial," should be updated to accurately reflect the Randolph Fire Department's utilization of an E-One Typhoon Aerial Platform with slightly larger dimensions. I have attached a specification sheet containing information on turning radius and apparatus dimensions.

After this correction, the designated traffic patterns for the properly identified fire apparatus would be suitable for the proposed occupancies. However, we have concerns regarding access to the hotel property at 1374 North Main Street. Currently, during emergency responses to incidents at this location, a section of Billing Street connecting to the hotel's parking lot is utilized. This access point is crucial for emergency responders as it provides entry to the sprinkler room side of the occupancy.

Blocking or closing this access point would create a dead end for apparatus entering from Scanlon Drive and North Main Street (Rt 28). In such a scenario, apparatus would be required to reverse out of the hotel parking lot, leading to potential traffic congestion, delays in response to other emergencies, possible accidents, and the need for additional personnel to assist or guide apparatus operators exiting the property.

To address these concerns, it is respectfully requested that some form of access point be maintained between the two properties, namely 6 Billing St and 1374 North Main St. Additionally, any design or proposal related to this access point should undergo a thorough fire department review and receive comments prior to obtaining approval.

Respectfully,

Michael J. Austrino  
Fire Captain  
Office of Fire Prevention and Code Enforcement



SAE Turning Radius Calculations for Quote No. 98168				
Wheelbase:	250"	Front Bumper Size:	10"	
Body Width:	100"	Front Bumper Extension:	20"	
Front Axle Kingpin Center:	70.66"	Front Wheel Type:	ALUMINUM	
Front Axle Track:	84.46"	Rear Wheel Type:	ALUMINUM	
Front Axle Tire Width:	16.6"	Tire Brand:	MICHELIN	
Dimension Over Rear Tires:	98.59"			
Body Front Overhang:	92"			
Inside Cramp Angle	S. A. E. Turning Radius	Tire Curb Clearance	Bumper Swing Clearance	Minimum Inside Radius
35	41.9'	42.6'	46.6'	28.6'
36	40.9'	41.6'	45.7'	27.5'
37	40.1'	40.7'	44.9'	26.5'
38	39.2'	39.9'	44.2'	25.5'
39	38.4'	39.1'	43.5'	24.6'
40	37.7'	38.4'	42.8'	23.7'
41	37'	37.7'	42.2'	22.8'
42	36.3'	37'	41.6'	22'
43	35.7'	36.4'	41'	21.2'
44	35'	35.7'	40.4'	20.4'
45	34.5'	35.2'	39.9'	19.7'
46	33.9'	34.6'	39.4'	19'
47	33.4'	34.1'	38.9'	18.3'
48	32.8'	33.5'	38.5'	17.6'
49	32.4'	33'	38.1'	16.9'
50	31.9'	32.6'	37.6'	16.3'
Nominal Cramp Angles:				
Meritor FL941 & FL943 axles: up to and including 425/65R22.5 tires			45 degrees	
Meritor FL941 & FL943 axles: 445/65R22.5 tires			38 degrees	
Dana 1220W axle: up to and including 445/65R22.5 tires			42 degrees	
Reyco IFS: up to and including 385/65R22.5 tires			48 degrees	
Reyco IFS: 425/65R22.5 tires			45 degrees	
Reyco IFS: 445/65R22.5 tires without front intake			42 degrees	
Meritor Front Drive Axle: up to and including 425/65R22.5 tires			37 degrees	
Marmon Herrington Front Drive Axle: up to and including 425/65R22.5 tires			42 degrees	
<b>This Turning Radius report reflects how the quote was configured. Any succeeding changes may slightly alter the turning radius of the vehicle and the data in this report.</b>				

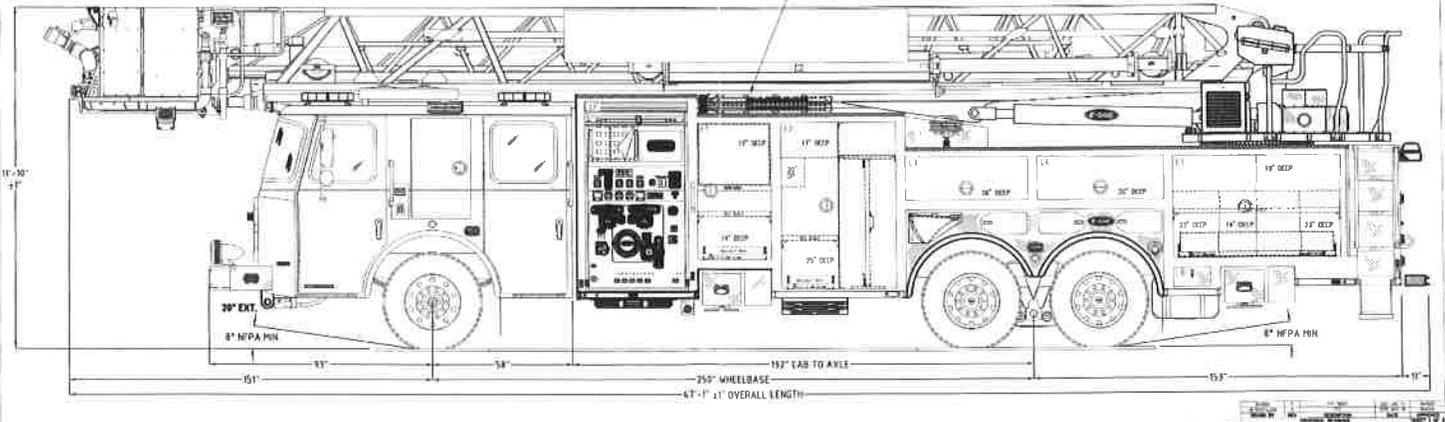
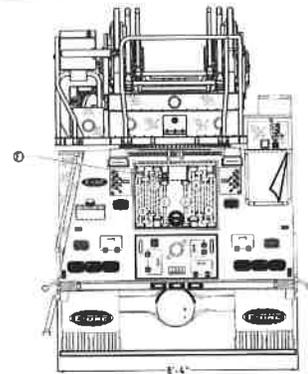


**RANDOLPH FIRE DEPT**  
 RANDOLPH, MA  
 S.O. 144171/Q 98168  
 AERIAL BODY  
 TYPHOON 6 X 4 CHASSIS  
 HP 100 AERIAL PLATFORM

THIS DRAWING IS FOR INQUIRY PURPOSES. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.  
 DATE: 07/10/10 BY: [Signature] CHK'D BY: [Signature]  
 E-ONE APPROVAL: [Signature] E-ONE REVISIONS:

		HOSE LOAD	
2000 GPM HALF QUINZ PUMP 300 GALLON WATER TANK		600' OF 4.00" LHM	
COMPT.	OPENING	INTERIOR DIMENSION	
L1/R1	51W 57H	29	100
L2/R2	48W 49H	29	100
L3/R3	50W 18H	50W	18H
L4	52W 18H	52W	18H
R4	15W 32H	15W	32H
R5	69W 12H	69W	12H
R6	31W 20H	31W	20H
L6	15W 8H	15W	8H
R6	36W 28H	36W	28H

GROUND LADDERS			
ITEM	LADDER LENGTH	MODEL NUMBER	QTY
A	20' 3-SECT.	PEL-35	2
B	28' 2-SECT.	PEL-28	1
C	24' 2-SECT.	PEL-24	1
D	20' ROOF	PEL-20	1
E	10' ROOF	PEL-18	1
F	10' FOLDING	FL-10	1
G	10' ROOF	PEL-18	1 ON AERIAL
H	LITTLE GIANT	MODEL 17	1

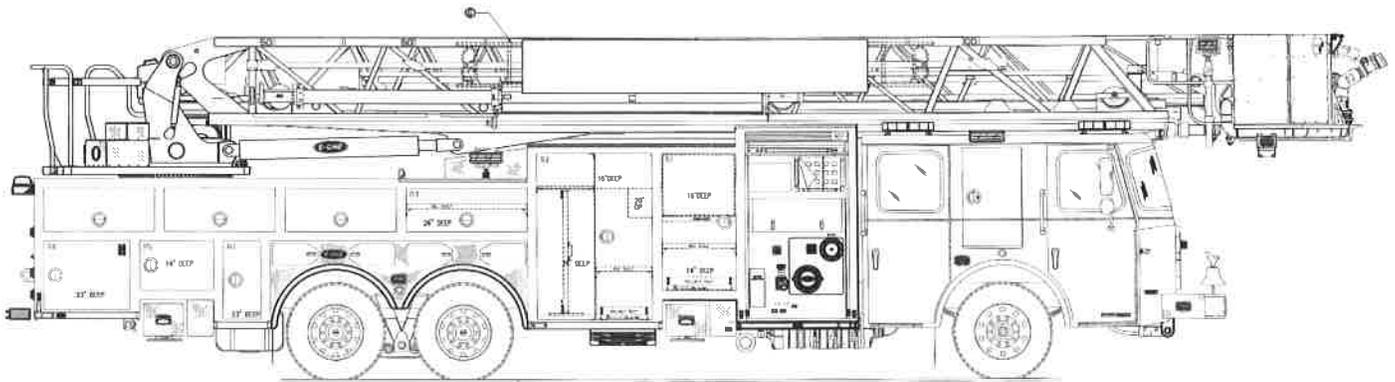
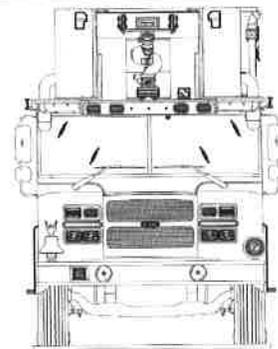




**RANDOLPH FIRE DEPT**  
RANDOLPH, MA  
S.O. 144171/O 98168  
AERIAL BODY  
TYPHOON 6 X 4 CHASSIS  
HP 100 AERIAL PLATFORM

THIS DRAWING IS A 2D REPRESENTATION. ALL DIMENSIONS ARE SUBJECT TO WHICH VARIATIONS ARE TO MANUFACTURING PRACTICES

STOCK WIDTH	30"	CLASS 19
STOCK HEIGHT	84"	CLASS 19 IN VEHICLES



SCALE: 1/4" = 1'-0"

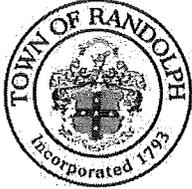


**File Attachments for Item:**

2. Subdivision - Perry Estates - Request for Extension

PLANNING DEPARTMENT

Section G, Item2.



**FORM K  
REQUEST FOR TIME EXTENSION – DEFINITIVE  
SUBDIVISION**

Subdivision Name	Perry Estates		
Date of Approval	May 10, 2022	Initial Expiration Date	May 10, 2024
Requested Date	January 9, 2024	# Previous Extensions	0

Property Owner	Michael Perry Trust		
Address	10 Toby Lane		
Address2	Randolph, MA 02368		
Phone	781-7279096	Email	mperry02368@yahoo.com

Applicant	SAME		
Address			
Address2			
Phone		Email	

**REASON**  
*Describe progress made towards meeting the conditions of approval of the subdivision and reasons for the time extension request*

No construction activities underway. Applicant requests an extension due to health issues

**SURETY CONSENT**  
*If performance was secured by a surety, a letter from the Financial Institution must be attached to this request concurring the request of an extension time and shall affirm that the Letter of Credit/Bond issued by them remains in effect and that the terms are valid and binding.*

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

**PLANNING BOARD DECISION**

Hearing Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Approved      New Date of Expiration \_\_\_\_/\_\_\_\_/\_\_\_\_

Denied      Reason: \_\_\_\_\_