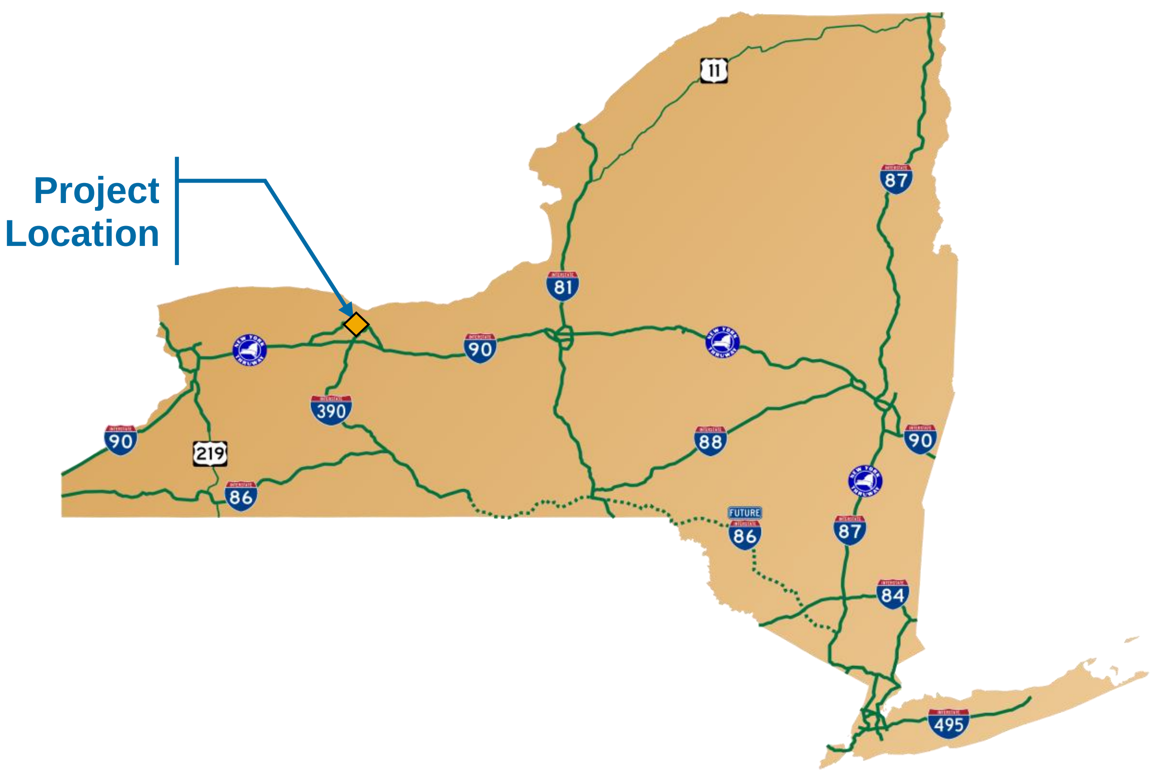
Transportation Project Report

Project Scoping Report/Final Design Report

December 2020

State Street Reconstruction (Basin Street to Inner Loop)
Project Identification Number (PIN): 4CR0.06
City of Rochester
Monroe County



NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation Federal Highway Administration

Project Approval Sheet

<u>Milestones</u>	<u>Signatures</u>	<u>Dates</u>
A. Recommendation for, Scope and Design Approval:	The project cost and schedule are consistent with the Regional Capital Program. Christopher T. Reeve, P.E., Regional Program Manager NYSDOT Region 4	12/1/2020 Date
B. Recommendation for Scope, Design and Nonstandard Feature Approval	All requirements requisite to these actions and approvals have been met, the required independent quality control reviews separate from the functional group reviews have been accomplished, and the work is consistent with established standards, policies, regulations and procedures, except as otherwise noted and explained. No nonstandard features have been identified, created, or retained. Holly E. Barrett, P.E., City Engineer, City of Rochester	11-17-2020 Date
C. Public Hearing Certification	A public hearing was not required. However, a Public Meeting was held on September 23, 2020. Holly E. Barrett, P.E., City Engineer, City of Rochester	11-17-2020 Date
D. Categorical Exclusion Class II Determination on behalf of FHWA	The project qualifies as a Categorical Exclusion under the National Environmental Policy and per NYSDOT/FHWA Programmatic Agreement regarding Categorical Exclusions Kevin C. Bush, Regional Director, NYSDOT Region 4	12/1/2020 Date
E. Local Project Nonstandard Feature Approval	No nonstandard features are being retained or created on NHS/State roadways. Kevin C. Bush, Regional Director, NYSDOT Region 4	12/1/2020 Date
F. Local Project Scope and Design Approval	The required environmental determinations have been made, and the preferred alternative for this project is ready for final design. Kevin C. Bush, Regional Director, NYSDOT Region 4	12/1/2020 Date

List of Preparers

<u>Group Director Responsible for Production of this Project Scoping Report/Final Design Report (PSR/FDR)</u>:

Richard C. Bennett, PE, Project Manager, LaBella Associates
Description of Work Performed: Directed the preparation of the FDR in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.

Note: *It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer, architect, landscape architect, or land surveyor, to alter an item in any way. If an item bearing the stamp of a licensed professional is altered, the altering engineer, architect, landscape architect, or land surveyor shall stamp the document and include the notation "altered by" followed by their signature, the date of such alteration, and a specific description of the alteration.*

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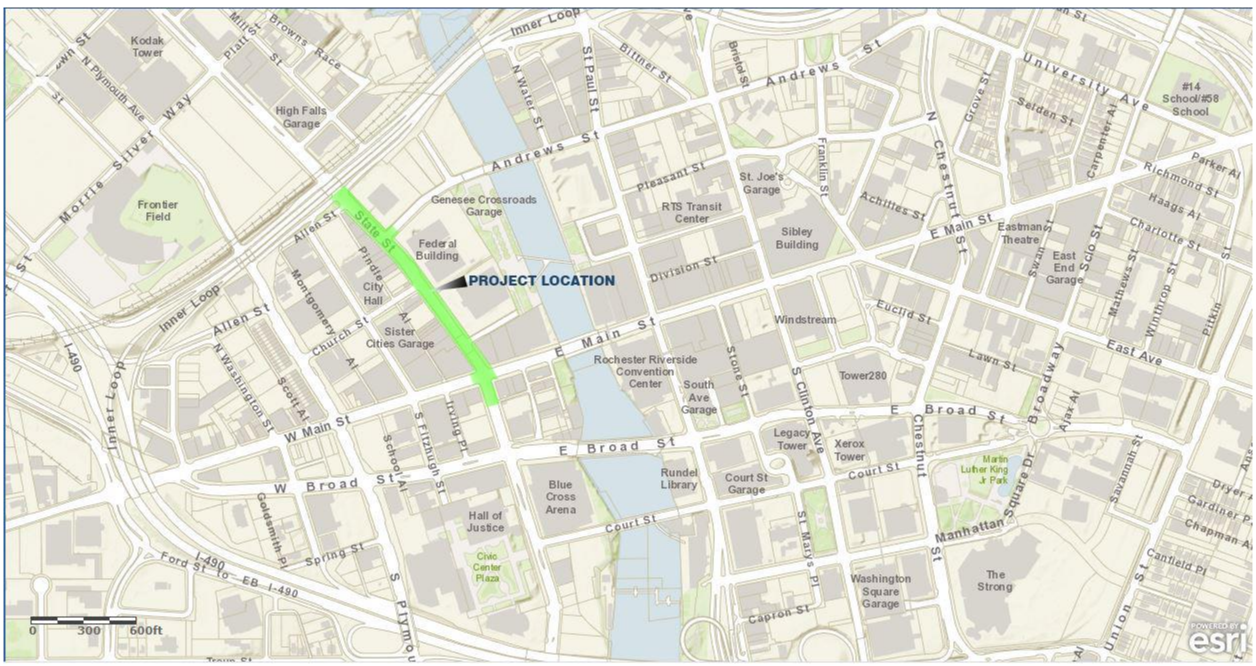
CHAPTER 1 – PROJECT DEVELOPMENT

1.1. Introduction

This report was prepared in accordance with the NYSDOT Project Development Manual, 17 NYCRR (New York Codes, Rules and Regulations) Part 15, and 23 CFR (Code of Federal Regulations) 771. Transportation needs have been identified (section 1.2), objectives established (1.2.3) to address the needs, and cost-effective alternatives developed (1.3). This project is federally funded.

1.1.1. Project Location

A. Route number: N/A
B. Route name: State Street
C. SH (state highway) number and official highway description: N/A
D. Municipality: City of Rochester
E. County: Monroe County
F. Length: 0.3 miles (approximately 1,600 feet)
G. Project limits are Exchange Boulevard from Basin Street to Main Street and State Street from Main Street to the Inner Loop (Allen Street)



1.2. Purpose, Need and Objectives

1.2.1. Project Need

State Street is a vital transportation link within Rochester's Central Business District. The street was originally constructed in 1894 and the existing asphalt is largely laid over the 1894 concrete base. Ongoing pavement maintenance and utility restoration impacts have contributed to the significant deterioration of the roadway.

The project is needed to address the following transportation needs:

(1) Repair and reconstruct deteriorated pavement surface that is nearing the end of its useful life.

(2) Improve safety of pedestrian, bicycle, and motor vehicle traffic.

(3) Streetscape of the corridor is visually unappealing and in need of enhancement for successful revitalization of surrounding properties.

rpf01868.jpg Rochester Public Library Local History Division

State Street at Andrews circa 1913

1.2.2. Project Purpose

The purpose of this project is to address pavement deficiencies, improve safety and accessibility and reinforce public identity while providing a functional and reliable roadway to fulfill the public transportation needs.

1.2.3 Project Objectives

(1) Address geometric deficiencies to improve traffic flow and facilitate traffic operations.

(2) Correct identified pavement deficiencies that will extend the useful life of the highway and maintain it in a structurally sound condition using cost effective pavement treatments which provide low life cycle costs.

(3) Increase effectiveness of the transportation corridor by implementing the City's "Complete Streets" policy and apply American with Disabilities Act (ADA) guidelines to accommodate all users (vehicles, pedestrians, and bicyclists) in this constrained downtown corridor.

(4) Improve streetscape enhancements to help generate investment in adjacent properties, resulting in new businesses and higher tenancy within the corridor.

1.3. Project Alternative(s)

The following alternatives were considered:

Null Alternative - This alternative would retain State Street in the existing condition. No activities other than routine maintenance would be carried out. Routine maintenance work would be temporary in nature and would not address the long term safety, accessibility or system network deficiencies resulting in a continuation or worsening of the identified issues within the project area. The Null alternative does not meet the project objectives but is retained only as a baseline for comparison.

Alternative A - This alternative would reconstruct State Street as a 4 lane roadway with a total curb to curb pavement width varying between 56 feet and 70 feet. Two widened travel lanes in each direction would be provided and existing curbside parking would be retained in essentially the same location. Pedestrian friendly curb extensions would be provided to shorten pedestrian crossing at intersections and better define areas of recessed parking. Bicycles would be accommodated through a combination of shared use travel lanes with "Sharrow" markings as well 5 foot dedicated bike lanes where feasible.

Pedestrians would be accommodated by concrete sidewalks on both sides of the street. Pedestrian space is maximized to the greatest extent possible to provide space for enhanced streetscape amenities complementary with the adjacent Main Street Streetscape Phase II project and the ROC the Riverway initiative.

This alternative would fully meet the project needs and objectives and is considered the only feasible and prudent alternative.

Alternative(s) Found to Be Not Reasonable:

Alternative B (Road Diet) - This alternative would reconstruct State Street utilizing a Road Diet to provide one travel lane in both the north and southbound travel directions with a 14 foot wide two way center turn lane. This alternative includes curbside parking on both sides of the roadway with dedicated 5 foot wide bicycle lanes in each direction throughout the project corridor.

The reduced number of travel lanes will result in unacceptable traffic delays at signalized intersections and signal queue failures. The single travel lane configuration creates a condition where vehicle queues along State Street extending to or beyond adjacent intersections during the AM and PM peak hours.

The alternative would widen the pavement width to 62 feet and reduce available pedestrian space limiting the space available for enhanced street scape amenities. A decreased sidewalk width would negatively impact pedestrians along this busy downtown street. Additionally, the pavement widening would alter the curb line in front of properties deemed to be of historical significance and disturb existing areaways resulting in significant cost to mitigate utility impacts.

Alternative B does not meet the project objectives and is not considered a reasonable alternative. Specifically the Road Diet does not improve traffic flow and facilitate traffic operations, increase the effectiveness of the transportation corridor for pedestrians, or increase the space available for streetscape enhancements.

For a more in-depth discussion of the design criteria and nonstandard features see Section 2 of this report.

For a more in-depth discussion of the design criteria for the reasonable alternative(s) under consideration see Section 2.5 of this report.

1.4 Project Effects

1.4.1 Environmental Classification

Exhibit 1-1 Environmental Classification Summary				
NEPA Classification	Class II CE	BY	NYSDOT	
SEQRA Type:	Type II	BY	City of Rochester	

1.4.2 Comparison of Considered Alternatives

Exhibit 1-2 Comparison of Alternatives			
Category	**Alternatives Evaluated**		**Alternative Found to be Not Reasonable**
	Null	**Preferred** Alt A	**Alt. B**
Visual Impacts	None	Improved streetscape amenities, street lighting	Improved streetscape amenities, street lighting
Noise	None	None	None
Property Impacts	None	3 Temporary Easements	3 Temporary Easements
Mobility (Pedestrian, bicycle, transit, etc.)	No Effect	Improved bicycle mobility via shared use lane and dedicated bike lanes. Increased sidewalk width	Improved bicycle mobility via bike lane Improved sidewalk width Traffic failure due to queuing causing backups. Traffic queues extend through adjacent intersections.
Reduction of Parking	No Effect	Generally maintained parking capacity with recessed parking locations	Maintained parking capacity
Utilities	None	Fire Hydrants, Gas Valves, Kiosks, Electrical manholes, watermain and appurtenances	Fire Hydrants, Gas Valves, Kiosks, watermain and appurtenances
Construction Cost	None	$6,038,843	$5,940,532

1.4.3 Anticipated Permits/Coordination/Certifications

Exhibit 1-3 Anticipated Permits/Certifications/Coordination
Permits
NYS Department of Environmental Conservation (NYSDEC):
• State Pollutant Discharge Elimination System (SPDES) General Permit
Others
• NYSDOT Highway Work Permit
• Monroe County Department of Health (Watermain Work)
Coordination
Federal Highway Administration

New York State Historic Preservation Officer (SHPO)
US Fish and Wildlife Service
New York Natural Heritage Program
Municipality(ies) – Monroe County Department of Transportation, Monroe County Pure Waters, NYSDOT
Metropolitan Planning Organization – Genesee Transportation Council
Utility(ies) –Spectrum, RG&E, Verizon, MCPW, RWB, RHD
Certifications
None anticipated

1.5 Preferred Alternative

Only one reasonable build alternative, Alternative A, has been identified that meets the project objectives. The decision to enter final design is made based on the environmental determination and evaluation of the comments received on the draft design approval document and comments received from the public informational meeting held on September 23, 2020. The No Build Alternative will be retained for use as a baseline to measure and evaluate impacts that might accrue from the preferred alternative. Alternative B has been eliminated as it fails to provide acceptable traffic operations at signalized intersections.

1.6 Project Schedule and Cost

Exhibit 1-4 - Project Schedule

Activity	Date Occurred/Tentative
Scoping Approval	August 2018
Design Approval	November 2020 (Tentative)
ROW Acquisition	July 2021
Construction Start	Spring 2022
Construction Complete	Summer/Fall 2023

Exhibit 1.5
Project Costs - Design Bid Build

Potential Alternatives		Alt A	Alt B
Earthwork		$185,000	$185,000
Pavement and Subbase		$1,219,000	$1,284,000
Drainage		$178,000	$164,000
Sidewalks and Curb Ramps		$447,000	$333,000
Signs & Pavement Markers		$40,000	$40,000
Traffic Signals		$400,000	$400,000
Lighting		$403,000	$403,000
Misc. Utilities (Water/Sewer)		$850,000	$850,000
WZTC		$400,000	$391,000
Landscaping		$200,000	$200,000
Areaways		$50,000	$50,000
Miscellaneous/Incidentals	10%	$437,200	$430,000
Field Change	5%	$240,000	$237,000
Mobilization	4%	$201,968	$198,680
Subtotal in Base Year Dollars		**$5,251,168**	**$5,165,680**
Contingency/Risk	15%	$787,675	$774,852
Subtotal in Base Year Dollars		**$6,038,843**	**$5,940,532**
Cost Data Year and Midpoint of Construction Year	*2022*	*2022*	*2022*
Inflation/Escalation to Midpoint of Construction	3%	$0	$0
Award/Construction Cost		**$6,038,843**	**$5,940,532**
Final Design	8%	$452,913	$445,540
QC & Administration of Final Design and Contract	3%	$181,165	$178,216
Construction Inspection	15%	$905,826	$891,080
ROW		$20,000	$20,000
Total Project Cost		**$7,598,748**	**$7,475,368**
Rounded to nearest $10K		**$7,600,000**	**$7,480,000**

City of Rochester wll make up any funding shortfall as a Non-Part Share or go back to GTC for additional funding.

1.7 Public Involvement

Refer to Appendix G for the project's Public Involvement Plan and for related project correspondence. The plan has been developed to inform the public regarding project needs and objectives and solicit public comment and input throughout the design process. Public involvement meetings are planned during detailed design.

Exhibit 1-6
Public Involvement Plan Schedule of Milestone Dates

Activity	Date Occurred/Tentative
Stakeholder Meeting	September 4, 2020
Public Informational Meeting	September 23, 2020
Current Project Letting date	February 2022

For additional information or to provide comments, please contact:

Mailing Address: Donna L. Clements P.E., Project Manager
City of Rochester
Department of Environmental Services
30 Church Street, Room 300B
Rochester, New York 14614

Email Address: Donna.clements@cityofrochester.gov

Telephone: (585) 428-6601

Please include the six-digit Project Identification Number (PIN) 4CR0.06 in any correspondence.

Or visit the Project website: https://www.cityofrochester.gov/StateStreet

The remainder of this report is a detailed technical evaluation of existing conditions, anticipated impacts of the one reasonable/preferred alternative and comparison to the null alternative, copies of technical reports and plans and other supporting information.

CHAPTER 2 – EXISTING AND PROPOSED CONDITIONS AND CONSIDERATIONS

2.1 Functional Classification/National Highway System/Truck Access

Exhibit 2.1 Classification Data	
Route(s)	State Street and Exchange Boulevard
Functional Classification	Urban Principal Arterial - Other
National Highway System (NHS)	Yes
Designated Truck Access Route	No
Qualifying Highway	No
Within 1 mile of a Qualifying Highway	Yes
Within the 16 ft vertical clearance network	No

2.2 Planning Considerations

State Street is one of the oldest streets in the City of Rochester, not just in name and location but also in the components that make up its pavement. The earliest record plans for the project section of State Street indicate construction of a Medina block wearing surface on a concrete base. The section included two trolley tracks in the middle of a 54.5 foot wide road from Main Street to Church Street and then 59.5 feet wide north of Church Street. Plans from 1929 show the tracks remaining and the Medina Block surface replaced with additional concrete and approximately three inches of asphalt. In 1942 the trolley tracks were removed and the void filled with concrete. The entire road was overlaid with a minimum of one inch of new asphalt. A 1985 downtown street beautification project widened a portion of State Street by three feet but retained a majority of the existing pavement and curb. The original concrete base from 1894 remains today.

Utility work for both new facilities and repairs have longitudinal and transverse cuts along most of the project corridor. These utility cuts, the track removal, and the widening have created numerous untied joints in the otherwise competent concrete base. Settlement and cracking of the asphalt pavement has created an uncomfortable ride.

The State Street corridor is a vital roadway within the City of Rochester. It provides a connecting link to the local street grid within this portion of downtown. It also collects traffic from intersecting local roads and adjacent properties and feeds it to the connecting arterial and expressway roadways.

The roadway exhibits infrastructure needs based on the age of the roadway, having been originally constructed over 120 years ago. Recurrent water main breaks and sewer pipe failures have contributed to the deterioration and instability of the pavement structure.

The constrained roadway width is a factor in providing accommodations for all modes of transportation including vehicular, bicyclist and pedestrian modes of travel. Pedestrian accessibility and sidewalk infrastructure do not fully meet current standards. The corridor lacks bicycle accommodations and connectivity to the existing citywide bicycle network. Part of the planning considerations will include the necessity of dedicated turn lanes to improve traffic operations and balancing the need for them with the impact to available parking, bicyclist accommodations and pedestrian space.

In addition, the dated streetscape development is not appropriate for the historic nature of downtown and not compatible with other initiatives underway within the City of Rochester.

2.2.1 Abutting Highway Segments and Future Plans

Exchange Boulevard is a principal arterial that extends south from the project limits. The four-lane roadway is comprised of two 11 foot wide travel lanes in both the north and southbound direction with auxiliary turn lanes at crossing streets and no curb offset/shoulder. The asphalt pavement visually appears to be in fair to poor condition. Concrete sidewalks are located on both sides of the street and there are no bike accommodations adjacent to the project limits. The posted speed limit is 30 mph.

State Street continues north from the northern project limit providing two to three 10 foot travel lanes in both the northbound and southbound direction with multiple 10 foot wide dedicated turn lanes. . The asphalt pavement visually appears to be in fair to poor condition. Concrete sidewalks are located on both sides of the street and there are no bike accommodations adjacent to the project limits. The posted speed limit is 30 mph.

There are currently no plans to reconstruct or widen this highway segment, or the adjoining segments, within the next 20 years

2.2.2 Local Plans for the Project Area

This project is on the approved Genesee Transportation Council 2020-2024 Transportation Improvement Program (TIP) as TIP Number H17-78-MN1 and the approved NYSDOT Statewide Transportation Improvement Program (STIP) as STIP 4CR0.06. Project funding has been allocated on the TIP and STIP pending appropriate phase authorizations.

This project is consistent with the local comprehensive plan. “Rochester 2034: Where the River Flows” was adopted by the City of Rochester in November of 2019.

The City of Rochester is in the planning phases of a concept plan to alter Allen Street from two way to one way westbound traffic. This project would be advanced separately from the State Street Reconstruction project.

The City of Rochester’s Main Street Streetscape Phase II Project is currently in design phases with construction expected in 2021. Project limits are St Paul Street to State Street / Exchange Street. The project includes pavement preventive maintenance, travel lane reconfiguration, bicycle facilities, sidewalk reconstruction, and new landscape / streetscape amenities.

The City of Rochester is studying the Inner Loop adjacent to the northern project limit for alterations. This study is investigating the removal of the Inner Loop and transformation of the raised highway section in the area of State Street. This project is in the early study phases and outcomes and alternatives of that study would be integrated in the State Street Reconstruction project to ensure compatibility of infrastructure improvements.

There are currently no approved developments planned within the project area that will impact traffic operations.

2.2.3. Access Control

Access is unrestricted along State Street and Exchange Boulevard. Four (4) commercial driveways exit onto the highway within the project limits. This project will not change the existing access control.

2.3. Traffic Considerations

2.3.1 Traffic Volumes

Refer to Appendix C of this report for traffic flow and volume diagrams. The traffic data was obtained on March 5, 2020 (prior to COVID-19 related restrictions).

Large trucks, Regional Transit, and school buses routinely use this corridor.

Existing traffic volumes were collected by Tri-State Traffic Data on Thursday, March 5 2020 between the hours of 7 AM and 6 PM at the following signalized intersections:

- State Street & E. Main Street / W. Main Street
- State Street & Corinthian Street
- State Street & Church Street
- State Street & Andrews Street
- State Street & Allen Street Eastbound (Inner Loop Frontage Road)
- State Street & Allen Street Westbound (Inner Loop Frontage Road)

Existing morning and afternoon peak hours were determined to be from 7:45-8:45 AM and 4:30-5:30 PM, respectively.

Exhibit – 2-2
Traffic Data

Route	State Street and Exchange Boulevard
Directional Distribution	AM: 39% Northbound, 61% Southbound PM: 53% Northbound, 47% Southbound
Peak Hour Factor	0.9
% Peak Hour Trucks	1.2% AM, 0.5% PM
% Daily Trucks	1.5% (Source: NYSDOT, 2016 Class Data)

Exhibit – 2-3 Existing and Forecast Traffic Volumes		
Route	State Street From Church St to Andrews St (Highest Volume Segment)	
Year	ADT	DHV
Existing (2019)	17,750	1,598
ETC (2023)	18,105	1,630
ETC+20 (2043)	19,880	1,790

Note: ETC is the Estimated Time of Completion, Existing ADT source is NYSDOT Traffic Data Viewer 2019 Estimate

Forecast no-build design year traffic volumes –

The Estimated Time of Completion (ETC) + 20 design year was selected per PDM Appendix 5. A linear growth rate of 0.5% per year was used to project future traffic volumes.

2.3.2 Speed Studies

Exhibit – 2-4 Speed Data	
Route	State Street and Exchange Boulevard
Existing Speed Limit (mph)	30 mph
Operating Speed (mph) and Method Used for Measurement	Northbound: Avg. Speed 19 mph, 85^{th} % Speed 29 mph Southbound: Avg. Speed 25 mph, 85^{th} % Speed 33 mph (Source: NYSDOT Speed Data, 2016)

2.3.3 Level of Service Analysis

Existing level of service and capacity analysis – Level of Service (LOS) is a qualitative measure describing traveler satisfaction with various factors influencing the degree of traffic congestion including travel time, speed, maneuverability and dely. The methodology for performing capacity analyses and determining level of service is documented in the Highway Capacity Manual (HCM). Levels of service range from A to F. LOS “A” describes traffic operations with little or no delay while LOS “F” describes highly congested conditions with substantial delays. LOS “D” or better for overall intersection and approaches is generally considered acceptable traffic operations during peak hours in urban areas. LOS “E” is generally considered acceptable for individual movements, as long as the vehicle to capacity (v/c) ratio is less than 1.0 (meaning the traffic volumes do not exceed the capacity of the lane).

Refer to Appendix C for traffic flow diagrams. Refer to Exhibits 2-5 and 2-6 for a summary of the traffic data. Peak hour turning movement volumes for intersections with identified accident problems, all major intersections, and major traffic generator driveways/entrances are included in Appendix C.

Exhibit – 2-5
Intersection Level of Service and Delays (sec)

Intersection	Approach	Movement	2020 AM Existing	2020 PM Existing	2043 AM Null	2043 PM Null
State St / Exchange Blvd & Main St	Eastbound	Thru	D (36.6)	D (40.3)	D (38.7)	D (43.6)
		Right	C (24.8)	C (25.1)	C (24.9)	C (25.2)
	Westbound	Thru	D (32.5)	D (35.2)	C (33.8)	D (36.8)
		Right	D (26.8)	C (26.3)	C (27.1)	C (26.6)
	Northbound	Thru/Right	C (33.6)	D (35.6)	D (35.0)	D (37.4)
	Southbound	Thru/Right	C (23.3)	C (23.7)	C (24.7)	C (25.3)
	Overall		**C (30.1)**	**C (32.4)**	**C (31.6)**	**C (34.3)**
State St & Corinthian St	Westbound	Left/Right	C (31.2)	D (35.5)	C (31.3)	D (36.3)
	Northbound	Thru/Right	A (2.2)	A (0.7)	A (2.3)	A (0.8)
	Southbound	Left/Thru	A (7.7)	A (7.2)	A (8.1)	A (7.5)
	Overall		**A (5.6)**	**A (6.4)**	**A (5.9)**	**A (6.6)**
State St & Church St	Eastbound	Left	C (25.6)	C (26.4)	C (25.9)	C (26.9)
		Right	C (25.0)	C (24.7)	C (25.2)	C (24.9)
	Northbound	Left/Thru	B (11.5)	B (14.1)	B (12.0)	B (15.5)
	Southbound	Thru	A (0.5)	A (0.4)	A (0.5)	A (0.5)
		Right	A (0.4)	A (0.4)	A (0.3)	A (0.4)
	Overall		**A (6.8)**	**A (9.3)**	**A (6.9)**	**A (10.0)**
State St & Andrews St	Westbound	Left	C (34.4)	C (34.8)	D (35.3)	D (37.7)
		Right	D (40.5)	C (30.0)	D (42.0)	C (29.8)
	Northbound	Thru	A (2.7)	A (5.7)	A (9.7)	A (5.7)
		Right	A (3.6)	A (3.0)	A (9.1)	A (2.7)
	Southbound	Left/Thru	A (9.4)	A (6.2)	B (12.7)	A (7.6)
	Overall		**B (11.4)**	**B (12.6)**	**B (15.5)**	**B (13.4)**
State St & Allen St Eastbound (Inner Loop Ramp)	Eastbound	Left/Thru/Right	D (49.9)	D (44.6)	D (50.5)	D (44.4)
	Northbound	Thru	A (6.8)	B (13.5)	A (8.6)	B (15.6)
		Right	A (1.5)	A (1.6)	A (3.7)	A (2.7)
	Southbound	Left	A (2.5)	B (18.1)	A (4.8)	C (21.2)
		Thru	A (0.3)	A (0.7)	A (0.3)	A (0.9)
	Overall		**A (7.7)**	**B (16.5)**	**A (8.6)**	**B (17.7)**
State St & Allen St Westbound (Inner Loop Ramp)	Westbound	Left/Thru/Right	D (51.2)	E (61.2) v/c = 0.77	D (51.5)	E (72.7) v/c = 0.93
	Northbound	Thru	A (1.0)	A (1.1)	A (1.1)	A (1.3)
	Southbound	Thru	A (9.2)	B (14.2)	B (10.9)	B (15.6)
		Right	A (3.2)	C (25.3)	A (4.1)	C (23.0)
	Overall		**B (17.8)**	**C (24.5)**	**B (18.8)**	**C (28.8)**

Exhibit 2-6
Intersection Level of Service and Delays (sec) Build Alternatives at Design Year

Intersection	Approach	Movement	Alt A 2043 AM	Alt A 2043 PM	Alt B 2043 AM	Alt B 2043 PM
State St / Exchange St & Main St	Eastbound	Thru	D (38.7)	D (43.6)	D (38.7)	D (43.6)
		Right	C (24.9)	C (25.2)	C (24.9)	C (25.2)
	Westbound	Thru	C (33.8)	D (36.8)	C (33.8)	D (36.8)
		Right	C (27.1)	C (26.6)	C (27.2)	C (26.7)
	Northbound	Thru/Right	C (35.0)	D (37.4)	D (46.6) *	E (64.3) * v/c = 0.95
	Southbound	Thru/Right	C (24.7)	C (25.3)	F (59.4) * v/c = 1.01	D (52.6) * v/c = 0.98
	Overall		**C (31.6)**	**C (34.3)**	**D (44.3)**	**D (47.6)**
State St & Corinthian St	Westbound	Left/Right	C (31.3)	D (36.3)	C (31.3)	D (36.5)
	Northbound	Thru/Right	A (2.3)	A (0.8)	A (2.7)	A (3.2)
	Southbound	Left/Thru	A (8.1)	A (7.5)	B (11.0)	B 10.5)
	Overall		**A (5.9)**	**A (6.6)**	**A (7.4)**	**A (9.1)**
State St & Church St	Eastbound	Left	C (25.9)	C (26.9)	C (25.9)	C (26.9)
		Right	C (25.2)	C (24.9)	C (25.2)	C (24.9)
	Northbound	Left/Thru	B (12.0)	B (15.5)	B (17.6)	B (19.5) *
	Southbound	Thru	A (0.5)	A (0.5)	C (22.9) *	A (3.7) *
		Right	A (0.3)	A (0.4)	B (10.1)	A (0.4)
	Overall		**A (6.9)**	**A (10.0)**	**C (20.4)**	**B (12.9)**
State St & Andrews St	Westbound	Left	D (35.3)	D (37.7)	C (32.6)	D (39.3)
		Right	D (42.0)	C (29.8)	C (29.5)	D (40.3)
	Northbound	Thru	A (9.7)	A (5.7)	B (18.6)	C (29.0) *
		Right	A (9.1)	A (2.7)	B (15.3)	B (15.2)
	Southbound	Left/Thru	B (12.7)	A (7.6)	D (38.1) *	C (32.6)
	Overall		**B (15.5)**	**B (13.4)**	**C (30.6)**	**C (31.7)**
State St & Allen St Eastbound (Inner Loop Ramp)	Eastbound	Left/Thru/Right	D (50.5)	D (44.4)	D (50.5)	D (44.4)
	Northbound	Thru	A (8.4)	B (18.1)	B (12.5)	B (18.6)
		Right				
	Southbound	Left	A (7.3)	C (25.8)	A (7.3)	C (25.8)
		Thru	A (0.3)	A (0.9)	A (0.3)	A (0.9)
	Overall		**A (9.2)**	**B (20.0)**	**B (10.1)**	**C (20.2)**
State St & Allen St Westbound (Inner Loop Ramp)	Westbound	Left/Thru/Right	D (51.5)	E (72.7) v/c = 0.93	D (51.5)	E (72.7) v/c = 0.93
	Northbound	Thru	A (1.2)	A (1.8)	A (1.7)	A (2.3)
	Southbound	Thru	B (10.9)	B (15.6)	B (10.9)	B (15.6)
		Right	A (4.1)	C (23.0)	A (4.1)	C (23.0)
	Overall		**B (18.8)**	**C (28.9)**	**B (18.9)**	**C (29.1)**

Notes:
* 95th Percentile Queue extends to or beyond adjacent intersection
v/c = Vehicle to Capacity Ratio

The traffic analysis indicates that intersections within the study area currently operate with acceptable LOS (overall intersection LOS “D” or better and individual movement LOS “E” or better with a v/c ratio less than 1.0) and are projected to operate with acceptable LOS at the ETC+20 Null condition.

Alternative A is expected to result in similar traffic operation to the Null condition during the ETC+20 AM and PM peak hours. All intersections are projected to operate with overall LOS “D” or better and individual movement LOS “E” or better with a v/c ratio less than 1.0.

Alternative B, Road Diet, was determined to be not feasible due to an unacceptable LOS and long intersection queues which are both an operational and safety concern. Specifically, at ETC+20 the State Street southbound approach at the Main Street intersection during the AM peak hour would be a LOS F. Furthermore, an analysis of vehicle queues indicates that the travel lane reduction associated with Alternative B would result in many instances of vehicle queues along State Street extending to or beyond adjacent intersections during the AM and PM peak hours. Refer to Appendix C section C-1 Traffic Analysis for a detailed analysis.

2.3.4 Safety and Crash History Analysis

An analysis of vehicular crashes within the project area was performed to document crash types and severity, as well as to analyze crash patterns, attributing factors and possible countermeasures. MV-104 crash reports were provided for the thirty-four month period of January 1, 2016 through October 31, 2018. Limits of the analysis were 0.1 mile south of Main Street to 0.1 mile north of the Inner Loop. The provided information included location, time and date, crash type, and weather & pavement conditions. Many of the reports also included a written description and/or diagram of the crash. A total of 127 crashes occurred along State Street within the thirty-four month analysis period, including intersections and highway segments.

A summary of crash type and severity for the overall project limits is included in Exhibit 2-7

Exhibit – 2-7
Collision Summary
State Street, from Basin Street to the Inner Loop

Type of Collision	Number	Percentage
Sideswipe	46	36%
Rear End	37	29%
Right Angle	26	20%
Left Turn	10	8%
Pedestrian	3	2%
Right Turn	2	2%
Bicycle	1	1%
Head On	1	1%
Other / Unknown	1	1%
Total	**127**	**100%**
Severity	**Number**	**Percentage**
Non-Reportable	47	37%
Property Damage	60	47%
Injury	20	16%
Total	**127**	**100%**

Exhibit 2-8 includes a summary of the calculated intersection and segment crash rates and comparison to average County / State crash rates for similar facilities.

Exhibit – 2-8 Intersection and Segment Crash Rates				
Intersection	**Number of Crashes**	**Crash Rate, Acc/MEV**[1]	**Average Rate, Acc/MEV**[1]	**Comparison Source**
State St & Main St	24	0.84	1.42	Monroe County[3]
State St & Corinthian St	4	0.21	0.50	Monroe County[3]
State St & Church St	6	0.29	0.50	Monroe County[3]
State St & Andrews St	17	0.72	0.91	Monroe County[3]
State St & Allen St EB	23	0.85	0.25	NYSDOT[4]
State St & Allen St WB	30	0.98	0.20	NYSDOT[4]
Segment	**Number of Crashes**	**Crash Rate, Acc/MVM**[2]	**Average Rate, Acc/MVM**[2]	**Comparison Source**
Main St to Corinthian St	2	3.46	2.73	Monroe County[3]
Corinthian St to Church St	11	17.54	2.73	Monroe County[3]
Church St to Andrews St	7	6.84	2.73	Monroe County[3]
Andrews St to Allen St	3	2.71	2.73	Monroe County[3]

[1] Accidents per Million Entering Vehicles
[2] Accidents per Million Vehicle Miles
[3] *Average Accident Rates for Monroe County, Accident Data for 2016-2018*
[4] *Average Accident Rates for State Highways by Facility Type*, Data from January 1, 2017 to December 31, 2018

The crash data indicated several crash patterns, including:

- **State Street & Andrews Street Intersection**: There is a cluster of sideswipe crashes at the southbound approach. Seven crashes occurred as a result of vehicles changing lanes. Many of these crashes are likely attributed, at least in part, to the lack of a dedicated left turn lane at the southbound approach.
- **State Street & Allen Street Eastbound (Inner Loop Frontage Road) Intersection**: A cluster of rear end crashes is present at the northbound approach, and a cluster of right angle crashes is present between northbound and eastbound vehicles.
- **State Street & Allen Street Westbound (Inner Loop Frontage Road) Intersection**: A cluster of rear end crashes is present at the southbound approach, and a cluster of right angle crashes is present between southbound and westbound vehicles.
- **Various Locations**: Nearly 25% of the sideswipe crashes involved parked vehicles or vehicles entering / leaving the parking lane.
- **Various Locations**: At least five crashes directly involved an RTS bus, and several other crash reports noted buses as uninvolved (vehicles changing lanes as a result of a bus).

Refer to Appendix C for additional details regarding the types of crashes at each intersection, crash rate calculations, collision diagrams, and a summary of previous crash analyses performed by the City of Rochester, Monroe County and New York State Department of Transportation.

The Preferred Alternative would include a new pavement structure, improved pavement striping, markings and signalization items providing a clearer messaging to the driver to enhance safety within the corridor. Coordinated signal operations and slightly wider travel lanes are proposed to address sideswipe and rear end type accidents. Wider curbside lanes and recessed parking better defined by curb bump-outs are proposed to help reduce sideswipe accidents with vehicles entering or leaving the parking lanes.

During detailed design turn restrictions will be evaluated at the Inner Loop intersections with State Street.

The installation of a 75 foot long southbound left turn lane on State Street at the Andrews Street intersection was investigated to address the cluster of sideswipe crashes at this approach. The introduction of a left turn lane would result in the loss of approximately twelve (12) on-street parking spaces in an area of highly utilized parking for the adjacent businesses and residences as well as preclude the introduction of dedicated bicycle lanes along this segment of State Street with minimal improvement to traffic safety. As a result, a southbound left turn lane is not included in the Preferred Alternative in an effort to balance all of the needs of the users of the corridor.

2.3.5 Pedestrians, Bicyclists and Transit (Complete Streets)

Pedestrians

Pedestrian facilities (concrete sidewalks) are present along both sides of State Street within the project area. Usable sidewalk widths are listed in Exhibit 2-9. The area between sidewalks and curbs are occupied by; planters (raised and flush), hydrants, street furnishings, a bus shelter, mailboxes, and light poles. Sidewalk ramps are present where they would be needed; however, most ramps are not directional and do not meet current PROWAG and ADA standards.

Exhibit – 2-9
Existing Sidewalks

Highway	From	To	Side	Useable Pedestrian Walkway Space Width (ft)
Exchange Blvd	Basin	Main	East	17
Exchange Blvd	Basin	Main	West	18
State Street	Main	Corinthian	East	10
State Street	Main	Corinthian	West	10
State Street	Corinthian	Church	East	8
State Street	Corinthian	Church	West	10
State Street	Church	Andrews	East	7½
State Street	Church	Andrews	West	8
State Street	Andrews	Allen	East	6½
State Street	Andrews	Allen	West	8

Signalized intersections include crosswalks and pedestrian signal equipment with pushbuttons and countdown timers. Audible pedestrian pushbuttons are installed at the State Street intersections with Andrews Street, Church Street, Corinthian Street and Main Street.

There are existing generators of pedestrian traffic within the project area, and observed pedestrian travel is more than occasional throughout the project area. A Dunkin store at Church Street has no drive thru and no parking so their business is nearly all walk up. The Federal Building on the corner of Andrews is another significant generator. There are several banks in the neighborhood that also contribute to pedestrian traffic, particularly during the lunch hour. Other land uses such as residential, government and academic facilities are present within a few blocks of the project corridor. The northern project limit connects to the Genesee Riverway Trail.

The Preferred Alternative will reconstruct all sidewalks within the project limits in accordance with the ADA and PROWAG standards for pedestrian facilities in HDM Chapter 18. Crosswalks and pedestrian signal equipment will be provided at all signalized intersections. Final design will include detailed measurements to ensure sidewalk curb ramps meet ADA and PROWAG requirements.

Bicyclists

The existing potential for bicycling within the project limits is moderate to high based on the functional classification of the street. There are commercial generators of bicycle traffic within and outside of the project limits, as well as residential, government and academic land uses in and near the project area. The City of Rochester Bicycle Master Plan identified the State Street corridor as having an existing Bicycle Level of Service "E", and the segment was recommended as a Tier 1 candidate for restriping.

Question 2.3 on the Capital Projects Complete Streets Checklist in Appendix C indicates the existing bicycle accommodations do not meet current standards. The existing lane width of 10 ft does not meet the standards for a shared lane, and separate facilities such as shoulders, bicycle lanes or cycle tracks are not present.

The preferred alternative will include the following bicycle facilities:

- 13 foot wide shared use outside lanes from Basin Street to Church Street (meets the standard lane width for a NHS Urban Arterial)
- 5 foot wide dedicated bicycle lanes between Church Street and Inner Loop Ramp (Eastbound)

In addition, the City is providing a high-quality, car-free bicycle path between Main Street and Andrews Street as part of the Charles Carroll Park Revitalization project. This bicycle path through the park will tie directly into the City's bicycle network at Andrews Street and will continue to expand as segments along the River continue to be developed through the ROC the Riverway and Inner Loop North initiatives. Providing bike lanes along the Genesee River Trail System alleviates many safety concerns for bicyclists, and reduces design conflicts for competing needs such as wider sidewalks for highly trafficked pedestrian areas, on-street parking critical for support of local businesses, and streetscape amenities such as lighting, street trees, wayfinding signage, etc.

Bicycle facilities have been evaluated within the project area. Full bicycle lanes, cycle tracks, separate facilities were considered and introduced into the Preferred Alternative where feasible.

Transit

The Regional Transit Service (RTS) operates bus service along the State Street corridor. Bus routes 1, 10, 14, 15, 106, 150 and 163 utilize State Street within the project limits, though not all routes service the bus stops within the project area. Stops are located on the east and west side of State Street near Church Street. The stop on the northbound side (east) has a shelter. The project is not expected to result in changes to transit routes or stop locations.

2.4 Structures

There are no bridges within the project limits. The Inner Loop is carried over State Street at the northern project limit. The structure itself is outside the project limits. The City of Rochester owns and maintains a lit sign reading High Falls that is attached to the fascia of the structure.

There is no proposed work to be included on bridges or culverts over waterways within the project limits.

2.4.2 Hydraulic Considerations

There are no bridges or culverts over waterways within the project limits. There are no dams in the vicinity of the project that would be adversely affected.

2.5 Design Standards

The following design standards and resources were consulted to develop the critical design elements and other design parameters:

- NYSDOT Highway Design Manual
- National Manual on Uniform Traffic Control Devices for Streets and Highways, Current Edition (MUTCD)
- New York State Supplement to the National Manuals on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition (2011)
- AASHTO A Policy on Geometric Design of Highways and Streets (Green Book)

2.5.1 Critical Design Elements

Exhibit 2-10
Critical Design Elements for State Street and Exchange Boulevard

PIN	4CR006	**BIN** (if applicable)		N/A	
Functional Class:	Urban Principal Arterial - Other	**NHS**	☑	**Non-NHS**	☐
Design Class:	Urban Arterial	**Context Class:**		Urban	
Project Type:	Reconstruction	**Terrain:**		Flat	
Design Year AADT:	19,880	**Percentage of Trucks:**		1%	
Truck Access or Qualifying Highway (QH)?	Access-No; Qualifying-No	**If not a QH, is project within 1 mi of a QH?**		Yes	
Existing or Proposed Bicycle Route?	No	**Anticipated level of bicycle activity**		Moderate	

	Element	**Standard**	**Existing Condition**	**Proposed Condition[2]**
1	Design Speed	35 mph[1] HDM Section 2.7.2.4.A	30 mph posted	35 mph
2	Lane Width	10 ft left hand through lanes 13 ft shared outside lanes HDM Section 2.7.2.4.B and Exhibit 2-4a	10 ft	11 ft travel lane and 13 ft shared use lane
3	Shoulder Width	0 ft minimum, 4 ft desirable HDM Section 2.7.2.4.C and Exhibit 2-4a	0 ft	0 ft
4	Horizontal Curve Radius	371 ft Min (at e_{max}=4%) HDM Section 2.7.2.4.D and Exhibit 2-4a	510	510
5	Superelevation	4% Max. HDM Section 2.7.2.4.E and Exhibit 2-11a	None	None
6	Stopping Sight Distance (Horizontal and Vertical)	250 ft Min. HDM Section 2.7.2.4.F and Exhibit 2-4a	256 (H)	256 (H)
7	Maximum Grade	7% HDM Section 2.7.2.4.G and Exhibit 2-4a	0.72%	1.00%
8	Cross Slope	1.5% Min. to 2.5% Max. HDM Section 2.7.2.4.H	2.6%	2.0%
9	Vertical Clearance	Not Applicable	NA	NA
10	Design Loading Structural Capacity	Not Applicable	NA	NA
11	Americans with Disabilities Act Compliance[3]	HDM Chapter 18	Existing pedestrian facilities do not comply with HDM Chapter 18 standards	Proposed pedestrian facilities will comply with HDM Chapter 18

Notes:

1 The use of a Design Speed of 35 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.

2 Refer to Section 2.3.5 for detailed pedestrian facility information.

2.5.2 Other Design Parameters

Exhibit 2-11
Other Design Parameters

Element	Parameter	Proposed Condition
Level of Service (for non – interstate projects)	LOS D or better overall and a LOS E or better for individual movements	LOS C or Better
Drainage Design Storm	10 Year Storm	10 Year Storm

Exhibit 2-12
Other Design Parameter: Design Vehicle

Location	Design Vehicle (HDM Ch. 5)	Vehicle Accommodated
State Street and Exchange Boulevard	HDM 5.7.1 /WB-67	WB-67 (through moves)

2.5.3 Existing and Proposed Highway Section

See Typical Sections, Plan and Profile sheets in Appendix A.

The existing highway section is defined generally by a total curb to curb pavement width of 56 feet consisting of 4 - 10 foot wide travel lanes and 2 - 8 foot wide curbside parking lanes. Bicycles utilize the existing 10 foot wide outside travel lanes.

The remaining distance from the curb to highway boundary is utilized for streetscape amenities, utilities and pedestrian sidewalk space. The available width is approximately 14' on the west side and approximately 17' on the east side.

Null Alternative retained for comparative assessment.

The no-build/maintenance alternative will result in the continued deterioration of the roadway, resulting in increased maintenance and eventually requiring the roadway to possibly be closed to traffic. Since this alternative will not satisfy the project objectives, it is not considered a reasonable alternative, but will be used for comparison with the reasonable alternatives for the purpose of evaluating impacts.

Alternative A - This alternative would reconstruct State Street as a multi lane roadway. This alternative includes curbside parking lane along the roadway. New concrete sidewalks would be constructed along both sides. New asphalt pavement would be utilized. The alternative would also include utility relocations and replacements as necessary.

This alternative would reconstruct and adjust travel lane configurations and widths for a total curb to curb pavement width of that varies from 56 feet to 70 feet:

Exhibit 2-13
Alternative A Roadway Widths

Roadway Section	Total Width (ft)	NB Curb Parking (ft)	NB Bike Lane (ft)	NB Drive Lanes (ft)	SB Drive Lanes (ft)	SB Bike Lane (ft)	SB Curb Parking (ft)
Exchange Blvd Basin St. to Main St.	54	8 unmarked	n/a	10 & 12	13 & 11	n/a	n/a
State Street Main St. to Corinthian St.	56	8	shared	13 & 11	13 & 11	shared	n/a
State Street Corinthian St. to Church St.	64	8	shared	13 & 11	13 & 11	shared	8
State Street Church St. to Andrews St.	62	n/a	5	11 & 11	11 & 11	5	8
State Street Andrews St. to Allen St EB (Inner Loop)	70	8	5	11 & 11	11 & 11	5	8

Geometry

- The existing horizontal and vertical alignments would generally be maintained within the project limits.
- This outside travel lanes would be widened to 13 feet to accommodate a shared vehicle/bicycle lane (Basin St to Church St).
- Recessed parking lanes would be provided to maintain the existing parking within the project limits.

Sidewalks

- New concrete sidewalks will be provided within the entire project limits on all streets. The sidewalk width varies within the project corridor. The sidewalk area will be used to accommodate ADA compliant walkways and space for street trees, utilities and other amenities.

Bicycles

- Bicycles would be accommodated in a 13 foot wide shared use travel lane between Basin Street and Church Street and in a dedicated 5' wide bicycle lane between Church Street and the Inner Loop.

Operational

- This alternative does not negatively affect operations.
- Provides adequate capacity to meet the projected traffic demand throughout the design year, 2043.

Control of Access

- Control of access for this alternative remains unchanged.
- Sidewalks and driveways will be updated to meet current criteria.

Right of Way

- State Street mainline improvements will not require ROW acquisition. All work will be performed within existing highway boundaries. It is anticipated that three (3) temporary easements for construction activities will be necessary.

Environmental

- This alternative provides for an enhanced streetscape environment providing street furnishings and amenities complementary to the City of Rochester's Main Street Streetscape Phase II project and ROC the Riverway Initiative.

Cost	• Total estimated construction cost of this alternative is $6,038,843
Project Goals	• These improvements meet the overall objective to improve the aging roadway infrastructure and to improve streetscape enhancements.
Driveways	• Driveways within the project area will be modified to comply with the current NYSDOT "Policy and Standards for Design of Entrances to State Highways." In addition to driveway modifications, sidewalks will be constructed across driveway openings in accordance with current ADA design standards.
Transit	• There are 7 designated bus routes that utilize the project area for multiple trips. There are two signed bus stops on State Street near Church Street. Bus stops within the project area are predominately unsheltered and would remain as is. There is one enclosed shelter on State Street at Church Street that would need to be relocated/refurnished as part of the feasible alternative construction. Coordination with RGRTA will occur during detailed design.

While Alternative A is identified as the preferred alternative, all reasonable alternatives are under consideration. The selection of the preferred alternative will not be finalized until the alternatives' impacts, comments on the draft design approval document, and comments from the public meeting have been fully evaluated.

2.5.4 Nonstandard/Nonconforming Features

There are no existing nonstandard features, with the exception of shared use lane width. Current reconstruction design standards require a 13 foot wide outside travel lane for shared use lanes and are depicted in the Critical Design Criteria Table in Section 2.5-1.

There are no existing nonconforming features.

The preferred alternative complies with the geometric features and cross section elements in the design criteria. No non-standard features are considered. There will be no non-conforming features within the project limits.

2.6 Other Infrastructure Considerations

2.6.1 Pavement and Shoulder Conditions

The pavement condition rating is poor to fair. A summary of the Pavement Evaluation and Treatment Selection Report (PETSR) is included in Appendix D. In general the pavement is comprised of a surface hot mix asphalt layer over a concrete base layer. The pavement structure resides atop a gravel fill and native subgrade soil layer.

Anecdotal and maintenance history information pertaining to the Corinthian Street and State Street intersection indicated recurrent surface patching based on settlement of the pavement structure. A Ground Penetrating Radar (GPR) investigation was conducted to determine if subsurface voids, material issues, or washouts due to subsurface water movement were contributing to pavement distress. The full GPR report may be found in Appendix H. The results of the GPR conclusively determined that no evidence suggesting the presence of sinkholes or voids are present at this location. Therefore a full reconstruction of the pavement layer is anticipated to mitigate the issues observed.

A full depth pavement section is recommended for the preferred alternative as discussed in the Pavement Evaluation and Treatment Selection Report (PETSR) in Appendix D.

The heavy duty pavement section is comprised of hot mix asphalt. The design developed per the Equivalent Single Axle Loading (ESAL) pavement design procedure as outlined in the NYSDOT Comprehensive Pavement Design Manual for all subject roadways indicates that the City's Heavy Duty Pavement Section is adequate.

The expected surface life is estimated at 20 years with an expected total pavement service life of 50 years. The recommended pavement reconstruction sections is as follows:

- 1 ½" Asphalt Top Course
- 2" Asphalt Binder Course
- 8" Asphalt Base Layer
- 11" Stone Subbase Layer

2.6.2 Right of Way

There is a need for right of way acquisitions to facilitate temporary construction activities to allow for project grading tie in and minor improvements adjacent to the roadway work.

Exhibit 2-14
Anticipated Right-of-Way Acquisitions

Owner	Tax Map No.	Type of Acquisition	Estimated Acquisition Area	Parcel Size	Percentage of Acquisition
New Horizon Hospitality	121.22-1-17	TE	TBD	TBD	TBD
United States of America	106.78-1-29	Consent	TBD	TBD	TBD
150 State Street Realty	106.78-1-28	TE	TBD	TBD	TBD

2.6.3 Geotechnical

There are no special geotechnical concerns with the soils or rock slopes within the project area.

2.6.4 Access Management

Access is unrestricted along State Street. Four (4) commercial driveways exit onto the highway within the project limits. None of the entrances contribute to accident issues within the corridor. There is no change to access management under the Preferred Alternative.

2.6.5 Traffic Control Devices

Traffic control devices exist at the following intersections along State Street and Exchange Boulevard:

Basin Street: Stop sign for Basin Street approach
E. Main Street / W. Main Street: Three-color traffic signal for all approaches
Corinthian Street: Three-color traffic signal for all approaches
Church Street: Three-color traffic signal for all approaches
Andrews Street: Three-color traffic signal for all approaches
Allen Street: Stop sign for Allen Street approach
Allen Street Eastbound (Inner Loop Frontage Road): Three-color traffic signal for all approaches
Allen Street Westbound (Inner Loop Frontage Road): Three-color traffic signal for all approaches

At the Main Street intersection all legs have left turn and right-on-red prohibitions during weekday daytime hours. The eastbound approach right-on-red does not have time restrictions due to limited sight distance at the intersection. Buses are not included in the left turn restrictions. The City's Main Street Streetscape Phase II project (planned for 2021 construction) is expected to install left turn lanes on E. Main Street and W. Main Street at the State Street / Exchange Boulevard intersection and remove the left turn restrictions for eastbound and westbound traffic.

The curb lane on the southbound approach to Church Street has a right turn only sign mounted on the signal mast arm. Transit buses are not restricted by this sign since there is a bus stop near the corner.

All existing signal system elements including signal face layout, pedestrian signal components, backplates and location appear to be in good condition and meet the requirements of the MUTCD. Backplates are only installed at the State Street & Allen Street Eastbound and Allen Street Westbound intersections.

Under the preferred alternative no new traffic signal locations are proposed. The project will involve replacement of detector loops and other signal equipment: traffic conduits, cabinets, fiber optic cable and backplates are anticipated to be included in the preferred alternative. Specific traffic signal improvements will be determined during detailed design phase. It is anticipated that the project will re-utilize existing signal head and install new poles and mast arms on new foundations.

Signs - Existing signs will be evaluated and replaced as necessary in the preferred alternative. New signs will be added where required throughout the project area.

2.6.6 Drainage Systems

The corridor has a combined sewer system for draining storm water from the road. Inlets along the curb are connected to the trunk sewer with lateral pipes. The trunk sewer accommodates sanitary flows and storm flows conveyed to the north. The sewer is 18 inch RCP from just south of Corinthian Street to the old Market Street ROW then 21 inch from there to Andrews Street. Lateral pipes are typically 8 inch clay tile.

Monroe County Pure Waters (MCPW) is in the process of televising the sewers and laterals. At this time it is uncertain what, if any, repairs will be required. We anticipate that minimally, the drainage inlets will be replaced throughout the project area to meet new curbline locations.

The overall drainage pattern throughout the project limits would remain unchanged under the preferred alternative. Curbing installed throughout the project would direct runoff to new catch basin inlets. New laterals would convey the drainage to the existing trunkline sewer. Existing drainage system outlet connections would be maintained. Proposed inlets and laterals would be of new material comprised of smooth interior corrugated plastic pipe (SICPP) or high density polyethylene (HDPE) pipe and will be appropriately sized during detailed design phase.

2.6.7 Utilities and Lighting

Utilities within the project limits include underground water mains for domestic water service and for the Holley Fire System, telephone, fiber optic, gas and electric. The existing utilities within the vicinity of the project limits are described in Exhibit 2-15.

Exhibit - 2-15
Existing Utilities

Owner	Type	Location/Side	Length	Condition/Conflict
Frontier	Telephone/Fiber	Generally NB	All	Condition unknown; no obvious conflicts
Spectrum	Cable/Fiber			Condition unknown; no obvious conflicts
RGE	Gas	Center and SB	All	Condition unknown; no obvious conflicts
RGE	Electric	Both Sides, near curbs	All	Condition unknown; no obvious conflicts
RWB	Water	NB	All	Hydrant conflicts, Andrews unlined pipe
RWB	Holley Fire System	NB	All	No obvious conflicts
Windstream	Fiber	NB	600	Condition unknown; no obvious conflicts
MCDOT	Fiber	West	All	Condition unknown; no obvious conflicts

Exhibit – 2-16
Potential Utility Conflicts

Owner	Type	Location/Side	Length	Condition/Conflict
City of Rochester Water Bureau	Water	Various locations, Watermain at Andrews Street	100 ft	Multiple hydrants will be impacted by new curb installations. Watermain replacement at Andrews Street, and anode installations throughout the project corridor
RG&E	Gas	Various locations	N/A	Various gas valves will be impacted by new curb installations
RG&E	Electric	Various locations	700 ft	Multiple ducts and vault structures will be affected by curb and drainage installations for Alternative A
City of Rochester Parking Bureau	Kiosk	Various	N/A	Parking Kiosks will be affected by curb installations.

A series of utility coordination meetings will be held during detailed design in order to coordinate utility improvements and project related work.

Lighting

On State Street the lighting is on 30 foot poles with mast arms and LED cobra head fixtures. Main Street lighting is on decorative poles with drop style fixtures.

All feasible alternatives would include new ground mounted roadway and pedestrian scale lighting systems. The roadway lighting would be designed during the detailed design phase in coordination with the City of Rochester Street Lighting.

2.6.8 Guide Railing, Median/Roadside Barriers and Impact Attenuators

There are no guide railing, median barrier or impact attenuators within the project limits. Due to the project corridor being an urban developed area there is no need for these devices.

2.6.9 Intelligent Transportation Systems (ITS)

Monroe County DOT maintains a Pan-Tilt-Zoom (PTZ) closed circuit television camera at the Main and State Street intersection. All traffic signals in the downtown area are interconnected. Monroe County DOT was contact during scoping to identify needs within the project area.

No new ITS measures are proposed. Traffic signal interconnect will be maintained through the corridor. The use of video detection for signalized traffic control will be investigated during final design to facilitate detection of bicycles within the bike lanes.

Conduit will be installed throughout the project area for future municipal fiber optic use.

2.6.10 Landscape and Community Enhancement Considerations

This section focuses on the existing areas to identify potential enhancement opportunities related to the project and to help avoid and minimize impacts. Chapter 3 focuses on the impacts, enhancements, and mitigation.

2.6.10.1. Landscape –

2.6.10.1 (1) Planting

Existing street trees through the corridor vary in scale, maturity, health, species, and planting conditions.
Street trees on the east side of the roadway, north of Main Street, are primarily *Gleditsia triacanthos* '*inermis' (Honeylocust)*. The presence of street trees is welcome, improving the comfort of the pedestrian passage, as well as creating a visual edge to the street.

Figure A: Trees and planters on the east side of State Street and private property greenspace fronting the street, view north.

The health of the trees themselves is fair, with some structural crown damage and other injuries typical in urban streetscape conditions. The planted condition is via raised planters. The original planters are cast-in-place concrete, some of which have been replaced with granite curbing. It is assumed that the soil volumes available to these trees are limited to the planters themselves, and are inadequate to support a full-sized mature tree of this species. This appears to be stunting the growth of these trees and limiting the height and crown extent.

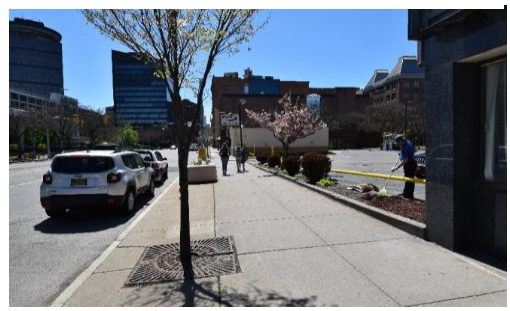


Figure B: Trees and grates on the west side of State Street, view south.

South of Main Street there are several young street trees that appear to be in fair health, planted in tree grates on the east side. Street trees on the west side of the roadway, north of Main Street, vary in species composition. These trees are planted in metal tree grates, and it is assumed that the soil volumes are limited to the tree pits themselves, without structural soils to expand their rooting zone. The health of the trees on the west side is generally poor, with most of the trees appearing to be young and are assumed to be replacements for previously failed trees. Trees that exhibit greater age also exhibit greater structural damage, and some are in serious health decline. An area of landscape enhancement at the High Falls Gateway / Inner Loop appears to be maintained, and generally healthier than the other State Street trees due to broader planting areas and soil availability.

Figure C: Unused planters on the sidewalk, view west.

The majority of the existing trees will be disturbed by virtue of utility improvements, curb adjustments, and other project improvements. We will explore the possibility of protecting existing trees where feasible.

It should be noted that landscaping on the private property east of State Street contributes to the character of the street itself. Additionally, there is a line of semi-mature *Gleditsia* (Honeylocust) in a narrow planter behind the sidewalk at #150 State Street. The project should explore the protection of these plantings.

Figure D: Landscape enhancements approaching the High Falls Gateway, view north.

Exchange and State Streets both utilize large concrete planters. Some contain maintained seasonal plantings, while others are empty. A range of planter materials, styles, and physical arrangement are evident.

Figure E: Typical sidewalk pavement materials, view north

2.6.10.1 (2) Sidewalk Pavements

The State Street corridor's sidewalks are primarily constructed with poured-in-place concrete pavement, with limited areas of brick and concrete unit pavements. In many areas the poured-in-place concrete appears to have been patched, typically in several panel segments, over multiple repair cycles. Scoring patterns vary in size. Some areas of sidewalk are deteriorated with cracks and minor vertical displacement. The unit pavements, where present, are typically limited to small areas in the curb side planting and amenity zone.

Figure F: Sidewalk continuity is drisrupted at several driveway crossings, view south

The Main Street intersection and the median island at the High Falls entry are exceptions, exhibiting broad areas of concrete and brick unit pavement, respectively.

Portions of the sidewalk, notably just north of Main Street on both sides of State Street, are large galvanized grate panels and are assumed to be areaways.

Figure G: ADA accessibility is prevented by steps at many building thresholds, view south.

Sidewalk crossings of driveways are inconsistent. Several locations require the pedestrian to descend curb ramps and cross the asphalt driveway. The preferred condition would prioritize the pedestrian sidewalk via material and elevation consistency across driveways. The project will explore options for achieving this condition where feasible.

There are multiple buildings, primarily on the west side of the roadway - but also notably at #150 on the east side with several stairs - where building entries are not flush with the sidewalk. These conditions preclude ADA accessibility. The project should explore potential solutions to provide universal access to these buildings, in partnership with the city and the property owners.

Figure H: two different types of aluminum pole/cobra head fixtures on State Street, view south.

2.6.10.1 (3) Lighting and Furnishing

The State Street corridor and intersecting streets are illuminated with several types of vehicular-scale lighting. The aluminum pole cobra head luminaires appear to be LED. Main Street currently utilizes a decorative multi-headed street light with a fluted and flared pole, but will be replaced in the near future with a more contemporary double-headed gull-wing LED fixture as a part of the Main Street Reconstruction. This update is enabled by Roc the Riverway funding and is consistent with the recently completed Main Street Streetscape Phase 1 reconstruction and planned Main Street Streetscape Phase II project.

Streetscape Furnishings are limited on State Street. There are several types of bike racks, an RTS bus shelter, trash receptacles, and standard signage elements.

Figure I: Recent Phase I Main Street reconstruction near the Liberty Pole, view west

2.6.10.1 (4) Existing Urban Fabric/Street Character

The State Street corridor's identity varies from block-by block, sometimes with a striking difference between sides of the roadway or adjacent parcels. From an intact historic district to open parking lots, to deeply set back mid-20th century architecture, State Street has great complexity. The architectural diversity is part of what makes Rochester's Central Business District special.


Figure J: Historic millstones

The east side of the street exhibits a land development model of urban renewal efforts from the 60s, including super blocks, buildings set back away from the street edge with suburban-style lawns and foundation plantings, parking in the front yard, and a small number of building entries. The Federal Building requires an elevated security presence, which is maintained in part by fencing and concrete bollards at the back of the public sidewalk. Development on the east side of the roadway prevents connections, both physical and visual, to the river - except at the Andrews Street corridor.

Architecture on the west side is composed of relatively intact multi-story and multi-use masonry buildings, with some open parking lots and newer one-story commercial structures. Much of the architecture on the west side of the street is historic and recognized as such on the National Register of Historic Places. Architectural and material variation, multiple building entries and window fenestration make for an interesting and walkable experience. Some restaurants, bars, and a variety of other business types are present. Significant building renovations are also underway.
The connection to Main Street near the south end of the project marks an important intersection in the city. The connection to the Inner Loop and transition to the High Falls is another important node on the corridor and provides wayfinding cues to the public

Figure K: Excerpt from the 2011 Rochester Bike Master Plan: The State Street corridor serves as a critical north/south connector on the west side of the Genesee River.

2.6.10.1 (5) Walkability and Multi Modal Considerations

The project will maintain pedestrian widths through the corridor wherever possible.

RTS operates routes through the project corridor, including stops on both sides of the street. The east side currently has an RTS shelter.


Figure L: An RTS bus, preparing to turn north from Main Street onto State Street.

The project corridor is identified by the existing city bicycle plans as a high priority bike corridor. State Street is the primary continuous north – south connector along the river on the west side, with access to multiple river crossings, the historic district, High Falls, and Frontier Field

The area bike network includes Broad Street, Main Street, Andrews Street and Church Street. Ongoing Roc the Riverway projects will provide upgrades to the bicycle system along the river. The Inner Loop project will evaluate the potential to incorporate bike facilities in the future. State Street is an important connector for all of these existing and future facilities, and currently serves as a signed on-road segment for the Genesee Riverway Trail necessitated by the lack of river adjacent trail segments through the central business district.

2.6.10.1 (6) Wayfinding, Cultural Resources

There are currently several works of public art and/or culturally significant elements in the corridor. The first is the Frederick Douglass bronze sculpture at Corinthian Street. The second is a colorful folded steel sculpture located behind a security fence at the Federal Building. Finally, the High Falls gateway at the northern project limit includes twin vertical helical pylons framing the street, specialty signage, and historic millstones located in the central median on State Street.

Additionally, there are several styles of signage acknowledging these, and other, cultural resources as well as wayfinding signs found throughout the corridor.

Figure M: Existing signage at the corner of Andrews and State.

2.6.10.1 (7) Landscape Enhancements - Connectivity and Civic Identity

Of interest to the project is the opportunity to interface with The Roc the Riverway initiatives, namely with the Main Street project. The project will coordinate with adjacent projects while individualizing State Street where appropriate.

The project will strengthen State Street's connection to the nearby Genesee River. We anticipate opportunities along State Street to draw greater river focus due to its proximity to the Genesee and coordinate with the upgraded Charles Carroll Plaza, future waterfront development at Andrews and Front Streets, and improve the gateway between the High Falls and Central Business districts. Future infrastructure work at the Inner Loop is possible but the design and timeline are still unknown as the Inner Loop North Transformation Project is still in the early stages. The project will further explore this conversation with the city to avoid costly upgrades that might be un-done by near to midterm projects.

The public has high expectations for both aesthetics and function of a streetscape. The streetscape design will contribute to the vibrancy and interest of the existing corridor, while providing the dignity of consistency along the length of the project through the broader urban context. Pavement, street amenities, lighting, and plantings will relate to the buildings bracketing the roadway and offer the opportunity for pedestrian activation. The project will support functional community transportation improvements and reflect Downtown Rochester's image as one of ongoing growth and innovation.

2.6.10.1 (8) Streetscape Organization and Consistency

We understand the desire to explore opportunities to coordinate design cues that extend the new Main Street vocabulary north on State Street and south onto Exchange Street. This could be accomplished either by wholesale replicating of materials, design relationships, planting, and lighting; or with select elements that could extend the vocabulary and be further refined through the design process.

Figure N: Main Street Phase 2 Concept Plan, scheduled for construction in 2020.

2.6.10.1 (9) Healthy Tree Canopy

Given the proposed deep utility work and full pavement reconstruction of the sidewalks and roadway, protecting existing soils and street plantings may not be feasible. The planters, inconsistent tree health, and the relatively young age of the trees suggests that tree replacement may be the more feasible route. The project will protect existing street trees and plantings on the adjacent parcels, especially on the east side of the road, where it is practical to do so.

In establishing new plantings, the project will explore optimizing the planted realm's opportunities. The project will achieve an attractive, low maintenance, and sustainable tree canopy to maximize environmental benefit over time, and to promote diversity among plantings as an important step toward a resilient landscape. We will coordinate with the city forester to establish a plant list tailored to the project conditions.

Of paramount concern for any urban tree canopy is soil volume. The project recommends that each large-scale canopy tree is provided with an appropriate prepared soil volume. With urban street dimensional constraints, an effective method for achieving this volume is to utilize structural soils and interconnected tree soil trenches. Mid to large canopy street trees require anywhere between 1000 CF and 2000 CF of structural soil, depending on the tree species and type of structural soil. We will continue to explore this detail later in the design process.

Finally, it is important that tree plantings consider visibility to the adjacent businesses and do not preclude physical access to the building entries.

2.6.10.1 (10) Wayfinding and Cultural Resources

The project will systematize, wherever possible, the variety of cultural / historic signage existing in the corridor. A potential to explore would be for existing signage to be re-installed with a common installation detail, to help give visual continuity from location to location.

The adjacent Main Street project utilizes wayfinding signage kiosks. The State Street project will explore potentials to coordinate with this signage system.

Providing visual clues as to the presence of the Genesee River will also be explored, potentially via signage, or other specialty aesthetic treatments.

2.6.10.1 (11) Landscape Enhancement Design Alternatives

As stated above, the design of the streetscapes will coordinate with the urban context, and on-going street improvement projects - primarily the adjacent Main Street streetscape projects.

Landscaping Design Alternative 1: Building a District Design
Replicating the Main Street Vocabulary

The intent of this concept is to utilize, to the greatest extent possible, the materials, furnishings, planting approach, and lighting from the Main Street project. The pedestrian experience will be that of a unified district streetscape design, seamlessly flowing from State and Exchange Streets to Main Street.

Landscaping Design Alternative 2: Strengthening the State Street Edge
Modifying the Main Street Vocabulary

The intent of this concept is to establish a streetscape vocabulary that is complimentary to the Main Street streetscape while treating State and Exchange Streets as an independent entity in the city street grid. This approach will vary from the Main Street design in the following ways:

- East side street tree planting – because parallel parking is not under consideration on the east side, and due to the limited number of building entries on the east side, the project will explore utilizing longer, more continuous tree planters to optimize tree health and provide an expanded area for under-story shrub and ground cover planting.
- West side street tree planting – because parallel parking is under consideration on the west side, and the existing buildings have many entries, the project will explore flexi-pave tree pit coverings to provide pedestrian flexibility.
- Specialty pavements in the sidewalk – the project will consider specialty pavement for portions of the “amenity zone”. Limited use of brick looking materials will speak to the high-quality pedestrian realm and relate to the historic buildings on the west side of the road.
- Street lighting – this design alternative will explore retaining the street lighting style presently found on the State and Exchange Street corridor, as well as both north and south of the project limits. This standard style - a spun aluminum cobra head fixture – will simplify maintenance and operations.
- Parallel parking bay – this design alternative would retain the protected parking bays similar to Main Street, but would pave these spaces with conventional roadway asphalt rather than poured colored concrete with a flush header curb.

There are design solutions common to both design alternatives. These include common furnishings, wayfinding signage consistency, bus shelter upgrades, and prioritizing the pedestrian realm at driveway crossings.

2.6.10.1 (12) Potential Physical Enhancements

We see additional opportunity to potentially expand the physical improvements to the following components:

Frederick Douglass Sculpture: The artwork is one of 14 identical bronze figures, based on the original Frederick Douglass sculpture at the Highland Bowl. Created by Olivia Kim in 2018, the figures are placed at significant locations throughout the city, referencing important places to the life and work of Frederick Douglass. According to the artist’s website:

'Corinthian Street (formerly Exchange Place), just east of State Street, adjacent to the hotel parking lot is the site of Douglass' renowned Fourth of July speech.'

"What, to the American slave, is your 4th of July? I answer: a day that reveals to him, more than all other days in the year, the gross injustice and cruelty to which he is the constant victim."

By Dr. Jose Torre

Figure O: The Frederick Douglass sculpture suffers from poor landscape context.

*'In the 1840s, 1850s and beyond, Americans lacked the conveniences of modern communication. There were newspapers, revolutionized by the steam press and advancements in typesetting; and there were theaters, lyceums, halls, churches and other manner of public spaces where speakers of all kinds would get up in front of an eager crowd and develop their arguments. This was true of all American cities and even the smaller towns and farming communities where an itinerant preacher might draw people from great distances to alleviate the boredom. In Rochester, Corinthian Hall built in 1849 was the place to celebrate great events and to hear the latest ideas from local and itinerant speakers. It was in Corinthian Hall that Douglass delivered many of his speeches including his most famous, **What to a Slave is the Fourth of July** (delivered July 5, 1852). Sponsored by the Rochester Ladies' Anti-Slavery Society, the speech has long been considered one of the greatest abolitionist speeches and rhetorical masterpieces of the nineteenth century. Structured to flatter, shame, infuriate and innervate, the speech reveals Douglass's great rhetorical genius. Douglass was well known as a charismatic speaker whose proud physical stature, booming voice and powerful presence captivated audiences long experienced with the performance associated with public speaking; scholars, however, have more recently emphasized the intellectual power and design of his messages and words, which combined with his presence must have stirred men and women to higher principles they might not have otherwise embraced. Susan B. Anthony too spoke here, bringing her formidable personality to her hometown stage to express her then radical message of gender equality. Corinthian Hall then, torn down in 1928, was in its heyday as is Constitution Hall in Philadelphia, or Faneuil Hall in Boston, the "site" where "revolutions" took place; the site where the modern ideas of gender and race equality were first developed.'*

The current setting for this beautiful bronze sculpture is not dignified or appealing. The existing adjacent driveways and parking lot immediately behind the artwork detract from its visual quality. Although the space surrounding the sculpture is small, there should be greater visual separation from its backdrop, potentially accomplished with a combination of planting and hardscape / stone elements. Additionally, the pavement design of the public sidewalk and hardscape surrounding the sculpture should be designed as a cohesive, welcoming space.

Finally, given the important legacy of Frederick Douglass, Corinthian Hall and by extension all of the other prominent figures who advocated for abolition or women's suffrage, there is an opportunity for the project to recognize this historic significance with features integrated into the new streetscape. Potentials to explore include engravings in pavements or proposed planter curbs, or standalone features or signage designed as a system and organized along the street.

High Falls Gateway: The existing High Falls gateway includes signage on the Inner Loop bridge, aesthetic treatments to the concrete abutments, specialty underpass lighting, vertical sculptures with lighting, and millstones placed in the State Street median. Some of the existing items would benefit from maintenance investments, like new paint on the sculptures to counteract fading and protect the metal, re-setting concrete unit pavers at the sculpture bases, and ensuring all signage and aesthetic lighting is functional and efficient. With the uncertainty of current Inner Loop Transformation project, investments need to be carefully considered.

Figure P: The existing High Falls gateway.

Security Features: There are many fine examples of security measures designed and integrated with streetscapes. By working in concert with the Federal Building to ensure security requirements can be met, there are additional opportunities for streetscape features meant to harden the perimeter and contribute to the aesthetics of the corridor. The project will continue to coordinate and consider options.

2.6.10.2. (1) Terrain - Exchange Street has a maximum grade of 4%. This is the steepest part of the project corridor. The remainder is very flat with longitudinal grades of less than one percent.

2.6.10.2 (2) Unusual Weather Conditions-

There are no unusual weather conditions within the project area.

2.6.10.2. (3) Visual Resources –

The visual character of the street is dominated by several large buildings and manmade structures. Traveling north from Broad Street ones view goes to the Powers Building at the corner of Main and State. This is a large building with unique 19th century architecture. Further north is the former National Bank with massive stone columns fronting a Greek style façade. The east side has more modern architecture in the utilitarian Federal Building and the "Block on Stilts" at 150 State Street. Finally as you reach the project limit you see the concrete bridge of the Inner Loop overpass, the steel trusses of the railroad bridge, and Kodak Tower far beyond. This latter image could be considered the iconic view of State Street symbolic of more prosperous times in Rochester.

Reversing the course and heading southbound through the tunnel like overpasses the view opens to old and new. On the right the buildings have the brick and stonework of 19th century office and residential construction. This is the **State Street Historic District**, a line of twelve buildings on twelve acres of State Street. These are the last surviving continuous row of 19th-century masonry commercial structures within the Inner Loop. They were built between 1825 and 1900. The oldest one is 141-147 State Street. The State Street Historic District was added to the National Register of Historic Places in 1984
Buildings on the left offer the concrete and glass architecture of late 20th century aesthetics, dominated by the reflective glass of the 15 story Crossroads Building at the northeast corner of Main and State.

2.7 Work Zone Safety and Mobility

2.7.1 Transportation Management Plan

The Region has determined that the subject project is not significant per 23 CFR 630.1010.

A Transportation Management Plan (TMP) will be prepared for the project consistent with 23 CFR 630.1012. The TMP will consist of a Temporary Traffic Control (TTC) plan. Transportation Operations (TO) and Public Information (PI) components of a TMP will be considered during final design.

2.7.2 Proposed Work Zone Traffic Control

A phased construction sequence will be utilized. This construction plan would reduce northbound and southbound traffic to one travel lane with turn lanes provided at certain locations and allow for half of the State Street project to be built. Traffic would then be shifted to the newly constructed pavement and remaining half of the project area would be constructed. Detailed construction phasing plans will be developed during final design phase.

Special Provisions

Due to the close proximity to some apartment residences and the ability to maintain traffic with acceptable delays during the daylight hours, consistent night time construction will not be utilized. Intermittent or limited night time construction may be utilized for spot construction activities or utility construction. The use of time related provisions will be evaluated during final design. The work zone traffic control will be coordinated with local officials and residents.

2.8 Additional Considerations

2.8.1 Constructability Review

This project will receive a constructability review during detailed design phase. The construction phasing is anticipated to utilize a phased construction approach while maintaining traffic within the corridor.

2.8.2 Ownership and Maintenance Jurisdiction

The City of Rochester owns and maintains State Street within the project limits. The NYSDOT owns and maintains the area associated with the Inner Loop and the eastbound and westbound service roads (Allen Street). The existing maintenance jurisdiction in vicinity of the project limits is summarized in Exhibit 2-17.

Exhibit – 2-17 Existing Maintenance Jurisdiction							
Part No.	**Highway**	**Limits**	**Feature(s) being Maintained**	**Centerline (mile)**	**Lane (mile)**	**Agency**	**Authority**
1	State Street, Exchange Blvd, Main Street, Corinthian Street, Church Street, Andrews Street, Allen Street	Through the project area	Pavement, Curbing, Sidewalks, Drainage, Landscaping, Street Lighting, Pavement Markings	Misc	Misc	City of Rochester	Highway Law Section 10 Subdivision 25
2	State Street, Exchange Blvd, Main Street, Corinthian Street, Church Street, Andrews Street, Allen Street	Through the project area	Signage, Traffic Signals	Misc	Misc	MCDOT	Highway Law Section 10 Subdivision 25
3	Inner Loop and Allen Street ramps and frontage road	Through the project area	Bridge, Pavement, Drainage, Landscaping, Signage, Pavement Markings, Traffic Signals	Misc	Misc	NYSDOT	Highway Law Section 129

Existing ownership and maintenance jurisdiction will be maintained as a result of constructing the preferred alternative.

2.8.3 NYS Smart Growth Public Infrastructure Policy Act (SGPIPA)

Pursuant to ECL Article 6, this project is compliant with the New York State Smart Growth Public Infrastructure Policy Act (SGPIPA).

To the extent practicable this project has met the relevant criteria as described in ECL § 6-0107. The Smart Growth Screening Tool was used to assess the project’s consistency and alignment with relevant Smart Growth criteria; the tool reflects the current project scope.

2.8.4 Miscellaneous Information

Parking

Parking regulations are present throughout the State Street corridor. Parking is permitted along both sides of State Street except near intersections, bus stops and within restricted zones as noted below. Where permitted, parking is generally limited to one (1) or two (2) hours and requires payment via meters, pay stations or mobile app between the hours of 8 AM and 6 PM.

The following areas have additional parking restrictions:

- East side of State Street between Main Street and Corinthian Street: Commercial Loading Zone, 9AM-4PM
- East side of State Street along Kenneth B. Keating Federal Building: Passenger Loading / Unloading Area (No Parking), all hours
- East side of State Street between Andrews Street and Allen Street: No Parking 4PM-6PM
- West side of State Street along #135-#147: Commercial Loading Zone, 9AM-4PM; No Stopping 7AM-9AM and 4PM-6PM.

Parking was observed to have moderate to high utilization throughout the day, particularly along the west side of State Street between Church Street and Allen Street. A review of several years of aerial imagery revealed an average of 12 vehicles were parked on the east side while an average of 17 were parked on the west side.

Under the preferred alternative parking locations will be included via recessed curbside locations that utilize curb bump-outs to define the locations. Regulations and zones will be reviewed to determine if ordinances need to be updated.

There are multiple areaways within the project area.

Areaways

Areaways are subsurface service entrances or utility-ways to buildings, primarily used for access to building basements for delivery of goods or historically to deliver coal and oil. While areaways are generally no longer in use and have largely been abandoned some remain in place today and some have been abandoned only at the surface street level.

To investigate the presence of areaways record plans obtained from the City of Rochester have been reviewed. In addition, a Ground Penetrating Radar survey was conducted along the neighboring buildings along the east and west side of State Street. The full GPR report is contained in Appendix H.

The GPR survey indicates that there are 10 possible areaways. An on-site physical survey of these suspected areaways will be conducted during detailed design.

CHAPTER 3 – SOCIAL, ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS

Refer to the Social, Economic and Environmental Resources Checklist (SEERC) included in Appendix B for information on all environmental issues for which the project was screened.

3.1 National Environmental Policy Act (NEPA)

This project is being progressed as a Class II action (Categorical Exclusion) because it does not individually or cumulatively have a significant environmental impact and is excluded from the requirement to prepare an Environmental Impact Statement (EIS) or an Environmental Assessment (EA) as documented in the Federal Environmental Approvals Worksheet (FEAW) and following discussion in this chapter.

Specifically, in accordance with the Federal Highway Administration's regulations in 23 CFR 771.117(c) this project is one of the project types described in the 'C' list as primarily a "Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (including parking, weaving, turning, and climbing lanes)" and meets the constraints listed in 23 CFR 771.117(e) and does not significantly impact the environment. Refer to Appendix B for the FEAW.

3.2 State Environmental Quality Review Act (SEQRA)

The City of Rochester is the SEQRA lead agency as per 17 NYCRR Part 15 "Procedures for Implementation of State Environmental Quality Review Act", Section 15.5.

In accordance with 17 NYCRR, Part 15, "Procedures for Implementation of State Environmental Quality Review Act", the Department has determined that this project is a SEQR Type II Action. No further SEQR processing is required. The project has been identified as a Type II action, per 17 NYCRR Part 15, Section 15.14, Subdivision (e), Item 37, Paragraph v "minor reconstruction or rehabilitation of existing highways within existing right-of-way, or involving minimal right-of-way acquisition". This permits the project to be classified as Type II since the project does not violate any of the criteria contained in subdivision (d) of Section 15.14.

3.3 Additional Environmental Information

3.3.1 Community Cohesion -

The project will not divide neighborhoods, isolate part of a neighborhood, generate new development or otherwise affect community cohesion. The age and ethnic background of the affected population is of a similar composition as the rest of the City of Rochester. No occupied dwellings will be acquired in relation to this project.

The project corridor is predominately commercial properties. The buildings on either side of State Street in the project vicinity include various business or are vacant buildings in various state of repair. There are also several parking lots and one government building and health services facility along the project corridor. There are existing sidewalks and streetscaping on the eastern and western side of the street along the entire corridor. There are no schools or religious institutions along the corridor. Although lower speeds in the city provide relatively good conditions for bicycling, the condensed traffic and poor road conditions may deter some bicyclists. Road conditions are consistent with the characteristics of the surrounding downtown and commercial area. The project will include creating dedicated bicycle facilities and lanes within the roadway through the use of shared-use lanes and bicycle lanes. This improvement will enhance the bikeablity within the project area.

3.3.2 Low Income, Minority and Ethnic Groups (Environmental Justice) -

This project is located in an Environmental Justice Area, however the scope of project activities are limited to normal maintenance and existing roadway reconstruction activities which will not have disproportionately high and adverse human health and environmental effect on minority or low-income populations.

3.3.3 Business District Impacts

The project is located in the City of Rochester Business District. No impacts are anticipated as a result of this project. Similar to the local economy, the project could result in a small positive impact on the Business District through improvements to vehicular traffic, bicycle and pedestrian access to businesses in the area.

3.3.4 Specific Business Impacts

Businesses located within the project corridor along State Street may have a slight positive impact due to the improvements in vehicle, bicycle and pedestrian traffic corridors.

3.3.5 Endangered and Threatened Species -

According to the NYSDEC GIS information database, there is a possibility that the peregrine falcon, a state-protected, endangered bird species, is located in or near the proposed project area. A known peregrine falcon nest is located on the Times Square building 250 feet southeast of the project. Given the known proximity of the known nest no impacts are anticipated as a result of the project. The City of Rochester will take appropriate measures during design and construction to ensure that impacts are avoided or minimized.

According to the NYSDEC's GIS information database, there are no Federally-protected, threatened, or endangered species located in or near (within ½ mile) the proposed project area. An official species list was generated from the USFWS Information for Planning and Consultation website and is included in Appendix B.

3.3.6 National Historic Preservation Act – Section 106 / State Historic Preservation Act – Section 14.09 -

The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) Cultural Resources Information System (CRIS) website was reviewed to determine the location of any properties listed in the National Register of Historic Places (NRHP) adjacent to the proposed Project. According to this research there are NRHP – listed resources within the Area of Potential Effect.

Historic properties, eligible for inclusion in, or listed on, the National Register, have been identified within the project's area of potential effect. This includes properties located in the State Street Historic District, located along the northwest boundary of the project area. Additionally, the First National Bank of Rochester – Old Monroe County Savings Bank Building, Powers Building, and Wilder Building are located along the southwestern and southeastern boundary of the project area. The project's activities do not have the potential to cause effects on these historic properties.

Because the project is a federally funded action, involves a federal permit, or is state funded with the possibility of becoming federally funded, the City of Rochester will be following the Section 106 Process of the National Historic Preservation Act. This ensures compliance with the NYSHPA Section 14.09 process. The NYSDOT local project liaison has submitted a project review request to the New York State Office of Parks State Historic Preservation Office (SHPO). A response of no adverse effect was received on October 6, 2020, see Appendix B for correspondence.

3.3.7 Architectural Resources -

Properties listed on, or eligible for, inclusion in the National Register of Historic Places are located within the project's area of potential effect. The proposed project will have no adverse effect on these historic properties. Please refer to the subsection above, National Historic Preservation Act – Section 106, for more detailed information.

3.3.8 Archaeological Resources -

The proposed project will not require project activities within previously undisturbed areas that have the potential to contain archeological resources. Thus, a 4(f) evaluation will not be required for archaeological resources.

3.3.9 Hazardous and Contaminated Materials -

A Hazardous Waste/Contaminated Materials Site Screening has been conducted in accordance with NYSDOT Environmental Procedures Manual, Chapter 5, in order to document the likely presence or absence of hazardous/contaminated environmental conditions. A hazardous/contaminated environmental condition is the presence or likely presence of any hazardous substances or petroleum products (including products currently in compliance with applicable regulations) on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.

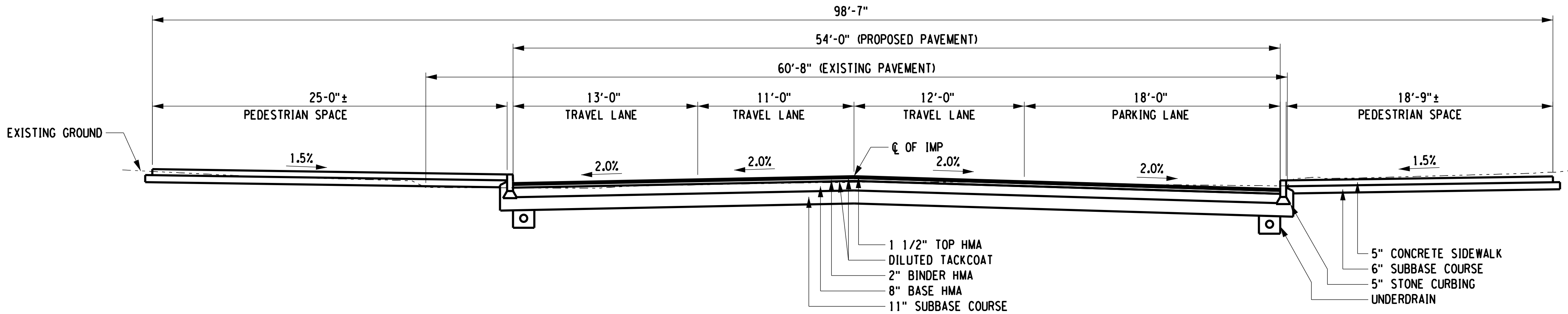
The Hazardous Waste/Contaminated Materials Site Screening indicates the potential presence of contaminated materials within the project area. There is a potential that underground storage tanks from a historic gasoline filling station located at 120 State Street may be encountered in the subsurface soils during construction (see Appendix_B). Soils shall be screened at this location during construction. All encountered impacted material should be segregated into appropriate waste streams and disposed of in accordance with all applicable regulations. A contingency plan for the removal and mitigation of any encountered underground storage tanks or contaminated soil from leaking storage tanks at this location should be developed.

No other hazardous waste/contaminated materials were identified during the course of the Hazardous Waste/Contaminated Materials Site Screening. The potential risk for involvement with documented or undocumented inactive hazardous waste materials is low. The City of Rochester does not believe that additional studies or investigations are warranted.

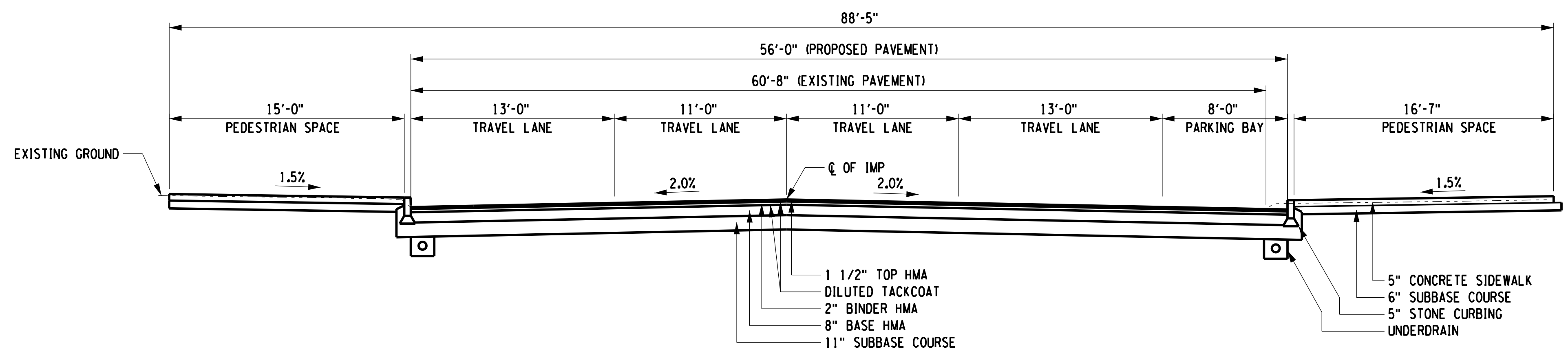
APPENDICES

APPENDIX A

Maps and Plans



TYPICAL SECTION
EXCHANGE BOULEVARD



TYPICAL SECTION
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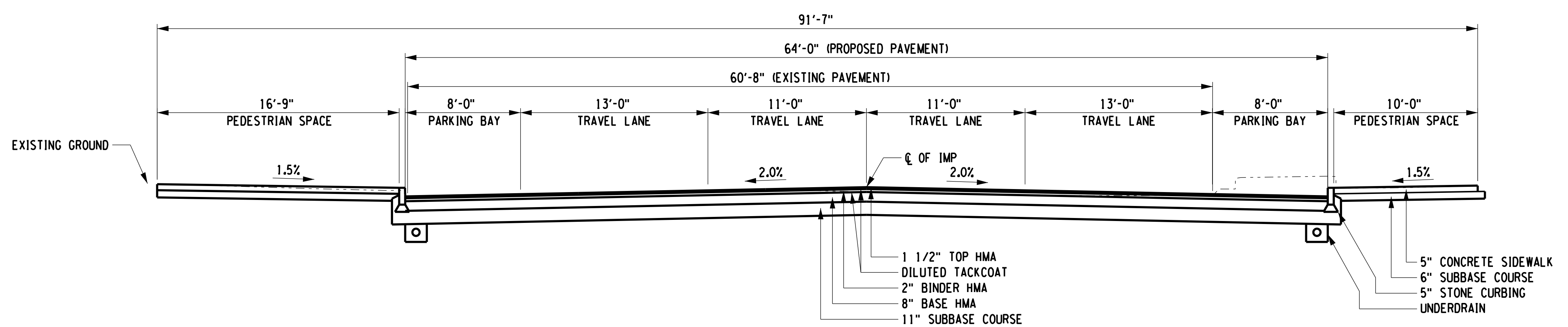

TYPICAL SECTION
STATE STREET S 12+40 TO S 16+40

NO.	REVISION	BY	DATE
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PROJECT/CLIENT
STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP
CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE
PREFERRED ALTERNATE A
TYPICAL SECTIONS

PROJECT NUMBER
2200377
DATE
10/28/2020
DRAWING NUMBER
TYP-01

DESIGNER:
CURTIS ECKLUND
ENGINEER:
WADE DALEY
PROJECT MANAGER:

PLOTDRVR pdf_BW_Half.pltcfg
MODEL TYP-01
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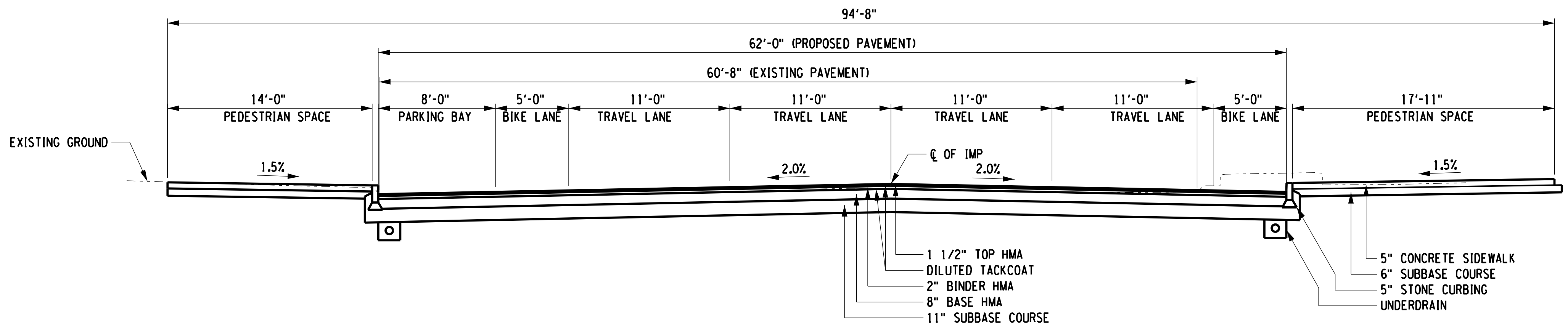

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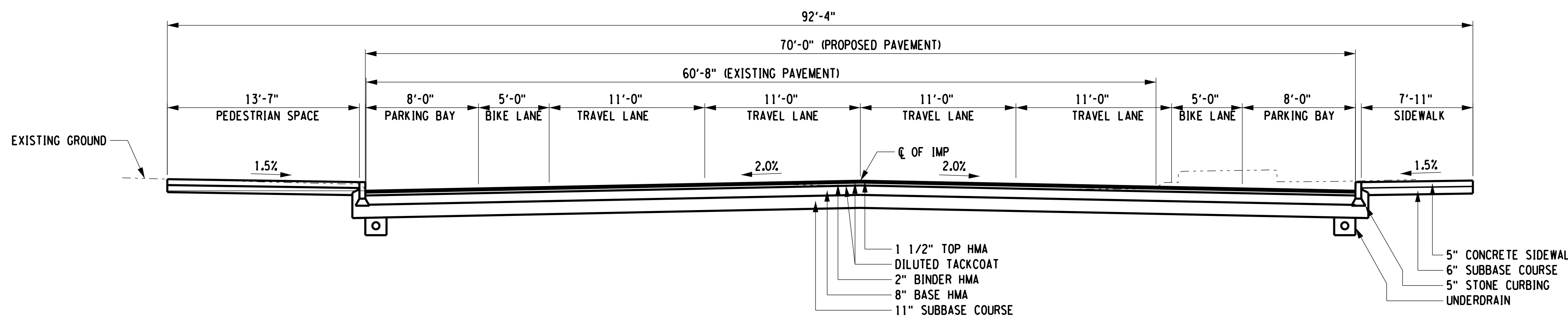

TYPICAL SECTION

STATE STREET S 19+75 TO S 23+55

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DATE TIME 10/28/2020 2:31:59 PM

PROJECT MANAGER: WADE DALEY
ENGINEER: CURTIS ECKLUND
DESIGNER:

NO.	REVISION	BY	DATE
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PROJECT/CLIENT

STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP

CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

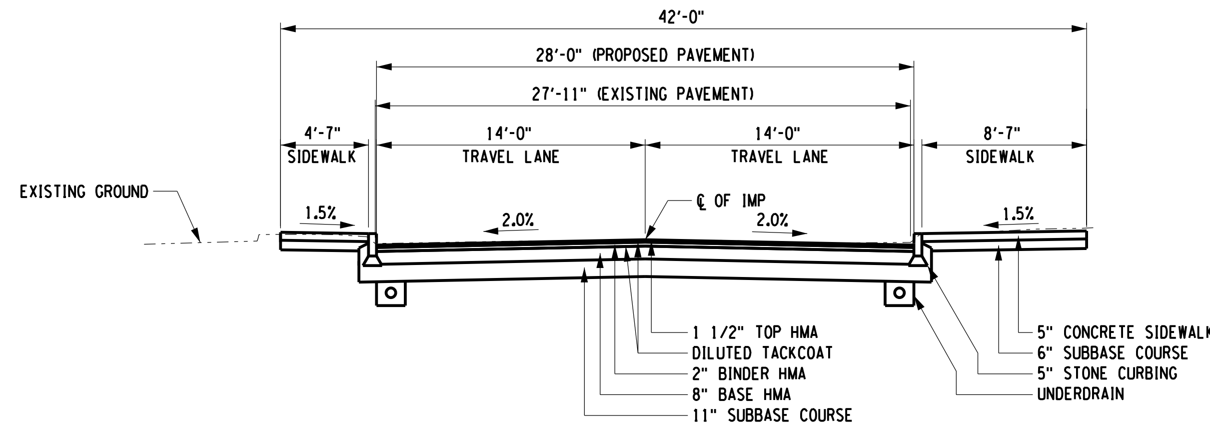
DRAWING TITLE

PREFERRED ALTERNATE A
TYPICAL SECTIONS

PROJECT NUMBER
2200377

DATE
10/28/2020

DRAWING NUMBER
TYP-02



TYPICAL SECTION

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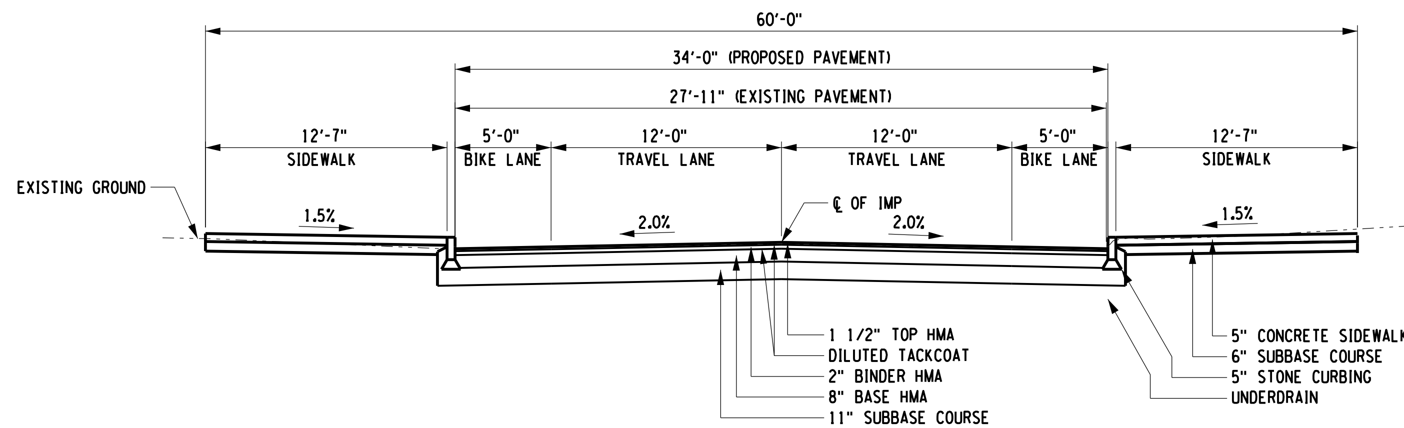
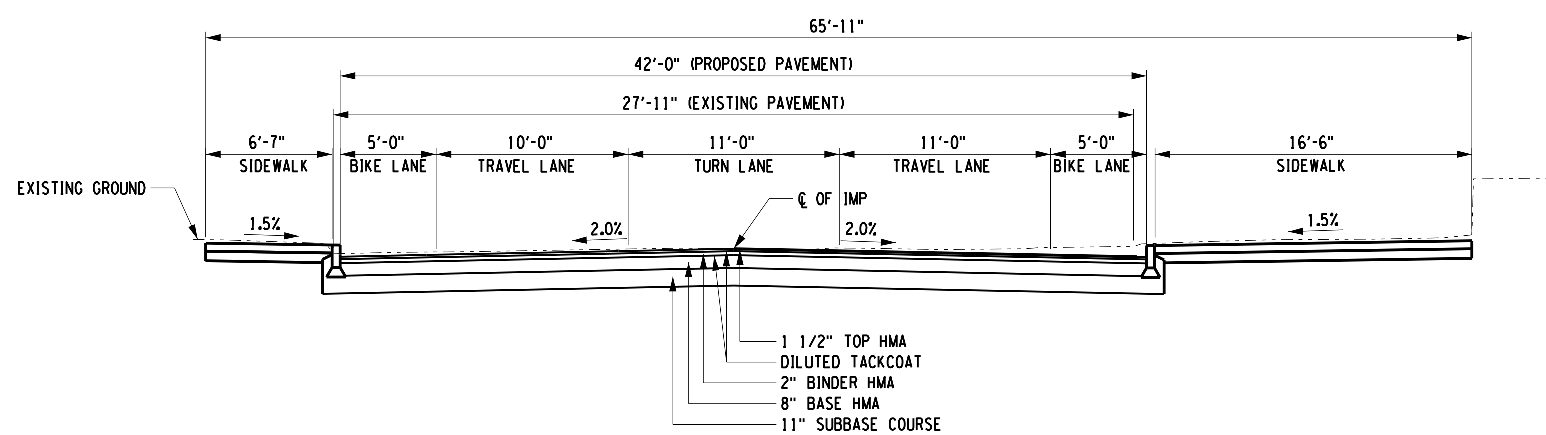


TYPICAL SECTION

CHURCH STREET



TYPICAL SECTION

ANDREWS STREET

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PROJECT MANAGER: WADE DALEY
ENGINEER: CURTIS ECKLUND
DESIGNER:

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It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP

CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE

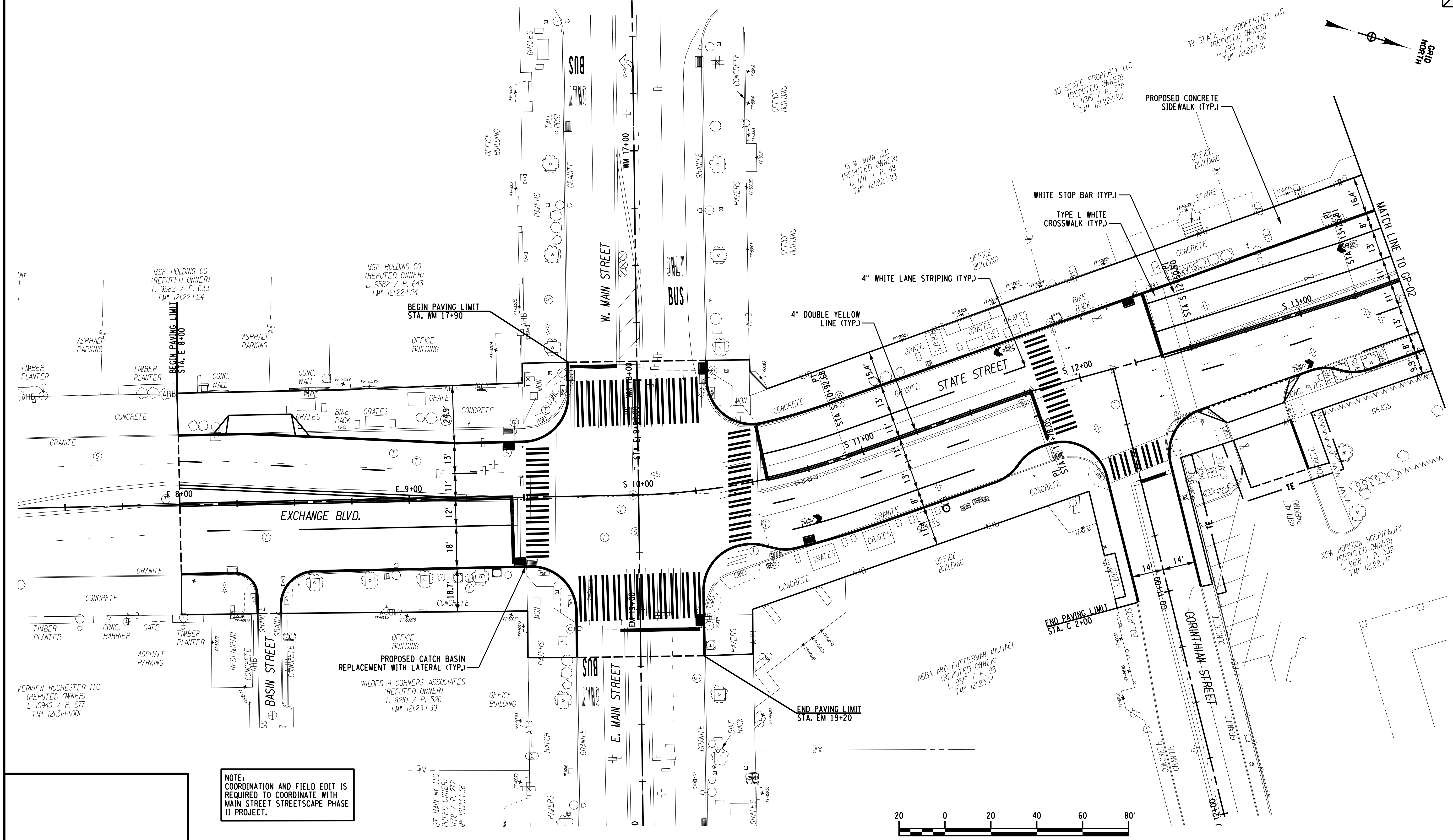
PREFERRED ALTERNATE A

TYPICAL SECTIONS

PROJECT NUMBER
2200377

DATE
10/28/2020

DRAWING NUMBER
TYP-03



NOTE:
COORDINATION AND FIELD EDIT IS REQUIRED TO COORDINATE WITH MAIN STREET STREETSCAPE PHASE II PROJECT.

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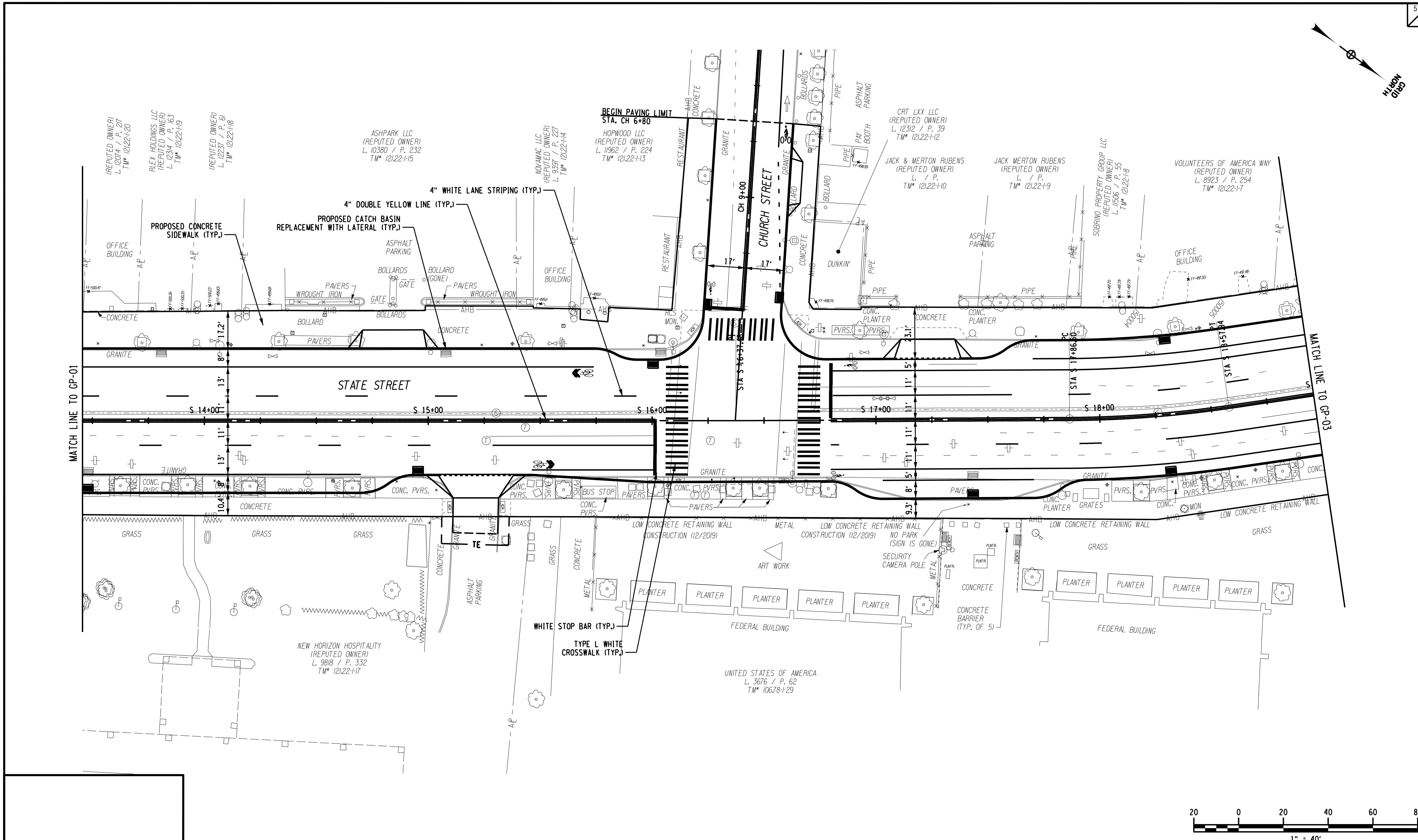
PROJECT/CLIENT
STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP
CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE
PREFERRED ALTERNATE A
GENERAL PLAN

PROJECT NUMBER 2200377
DATE 11/19/2020
DRAWING NUMBER GP-01

PROJECT MANAGER: WADE DALEY
ENGINEER: CURTIS ECKLUND
DESIGNER:



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STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP

CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE

PRELIMINARY ALTERNATE A

GENERAL PLAN

PROJECT NUMBER
2200377
DATE
11/19/2020
DRAWING NUMBER
GP-02

DESIGNER:
CURTIS ECKLUND
ENGINEER:
WADE DALEY
PROJECT MANAGER:

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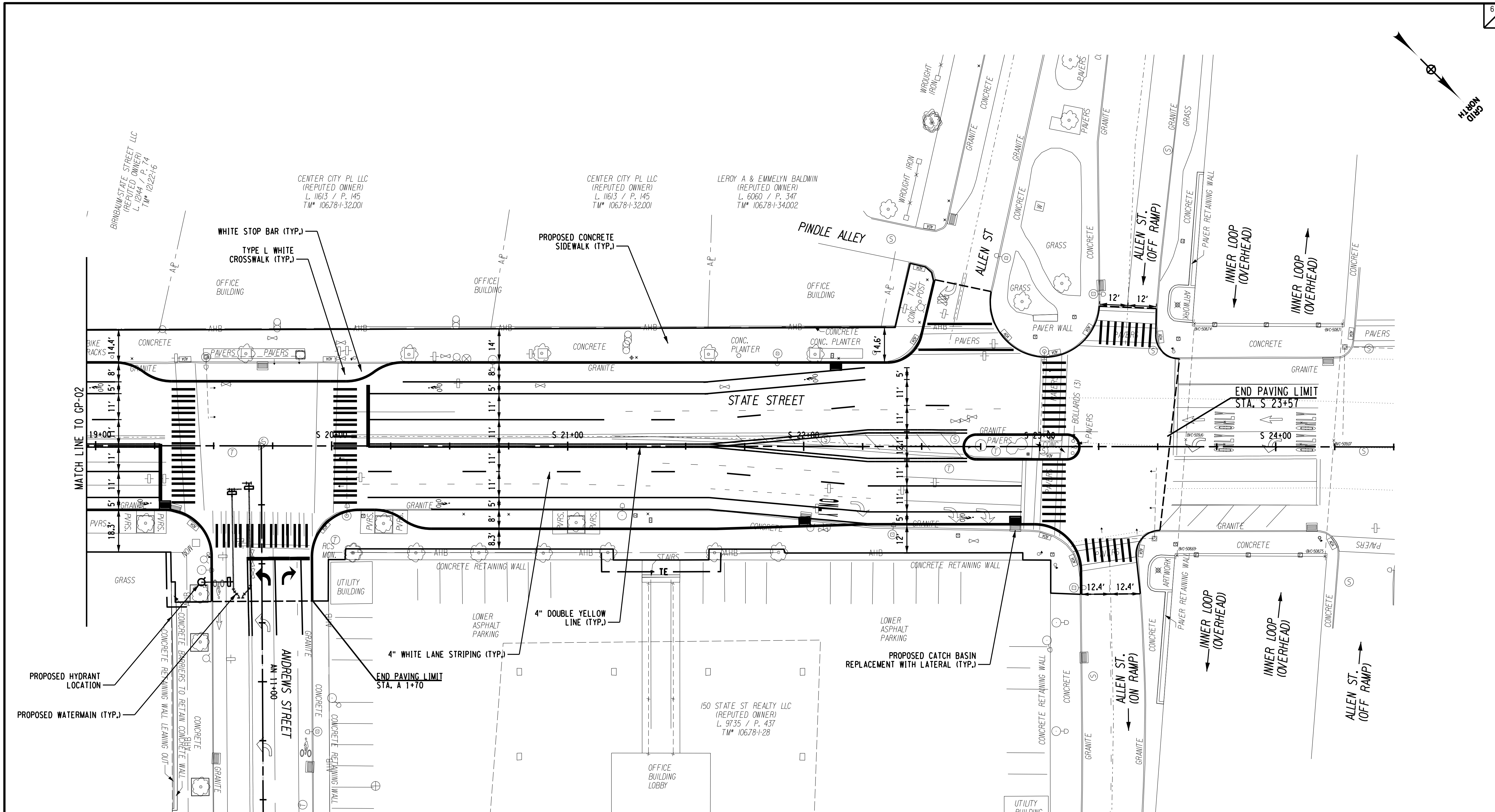

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PROJECT/CLIENT
STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP
CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE
PREFERRED ALTERNATE A
GENERAL PLAN

PROJECT NUMBER
2200377
DATE
11/19/2020
DRAWING NUMBER
GP-03

PROJECT MANAGER: WADE DALEY
ENGINEER: CURTIS ECKLUND
DESIGNER:

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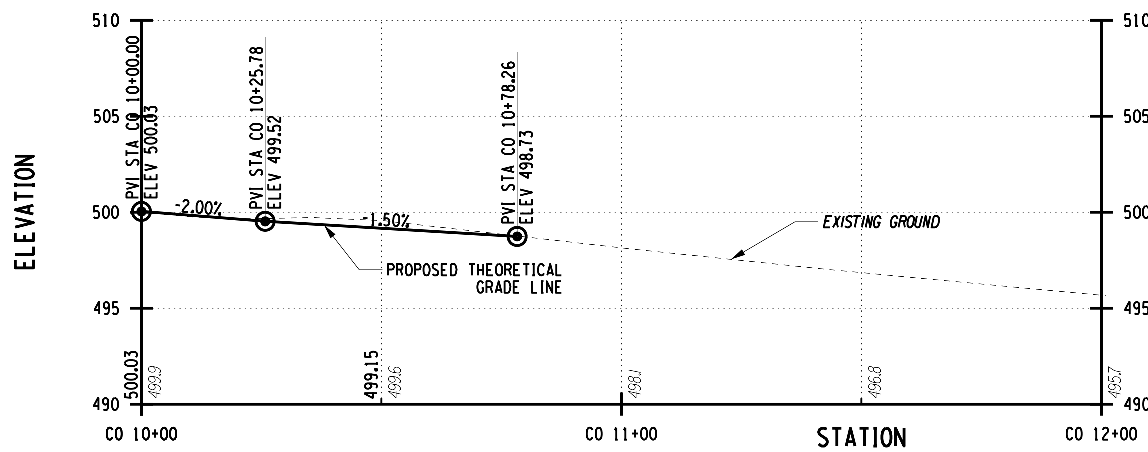

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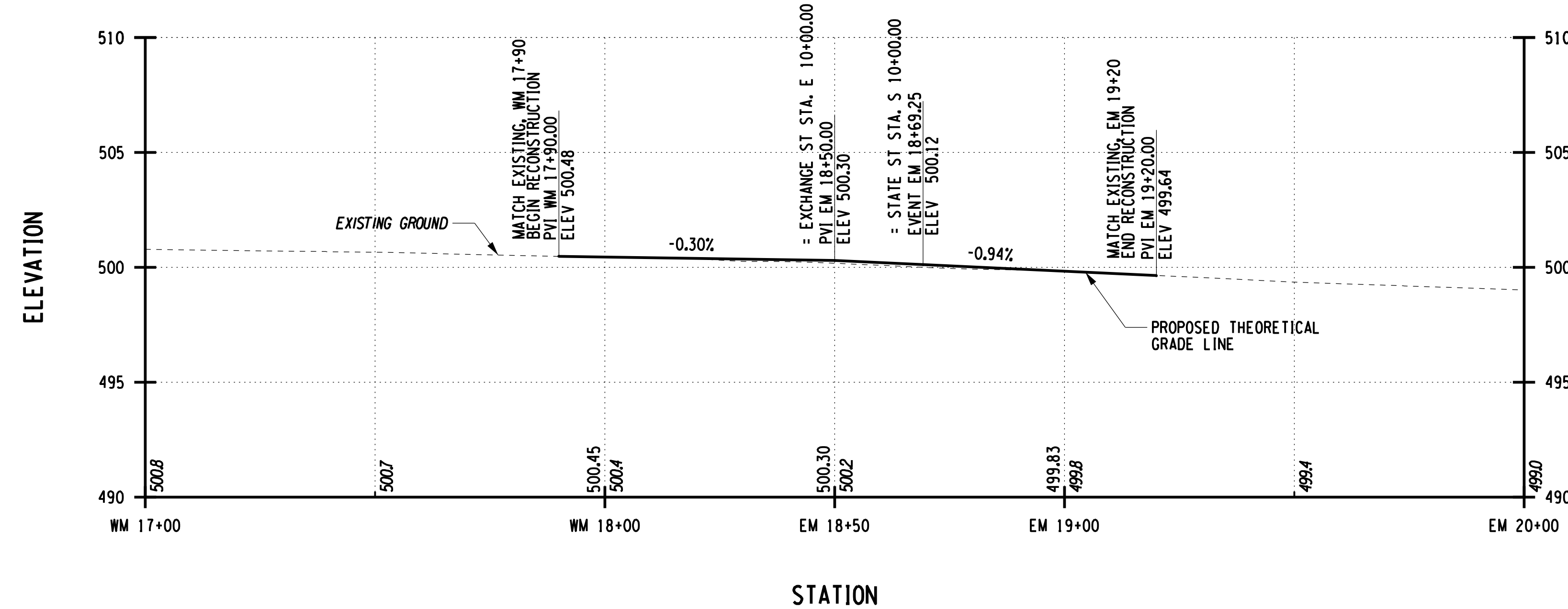

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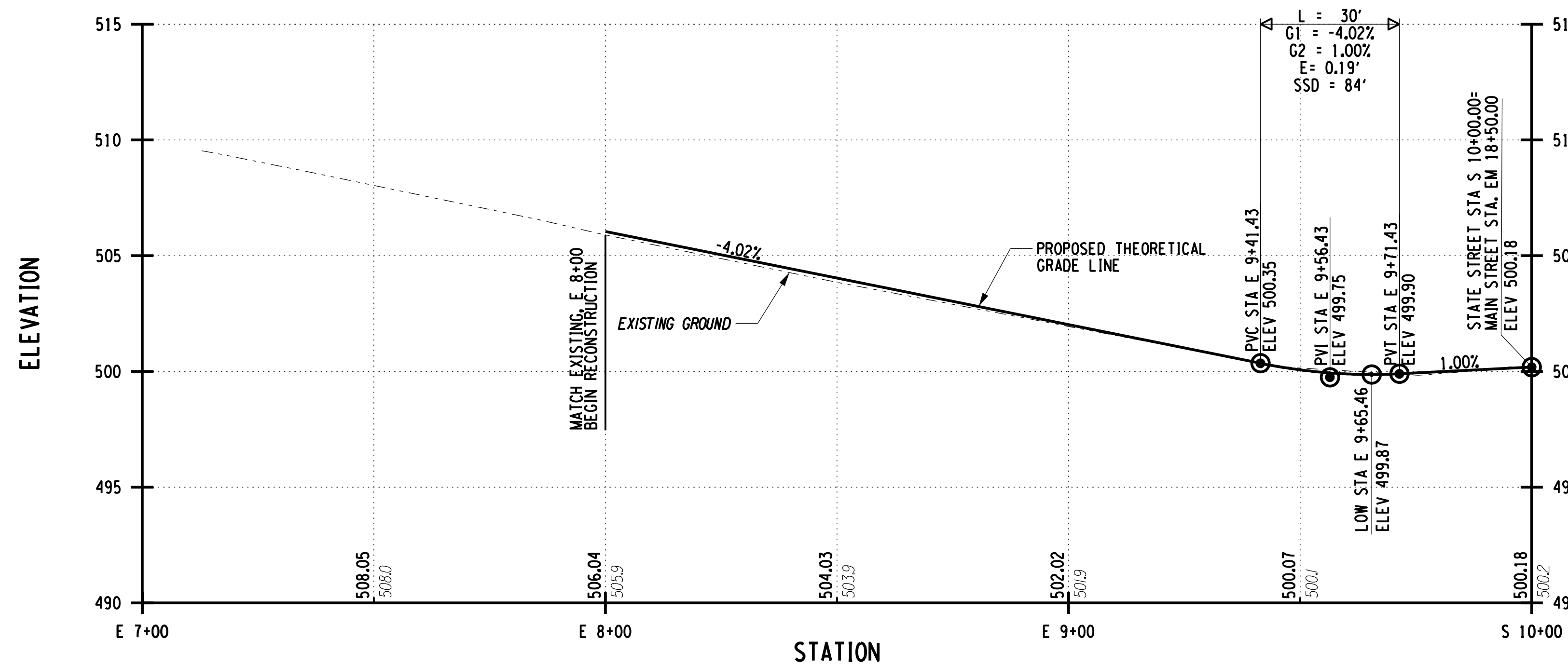

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PROJECT/CLIENT

STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP

CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE

PREFERRED ALTERNATE A
ROADWAY PROFILES

PROJECT NUMBER
2200377

DATE
10/28/2020

DRAWING NUMBER
PR-01

PROJECT MANAGER: WADE DALEY
ENGINEER: CURTIS ECKLUND
DESIGNER:

DATE TIME 10/28/2020 2:32:13 PM

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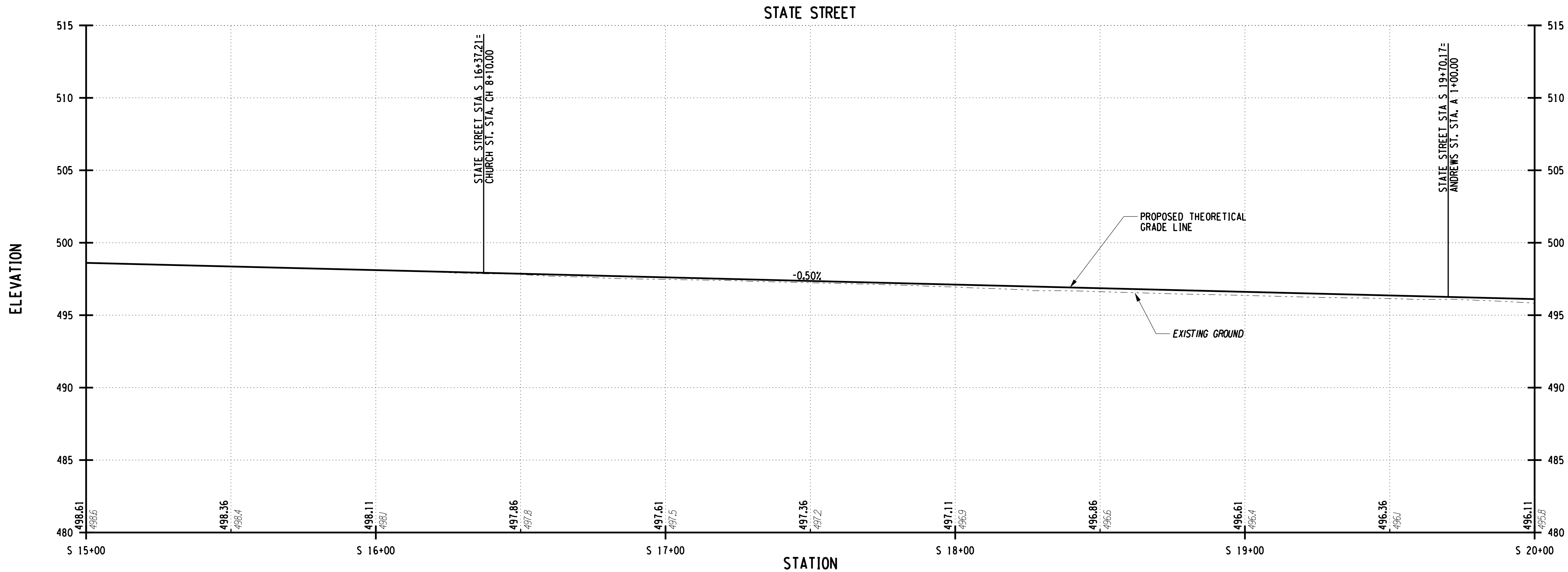

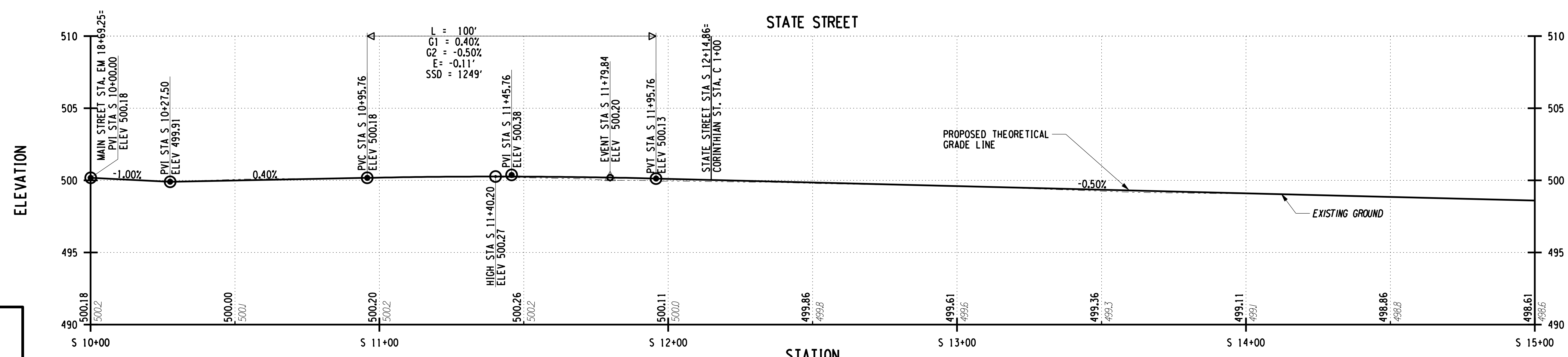

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PROJECT/CLIENT

STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP

CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE

PREFERRED ALTERNATE A
ROADWAY PROFILES

PROJECT NUMBER
2200377
DATE
10/28/2020
DRAWING NUMBER
PR-02

PROJECT MANAGER: WADE DALEY
ENGINEER: CURTIS ECKLUND
DESIGNER:

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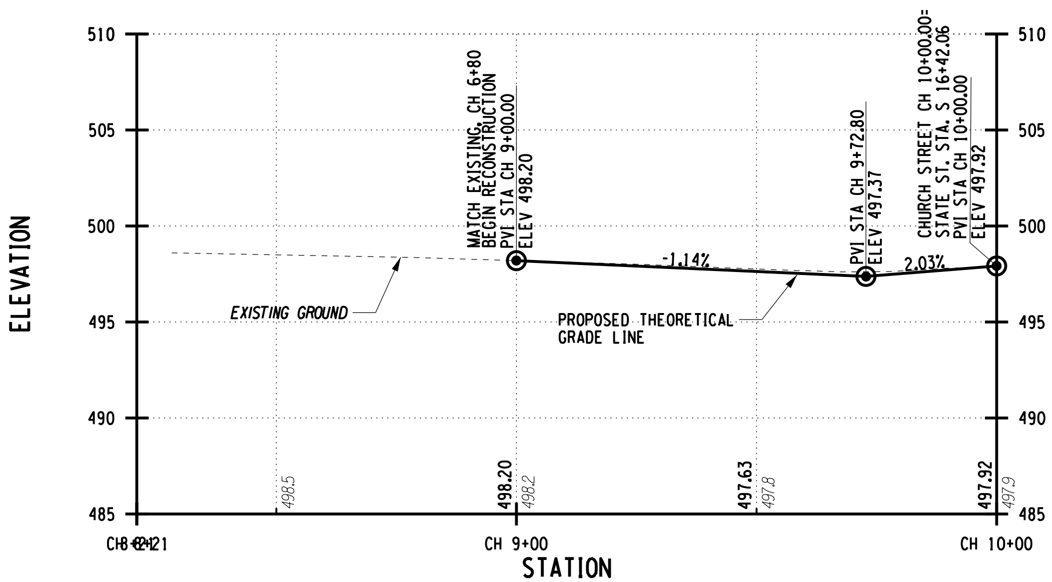

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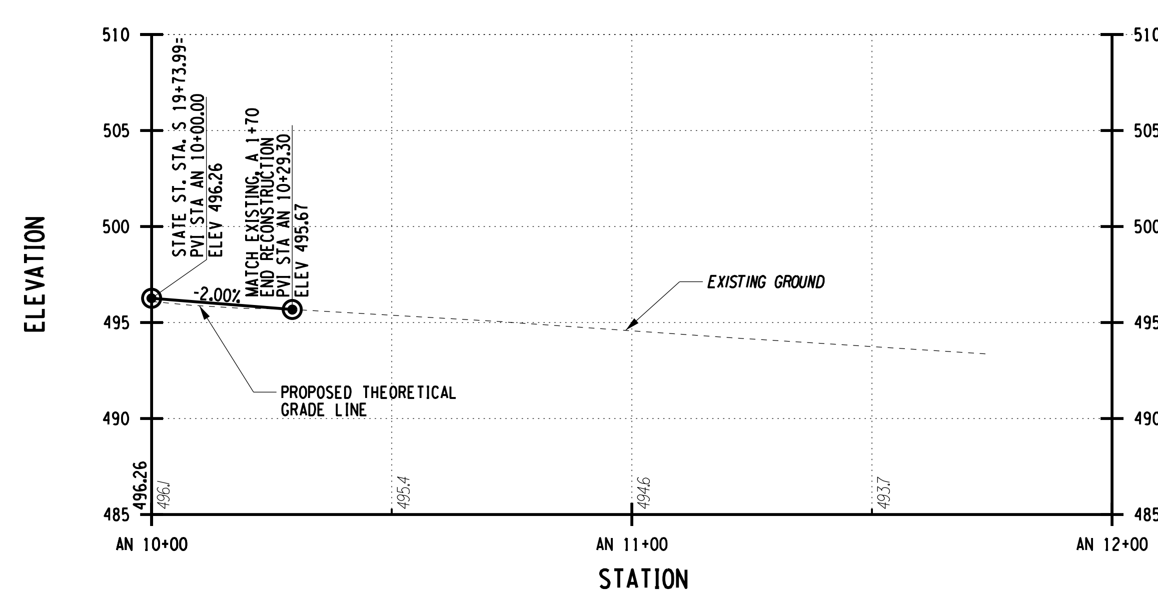

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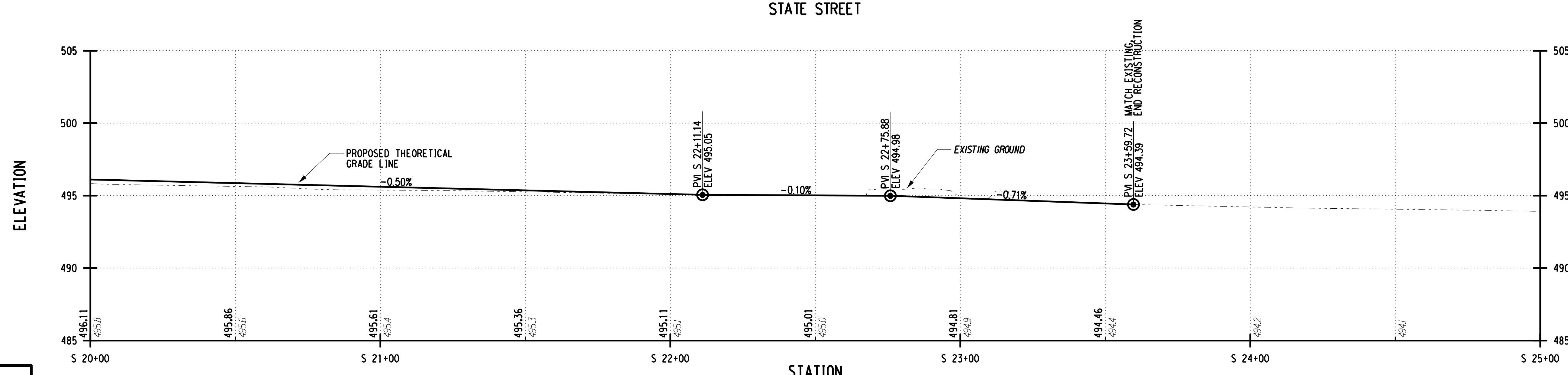

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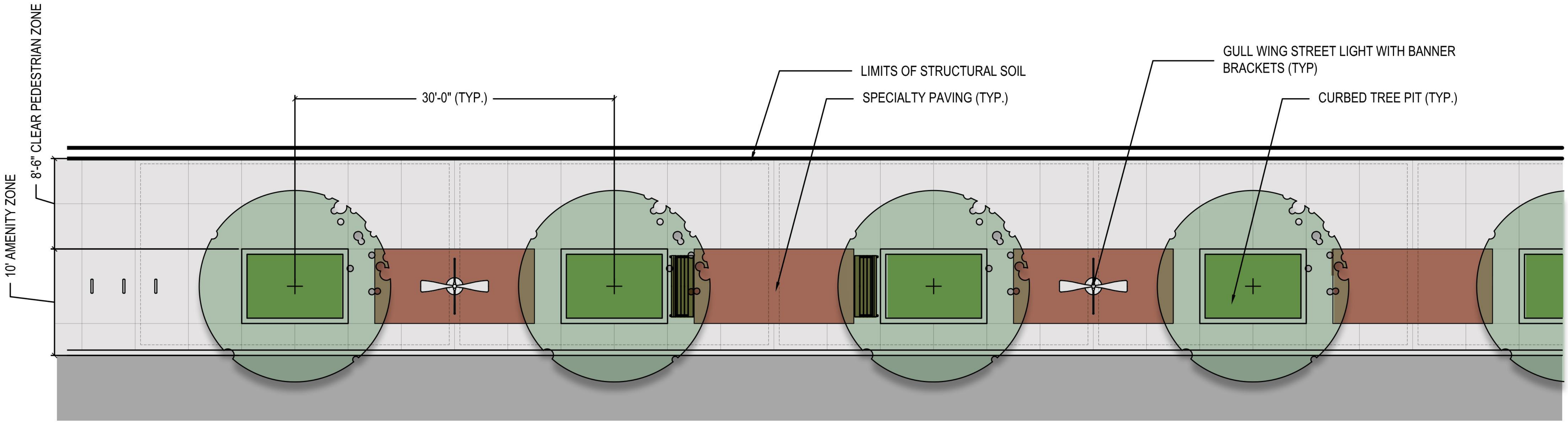
PROJECT/CLIENT
STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP
CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE
PREFERRED ALTERNATE A
ROADWAY PROFILES

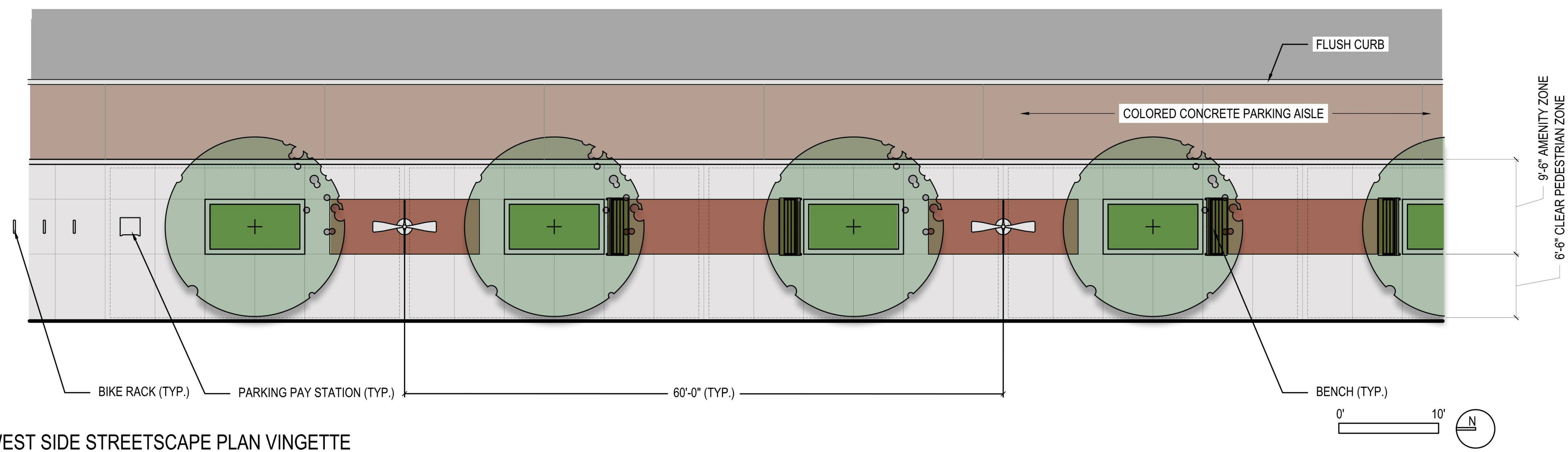
PROJECT NUMBER
2200377
DATE
10/28/2020
DRAWING NUMBER
PR-03

DESIGNER: CURTIS ECKLUND
ENGINEER:
PROJECT MANAGER: WADE DALEY

DESIGN ALTERNATIVE 1: BUILDING A DISTRICT IDENTITY- REPLICATING THE MAIN STREET VOCABULARY

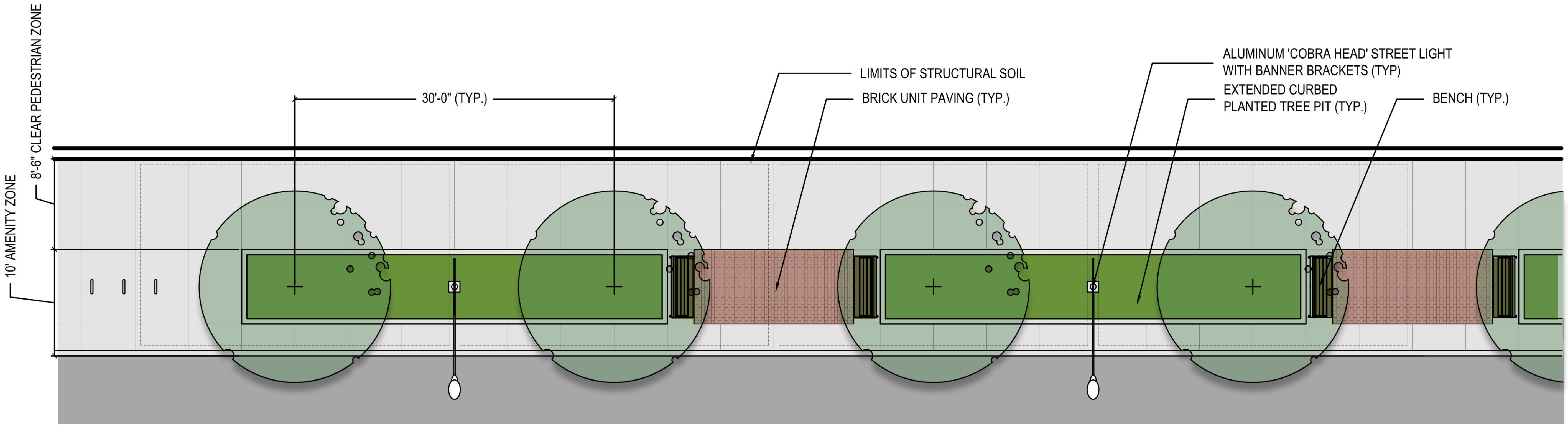


EAST SIDE STREETSCAPE PLAN VINGETTE

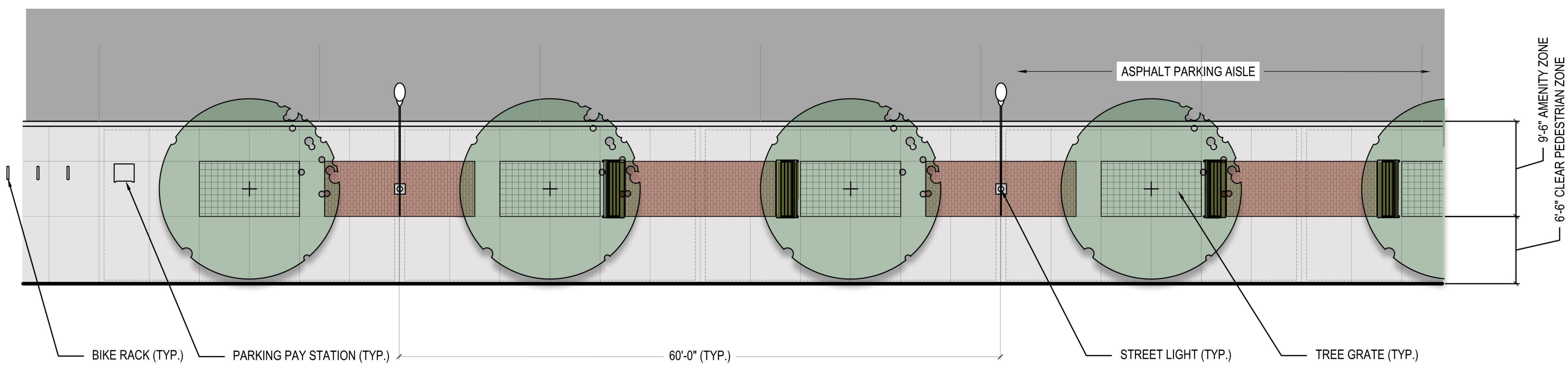


WEST SIDE STREETSCAPE PLAN VINGETTE

DESIGN ALTERNATIVE 2: STRENGTHENING THE STATE STREET EDGE - MODIFYING THE MAIN STREET VOCABULARY



EAST SIDE STREETSCAPE PLAN VINGETTE



WEST SIDE STREETSCAPE PLAN VINGETTE

APPENDIX B

Environmental

Social, Economic and Environmental Resources Checklist

PIN: 4CR0.06	FUNDING TYPE: Federal/Local
DESCRIPTION: The proposed Project includes reconstruction of a 1,500 foot section of State Street between Basin Street and the Inner Loop in Rochester, NY. Reconstruction includes a full depth pavement construction, minor road widening, curb modifications, improved drainage, new sidewalks, street lighting and streetscaping.	DATE: 5/12/2020 REVISION DATE:
MUNICIPALITY: City of Rochester, New York	NEPA CLASS: II/CE
COUNTY: Monroe County	SEQRA TYPE: II
SCOPE: Draft Design Approval Document	

SOCIAL, ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS	IF YES, GO TO IMPACT OR ISSUE; IF NO CHECK BOX BELOW	IMPACT[1] OR ISSUE?	
	NO	YES	NO
Social			
A. Land Use			
1. Is there potential to affect current land use/zoning?	☒	☐	☐
2. Is there a lack of consistency with community's comprehensive plan and/or other local or regional planning goals?	☒	☐	☐
3. Will the project affect any planned or future development?	☒	☐	☐
B. Neighborhoods and Community Cohesion			
1. Are relocations of homes or businesses proposed or acquisition of community resources anticipated?	☒	☐	☐
2. Is there potential for changes to neighborhood character?	☐	☐	☒
3. Is there a potential to impact transportation options (e.g., transit, walking, bicycling)?	☐	☒	☐
4. Are there potential changes to travel patterns that could affect neighborhood quality of life?	☒	☐	☐
5. Will the project divide or isolate portions of the community or generate new development that could affect the current community structure?	☒	☐	☐
C. General Social Groups			
1. Are there potential effects to the ability of transit dependent, elderly, or disabled populations to access destinations (particularly local businesses and health care facilities)?	☒	☐	☐
2. Does the project have the potential to disproportionately impact low income or minority populations (Environmental Justice)?	☐	☐	☒
3. Are there alterations to pedestrian facilities that would affect the elderly or disabled such as lengthening pedestrian crossings or providing median refuge?	☒	☐	☐

SOCIAL, ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS	IF YES, GO TO IMPACT OR ISSUE; IF NO CHECK BOX BELOW	IMPACT[1] OR ISSUE?	
	NO	YES	NO
D. Community Services			
1. Is there potential to affect access to or use of Schools, Recreation Areas or Places of Worship (e.g., detours, sidewalk removal, addition of curb ramps, crosswalks, pedestrian signals, etc.)?	☒	☐	☐
2. Is there potential to affect emergency service response?	☒	☐	☐
Economic			
A. Regional and Local Economies			
1. Is there potential to affect local economic viability (e.g., development potential, tax revenues, employment opportunities, retail sales or public expenditures)?	☒	☐	☐
2. Is there a potential to divert traffic away from businesses?	☒	☐	☐
B. Business Districts			
1. Are there potential effects on the viability or character of Business Districts?	☐	☐	☒
2. Will the project affect transportation options available for patrons getting into or out of the District?	☒	☐	☐
3. Will sidewalks, bicycling opportunities or transit opportunities to or within the district be affected?	☐	☒	☐
4. Will parking within the district be affected?	☒	☐	☐
C. Specific Business Impacts			
1. Are effects to specific businesses anticipated? (e.g., sidewalks, bicycling opportunities, or handicapped access to and from businesses)?	☐	☒	☒
2. Will the project affect available transportation options for patrons to businesses?	☒	☐	☐
3. Will the project affect the ability of businesses to receive deliveries?	☒	☐	☐
4. Will parking for businesses be affected?	☒	☐	☐
Environmental			
1. Are there wetlands within or immediately adjacent to the project limits? *See Environmental Procedures Manual (EPM) 4.A.R, Executive Order (EO) 11990 may apply.*	☒	☐	☐
2. Are there Surface Waters (other than wetlands) within or immediately adjacent to the project limits? *lakes, ponds streams or wetlands of any jurisdiction*	☒	☐	☐
3. Is there a designated Wild or Scenic River within or immediately adjacent to the project limits? *(See The Environmental Manual (TEM) 4.4.3)*	☒	☐	☐
4. Will the project require a U.S. Coast Guard Bridge Permit? *Project area includes a bridge over navigable waters of U.S.*	☒	☐	☐
5. Does the project area contain waters regulated as Navigable by U. S. Army Corps of Engineers? *Section 404/10 Individual Permit or NWP 23 may be required*	☒	☐	☐

SOCIAL, ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS	IF YES, GO TO IMPACT OR ISSUE; IF NO CHECK BOX BELOW	IMPACT[1] OR ISSUE?	
	NO	YES	NO
6. Is the project in a mapped Flood Zone? *TEM section 4.?, EO 11988*	☒	☐	☐
7. Is the project in or could it affect a designated coastal area? *FAN and/or Consistency determination may be required. See TEM 4.6*	☒	☐	☐
8. Is the project area above a Sole Source Aquifer? *See TEM 4.4 Coordination with FHWA and/or EPA may be required.*	☒	☐	☐
9. Will the project involve one (1) acre of ground disturbance (or 5,000 sf in the East of Hudson watershed)?	☒	☐	☐
10. Are federally/state listed endangered species or designated critical habitat indicated for the project county? *Coordination with DEC and/or a FHWA determination may be required. See TEM 4.4.9.3*	☐	☐	☒
11. Is the project in a designated Critical Environmental Area? *TEM 4.4.11(SEQR issue)*	☒	☐	☐
12. Are there any resources protected by Section 106 (or Section 1409) within the project limits or immediate area? *See TEM 4.4.12 Appendix G*	☐	☐	☒
13. Is Native American coordination required outside of Section 106 consultation? *The project on or affecting Native American Lands or other areas of interest*	☒	☐	☐
14. Is there a use, constructive use or temporary occupancy of a 4(f) resource? *See SECTION 4(f) POLICY PAPER and contact Area Engineer.*	☒	☐	☐
15. Will the project involve conversion of a 6(f) resource? *listed as having Land and Water Conservation funds spent on the resource*	☒	☐	☐
16. Is there any potential to affect the character of important and possibly significant the visual resources of the project area and its environs? (*See PDM Chapter 3.2.2.2*)	☒	☐	☐
17. Will the project convert land protected by the Federal Farmland Protection Act? *See TEM 4.4.15*	☒	☐	☐
18. Will the project acquire active farmland from an Agricultural District? *(SEQR issue)*	☒	☐	☐
19. Is the project in a non-attainment area and exceed the CO screening criteria? *see EPM Chapter 1 1.1-19 an Air Quality Analysis required*	☒	☐	☐
20. Is the project in a non-attainment area and exceed the PM screening criteria? *see EPM Chapter 1 1.1-19? A hot spot analysis is required*	☒	☐	☐
21. Is the project a Type I Noise project as per 23 CFR 772? *See TEM 4.4.18*	☒	☐	☐
22. Will the project require the removal of Asbestos Containing Materials? *See TEM 4.4.19*	☐	☒	☐
23. Does the project area contain Contaminated and Hazardous Materials? *EPA National Priority List*	☒	☐	☐
24. Will the project increase the height of towers, construct new towers or other obstructions in a known migratory bird flyway?	☒	☐	☐

NOTES:
[1] The term “impacts” means both positive and negative effects. Both types of effects should be discussed in the body of the report as appropriate.

PREPARED BY (Print Name and Title)**:**

CERTIFICATION:

I certify that the information provided above is true and accurate.

Regional/Main Office Environmental Unit Supervisor ________________________ Date __________

Print Name and Title: ____

Federal Environmental Approval Worksheet

PIN: 4CR0.06	Completed by: Richard C. Bennett	Date Completed: 5/18/20	FUNDING TYPE: Federal
DESCRIPTION: The proposed Project includes reconstruction of a 1,500 foot section of State Street between Basin Street and the Inner Loop in Rochester, NY. Reconstruction includes a full depth pavement construction, minor road widening, curb modifications, improved drainage, new sidewalks, street lighting and streetscaping.			NEPA CLASS: Class II: CE SEQR TYPE: Type II
LOCALITY (Village, Town, City): City of Rochester			COUNTY: Monroe

Purpose of this Worksheet:

- Implement the ***P**rogrammatic **A**greement Between the Federal Highway Administration, New York Division (FHWA), and the New York State Department of Transportation (NYSDOT) **R**egarding the Processing of Actions Classified as **C**ategorical **E**xclusions (CEs) for Federal-Aid Highway Projects* (PARCE)**,** executed September 2017.
- Communicate the project National Environmental Policy Act (NEPA) classification and identify whether the FHWA or the NYSDOT (titles identified per Project Development Manual (PDM) Chapter 4, Exhibit 4-2) is making the CE determination.
- Identify any FHWA independent determinations, approvals and/or concurrences required before the CE determination can be made.
- To be included within the Design Approval Document (DAD) in accordance with the documentation requirements in the PARCE.

Categorical Exclusion (CE) - a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency (40 CFR 1508.4). Actions that do not individually or cumulatively have a significant environmental effect are excluded from the requirement to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS) (23 CFR 771.115(b)).

Instructions:
Initial review of the Federal Environmental Approval Worksheet (FEAW) should occur in scoping or early in Design Phase I to identify potential risks. Complete new review of the FEAW periodically, particularly if project parameters or site condition changes result in potential resource impacts. Completion of the FEAW with signature in Step 4 is required prior to Design Approval. See PDM Chapter 4 for additional details.

Step 1A: Unusual Circumstances Threshold Determination – 23 CFR 771.117(b)
Do any, or the potential for any, unusual circumstances exist[1]?

- Significant environmental impacts **YES☐ NO☒**
- Substantial controversy on environmental grounds **YES☐ NO☒**
- Significant impact on properties protected by Section 4(f) of the DOT Act or Section 106 of the National Historic Preservation Act **YES☐ NO☒**
- Inconsistencies with any Federal, State, or local law, requirement or administrative determination relating to the environmental aspects of the project **YES☐ NO☒**

If yes to any of the above, contact the Main Office Project Liaison (MOPL) (see PDM Exhibit 4-1). Any project which would normally be classified as a CE but could involve unusual circumstances (or even uncertainty) will require consultation with the Office of Environment (OOE) and subsequently with the FHWA to determine if CE classification is still warranted. If, after consultation with the FHWA, it is determined that the project cannot be progressed as a CE, **skip to step 4** and see PDM Chapter 4 for NEPA Class I (EIS) or Class III (EA) processing. If, after consultation with the FHWA, it is determined that the project can be progressed as a CE, **proceed to step 1B.**

If no to all the above, then this project qualifies as a CE; **proceed to step 1B**.

Step 1B: Identification of CE action
Is the project an action listed in 23 CFR 771.117 (c) - (d) (or as identified in FHWA's additional flexibilities memo)?
YES☒ NO☐

If Yes, proceed to step 2.

[1] See definitions and examples of unusual circumstances *in FEAW_Instructions.doc*

If No, contact the MOPL (see PDM Exhibit 4-1). If, after consultation with the OOE and the FHWA, it is determined that the project cannot be progressed as a CE, **skip to step 4** and see PDM Chapter 4 for NEPA Class I (EIS) or Class III (EA) processing. If, after consultation with the FHWA, it is determined that the project can continue as a CE, **proceed to step 2.**

Federal Environmental Approval Worksheet

Project ID Number: 4CR0.06

Step 2: FHWA environmental actions required prior to CE determination[2]

The Step 2 table identifies certain issues that require: the FHWA to make the CE determination (Column A and 2.4); independent FHWA determinations (2.1); FHWA approvals, compliance or concurrence (2.2); or notification to the FHWA (2.3). Review ***the FEAW Thresholds document*** to determine how to fill out each column of Step 2.

2.1 Required FHWA Independent environmental determinations	PARCE threshold exceeded[3]	FHWA independent determination/ concurrence required	Date determination/ concurrence issued	Resource not present, or present but threshold not exceeded
	A	B	B1	C
Executive Order (EO) 11990 Protection of Wetlands Individual Finding		☐	Date Issued	☒
ESA Section 7 Threatened and Endangered Species	☐	☐	Date Issued	☒
Section 106 of National Historic Preservation Act	☐	☒	10/6/2020	☐
Section 4(f) (Park, Wildlife Refuge, Historic Sites, and National Wild and Scenic Rivers)	☐	☐	Date Issued	☒
2.2 Other FHWA environmental approvals, compliance and/or concurrence required	**PARCE threshold exceeded[3]**	**Threshold exceeded; FHWA approval, compliance or concurrence required**		**Resource not present, or present but threshold not exceeded**
EO 11988 Floodplains	☐	☐		☒
EO 13112 Invasive Species		☐		☒
EO 12898 Environmental Justice		☐		☒
Safe Drinking Water Act Section 1424(e)		☐		☒
US Army Corps of Engineers, Section 404/10 NWP #23		☐		☒
Section 6(f) Land and Water Conservation Funds		☐		☒
Migratory Bird Treaty Act		☐		☒
23CFR772 Type I Noise abatement		☐		☒
2.3 Other Environmental Issues requiring FHWA notification	**PARCE threshold exceeded[3]**	**FHWA notification threshold exceeded**		**Resource not present, or present but threshold not exceeded**
US Army Corps of Engineers, Section 404/10 Individual Permit	☐	☐		☒
National Wild and Scenic Rivers	☐	☐		☒
US Coast Guard Bridge Permit	☐	☐		☒
Known hazardous waste site (only EPA National Priority list)		☐		☒
Project on or affecting Native American Lands		☐		☒
2.4 Other Issues Triggering FHWA Approval of Categorical Exclusion	**PARCE threshold exceeded[3]**			**Resource not present, or present but threshold not exceeded**
Property Acquisition	☐			☒
Major Traffic Disruptions	☐			☒
Changes in Access Control	☐			☒

[2] **This table does not represent all environmental issues and actions that a project is subject to**. Classification as a CE does not exempt the project from further environmental review. Refer to the PDM and The Environmental Manual (TEM) to determine review requirements**.**

[3] When PARCE threshold is exceeded, the NYSDOT recommends that the project qualifies as a CE and requests the FHWA make the CE determination. Information on PARCE specific thresholds are contained within ***the FEAW Thresholds document.***

Federal Environmental Approval Worksheet

Project ID Number: 4CR0.06

Step 3: Who makes the NEPA CE Determination?

To identify which party, either the FHWA or the NYSDOT, makes the CE determination in accordance with the PARCE, follow the instructions found in the table below, beginning in Step 3A. This step also identifies which correspondence shell to use to distribute the FEAW and other environmental notifications or approvals.

3	**Determine whether the FHWA or the NYSDOT makes the CE determination and whether additional notifications or approvals are required.**
3A	**Is the project an action listed in 23 CFR 771.117 (c) - (d)** (Answered yes in Step 1B)**?** **YES** ☒ If Yes, **proceed to 3B.** **NO** ☐ If No, the FHWA makes the CE determination. • For **Locally Administered Federal Aid Projects only**, the DAD, the NYSDOT recommendation and request (that the FHWA determines the project qualifies as a CE) are sent from the Regional Planning and Program Manager (RPPM) to the FHWA directly using **Shell 4.** • For all other projects, the DAD and the NYSDOT recommendation and request (that the FHWA determines the project qualifies as a CE) are sent to the MOPL for review using **Shell 3**. **Proceed to Step 4.**
3B	**Are any of the CE Thresholds from the PARCE exceeded** (Are there any checks in Column A of Step 2)**?** **YES** ☐ If Yes, the FHWA makes the CE determination. • For **Locally Administered Federal Aid Projects only**, the DAD and the NYSDOT recommendation and request (that the FHWA determines the project qualifies as a CE) are sent from the RPPM to the FHWA directly using **Shell 4.** • For all other projects, the DAD and the NYSDOT recommendation and request (that the FHWA determines the project qualifies as a CE) are sent to the MOPL for review using **Shell 3**. **Proceed to Step 4.** **NO** ☒ If No, **proceed to 3C.**
3C	**Are there outstanding independent environmental approvals or concurrences?** (Are there checks in column B of Step 2.1 without dates in column B1)**?** **YES** ☐ If Yes, then the FHWA makes the CE determination. • For **Locally Administered Federal Aid Projects only**, the DAD and the NYSDOT recommendation and request (that the FHWA determines the project qualifies as a CE) are sent from the RPPM to the FHWA directly using **Shell 4.** • For all other projects, the DAD and the NYSDOT recommendation and request (that the FHWA determines the project qualifies as a CE) are sent to the MOPL for review using **Shell 3**. **Proceed to Step 4.** **NO** ☒ If No, the NYSDOT makes the NEPA CE determination. **Proceed to 3D.**
3D	**Are there** ☐ any circumstances requiring demonstration of applicable EO compliance (any checks in column B of Table 2.2); or ☐ any issues requiring the FHWA environmental notification (any checks in column B of Table 2.3)? **YES** ☐ If **either** box is checked, **once all required approvals and concurrences have been secured,** the NYSDOT makes the CE determination but the information must be forwarded to FHWA for notification or action prior to Design Approval using **Shell 1. Proceed to step 4.** **NO** ☒ If **neither** box is checked, **once all required approvals and concurrences have been secured** the NYSDOT makes the CE determination without notification to the FHWA. The project will use **Shell 2**. **Proceed to step 4.**

Federal Environmental Approval Worksheet

Project ID Number: 4CR0.06

Step 4: Summary and Recommendation

- The project is located within an area subject to transportation air quality conformity.
  - **If the project is within such areas, the NEPA process may not be completed until all transportation conformity requirements are met[4].** Transportation conformity requirements have been met at the time of this signature.
- This project does qualify to be progressed as a Categorical Exclusion.
- The NEPA Determination will be made by FHWA
- Project is c(26) "Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (including parking, weaving, turning, and climbing lanes), if the action meets the constraints in paragraph (e)..." [4]
- All outstanding FHWA environmental approvals will be obtained and are listed here:

Section 106 of the National Historic Preservation Act

- All the conditions of the PARCE are addressed herein (or within the DAD or attachments).

I certify that the information provided above is true and accurate and recommend the project be processed as described above.

Project Manager/Designer
(or Responsible Local Official) X Richard C. Bennett Date 11/13/20

Print Name and Title: Richard C. Bennett, P.E.

Acting
Regional Environmental Unit Supervisor X [signature] Date 11/17/2020

Print Name and Title: Thomas Button, P.E.

Regional Local Project Liaison
(Locally Administered Projects Only) X Frank DiCostanzo Date 11-17-2020

Print Name and Title: Frank DiCostanzo RLPL

Changes that may have occurred since the preparation of the FEAW which would create the need to go through the FEAW again include, but are not limited to: a change in the scope of the proposed project; a change in the social, economic or environmental circumstances or the setting of the project study area (i.e. the affected environment); a change in the federal statutory environmental standards: discovering new information not considered in the original process; and a significant amount of time has passed (equal or greater than three years).

[4] See additional information on identifying (c)26, (c)27 & (c)28 versus d (13) *in FEAW_Instructions.doc*

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

October 6, 2020

Christopher Caraccilo
Cultural Resource Coordinator
NYS Department of Transportation Region 4
1530 Jefferson Road
Rochester, NY 14623

Re: FHWA
4CR0.06 State Street Reconstruction Project
State Street, Rochester, Monroe County
20PR05622

Dear Christopher Caraccilo:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

We note that the proposed undertaking is adjacent to several buildings listed in the State and National Registers of Historic Places. These properties include: The State Street Historic District, Wilder Building, Powers Building, and First National Bank of Rochester. We further note that the proposed undertaking is adjacent to several properties eligible for listing in the State and National Registers of Historic Places. These properties include: 100 State Street, 55 State Street and 39-41 State Street. We have reviewed the submission received on September 11, 2020. Based on that review, SHPO concurs with DOT's finding of No Adverse Effect.

If you have any questions, I can be reached at 518-268-2170.

Sincerely,

Robyn Sedgwick
Historic Site Restoration Coordinator
e-mail: robyn.sedgwick@parks.ny.gov

via e-mail only

cc: D. Temburni – DOT
M. Santangelo – DOT

U.S. Department of Transportation
Federal Highway Administration

New York Division

Leo W. O'Brien Federal Building
11A Clinton Avenue, Suite 719
Albany, NY 12207
518-431-4127
Fax: 518-431-4121
NewYork.FHWA@dot.gov

October 14, 2020

In Reply Refer To:
HPD-NY

Mr. Christopher Caraccilo
Regional Cultural Resource Coordinator
New York State Department of Transportation, Region 4
1530 Jefferson Road
Rochester, NY 14623

Subject: PIN 4CR0.06 - Section 106 Concurrence
State Street Reconstruction Project
City of Rochester, Monroe County

Dear Mr. Caraccilo:

In response to your letter dated October 13 requesting our concurrence that the requirements of 36 Code of Federal Regulations (CFR) Part 800 of the National Historic Preservation Act have been met for this project, we have reviewed the submitted Finding Documentation.

The New York SHPO has reviewed the proposed undertaking in accordance with Section 106 of the National Historic Preservation Act and their letter dated October 6, 2020 offers an opinion that this undertaking has *No Adverse Effect* upon the multiple State and National Registers listed buildings and eligible historic properties which are adjacent to the subject project.

Upon review of the information provided including the finding document, we have concluded that this undertaking has *No Adverse Effect* to the multiple historic properties and historic buildings eligible for inclusion on the National Register of Historic Places. The requirements of 36 CFR Part 800 have been met for this project. If you have any questions, please feel free to contact me at (518) 431-8852.

Sincerely,

Dipshikha

Dipshikha Temburni
Area Engineer

cc: R. Davies, Project Delivery and Engineering Leader, FHWA
M. Santangelo, NYSDOT Main Office
D. Clements, City of Rochester

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: May 06, 2020
Consultation Code: 05E1NY00-2020-SLI-2826
Event Code: 05E1NY00-2020-E-08418
Project Name: State Street Reconstruction

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq*.). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq*.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/

eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2020-SLI-2826

Event Code: 05E1NY00-2020-E-08418

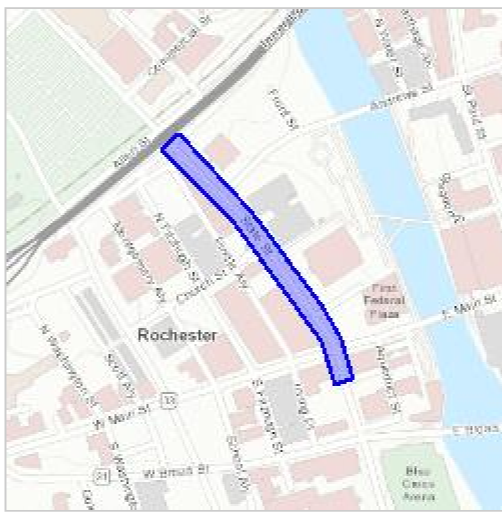
Project Name: State Street Reconstruction

Project Type: TRANSPORTATION

Project Description: The project includes several upgrades to State Street in Rochester, NY. The Project Site is an approximately 1,500 foot long corridor from Basin Street to the Inner Loop.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.15698220450005N77.61367243723757W



Counties: Monroe, NY

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Smart Growth Screening Tool

PIN **4CR0.06**

Prepared By:

Smart Growth Screening Tool (STEP 1)

NYSDOT & Local Sponsors – Fill out the Smart Growth Screening Tool until the directions indicate to **STOP** for the project type under consideration. For all other projects, complete answering the questions. For any questions, refer to Smart Growth Guidance document.

Title of Proposed Project: State Street Reconstruction Project

Location of Project: City of Rochester, Monroe County, New York

Brief Description: The proposed Project includes reconstruction of a 1,500 foot section of State Street between Basin Street and the Inner Loop in Rochester, NY. Reconstruction includes a full depth pavement construction, minor road widening, curb modifications, improved drainage, new sidewalks, street lighting and streetscaping.

A. Infrastructure:

Addresses SG Law criterion a. –
(To advance projects for the use, maintenance or improvement of existing infrastructure)

1. Does this project use, maintain, or improve existing infrastructure?

Yes ☒ **No** ☐ **N/A** ☐

Explain: (use this space to expand on your answers above – the form has no limitations on the length of your narrative)

The upgrade includes pavement construction and road widening to improve transportation efficiency along an existing highway corridor in the downtown area of Rochester, New York. Improved drainage will prevent flooding issues during storm events. New sidewalks will improve pedestrian traffic and streetscaping on the existing sidewalks will improve the appearance of the area.

Maintenance Projects Only

a. Continue with screening tool for the four (4) types of maintenance projects listed below, as defined in **NYSDOT PDM Exhibit 7-1 and described in 7-4:** https://www.dot.ny.gov/divisions/engineering/design/dqab/pdm

- Shoulder rehabilitation and/or repair;
- Upgrade sign(s) and/or traffic signals;
- Park & ride lot rehabilitation;
- 1R projects that include single course surfacing (inlay or overlay), per Chapter 7 of the NYSDOT Highway Design Manual.

b. For all other maintenance projects, **STOP here.** Attach this document to the programmatic Smart Growth Impact Statement and signed Attestation for Maintenance projects.

For all other projects (other than maintenance), continue with screening tool.

B. Sustainability:

NYSDOT defines Sustainability as follows: A sustainable society manages resources in a way that fulfills the community/social, economic and environmental needs of the present without compromising the needs and opportunities of future generations. A transportation system that supports a sustainable society is one that:

- Allows individual and societal transportation needs to be met in a manner consistent with human and ecosystem health and with equity within and between generations.
- Is safe, affordable, and accessible, operates efficiently, offers choice of transport mode, and supports a vibrant economy.
- Protects and preserves the environment by limiting transportation emissions and wastes, minimizes the consumption of resources and enhances the existing environment as practicable.

For more information on the Department's Sustainability strategy, refer to Appendix 1 of the Smart Growth Guidance and the NYSDOT web site, www.dot.ny.gov/programs/greenlites/sustainability

(Addresses SG Law criterion j **:** to promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad based public involvement in developing and implementing a community plan and ensuring the governance structure is adequate to sustain and implement.)

1. Will this project promote sustainability by strengthening existing communities?

   Yes ☒ **No** ☐ **N/A** ☐

2. Will the project reduce greenhouse gas emissions?

   Yes ☐ **No** ☒ **N/A** ☐

   Explain: (use this space to expand on your answers above)

This Project will promote sustainability by improving the transportation infrastructure within the community. The Project will also increase roadway safety and accessibility for different user groups. Sidewalks and accessible ramps will improve disability access.

C. Smart Growth Location:

Plans and investments should preserve our communities by promoting its distinct identity through a local vision created by its citizens.

(Addresses SG Law criteria b and c**:** to advance projects located in municipal centers; to advance projects in developed areas or areas designated for concentrated infill development in a municipally approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan.)

1. Is this project located in a developed area?

   Yes ☒ **No** ☐ **N/A** ☐

2. Is the project located in a municipal center?

   Yes ☒ **No** ☐ **N/A** ☐

3. Will this project foster downtown revitalization?

   Yes ☒ **No** ☐ **N/A** ☐

4. Is this project located in an area designated for concentrated infill development in a municipally approved comprehensive land use plan, waterfront revitalization plan, or Brownfield Opportunity Area plan?

   Yes ☐ **No** ☒ **N/A** ☐

Explain: (use this space to expand on your answers above)

The project is located in the downtown area of the City of Rochester. It is also located with in the Central Business District of the City. The project will foster downtown revitalization by improving traffic efficiency and pedestrian walk ways to promote activity to local businesses. The improved streetscape will also add to the beautification of this urban setting.

D. Mixed Use Compact Development:

Future planning and development should assure the availability of a range of choices in housing and affordability, employment, education transportation and other essential services to encourage a jobs/housing balance and vibrant community-based workforce**.**

(Addresses SG Law criteria e and i: to foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment, recreation and commercial development and the integration of all income groups; to ensure predictability in building and land use codes.)

1. Will this project foster mixed land uses?

   Yes ☐ **No** ☒ **N/A** ☐

2. Will the project foster brownfield redevelopment?

   Yes ☐ **No** ☒ **N/A** ☐

3. Will this project foster enhancement of beauty in public spaces?

   Yes ☒ **No** ☐ **N/A** ☐

4. Will the project foster a diversity of housing in proximity to places of employment and/or recreation?

   Yes ☐ **No** ☒ **N/A** ☐

5. Will the project foster a diversity of housing in proximity to places of commercial development and/or compact development?

   Yes ☐ **No** ☒ **N/A** ☐

6. Will this project foster integration of all income groups and/or age groups?

   Yes ☐ **No** ☒ **N/A** ☐

7. Will the project ensure predictability in land use codes?

   Yes ☐ **No** ☒ **N/A** ☐

8. Will the project ensure predictability in building codes?

   Yes ☐ **No** ☒ **N/A** ☐

Explain: (use this space to expand on your answers above)

This Project is an improvement of deteriorating transportation infrastructure, and will therefore foster enhancement of beauty in public spaces. The Project is not expected to have a significant impact on land use or brownfield redevelopment. This Project will have no impact on diversity of housing related to places of employment, commercial development, or recreation.

E. Transportation and Access:

NYSDOT recognizes that Smart Growth encourages communities to offer a wide range of transportation options, from walking and biking to transit and automobiles, which increase people's access to jobs, goods, services, and recreation.

(Addresses SG Law criterion f: to provide mobility through transportation choices including improved public transportation and reduced automobile dependency.)

1. Will this project provide public transit?

   Yes ☐ **No** ☒ **N/A** ☐

2. Will this project enable reduced automobile dependency?

   Yes ☐ **No** ☒ **N/A** ☐

3. Will this project improve bicycle and pedestrian facilities (such as shoulder widening to provide for on-road bike lanes, lane striping, crosswalks, new or expanded sidewalks or new/improved pedestrian signals)?

   Yes ☒ **No** ☐ **N/A** ☐

   (Note: Question 3 is an expansion on question 2. The recently passed Complete Streets legislation requires that consideration be given to complete street design features in the planning, design, construction, reconstruction and rehabilitation, but not including resurfacing, maintenance, or pavement recycling of such projects.)

   Explain: (use this space to expand on your answers above)

   This Project does not provide public transit; however, the Project may reduce automobile dependency by widening the road for ease of bicycle traffic and imroving accessibility ramps along the roadway. Project seeks to add new 5 foot wide bike lanes between CHurch Street and the Inner Loop. Additionally, new sidewalks may increase pedestrian traffic to local businesses. These improvements include improving surface drainage and riding quality, new sidewalks and installing accessibility ramps.

F. Coordinated, Community-Based Planning:

Past experience has shown that early and continuing input in the transportation planning process leads to better decisions and more effective use of limited resources. For information on community based planning efforts, the MPO may be a good resource if the project is located within the MPO planning area.

(Addresses SG Law criteria g and h: to coordinate between state and local government and inter-municipal and regional planning; to participate in community based planning and collaboration.)

1. Has there been participation in community-based planning and collaboration on the project?

Yes ☒ No ☐ N/A ☐

2. Is the project consistent with local plans?

Yes ☒ No ☐ N/A ☐

3. Is the project consistent with county, regional, and state plans?

Yes ☒ No ☐ N/A ☐

4. Has there been coordination between inter-municipal/regional planning and state planning on the project?

Yes ☒ No ☐ N/A ☐

Explain: (use this space to expand on your answers above)

There is a public information component to the transportation management plan. This plan is consistent with local, county, and state plans. There has been, and will continue to be, coordination between state and local officials and groups.

G. Stewardship of Natural and Cultural Resources:

Clean water, clean air and natural open land are essential elements of public health and quality of life for New York State residents, visitors, and future generations. Restoring and protecting natural assets, and open space, promoting energy efficiency, and green building, should be incorporated into all land use and infrastructure planning decisions.

(Addresses SG Law criterion d :To protect, preserve and enhance the State's resources, including agricultural land, forests surface and ground water, air quality, recreation and open space, scenic areas and significant historic and archeological resources.)

1. Will the project protect, preserve, and/or enhance agricultural land and/or forests?

Yes ☐ No ☒ N/A ☐

2. Will the project protect, preserve, and/or enhance surface water and/or groundwater?

Yes ☐ No ☒ N/A ☐

3. Will the project protect, preserve, and/or enhance air quality?

Yes ☐ No ☒ N/A ☐

4. Will the project protect, preserve, and/or enhance recreation and/or open space?

Yes ☐ No ☒ N/A ☐

5. Will the project protect, preserve, and/or enhance scenic areas?

Yes ☐ **No** ☒ **N/A** ☐

6. Will the project protect, preserve, and/or enhance historic and/or archeological resources?

Yes ☐ **No** ☐ **N/A** ☒

Explain: (use this space to expand on your answers above)

This Project is not likely to protect, preserve, or enhance agriculture lands, surface water or ground water, forests, air quality, recreation or open spaces, scenic areas, and/or historic or archeological resources. However, the Project will also not adversely affect these resources. The Project is located in a commercial area surrounded by paved roadways and stormwater drains.

Smart Growth Impact Statement (STEP 2)

NYSDOT: Complete a Smart Growth Impact Statement (SGIS) below using the information from the Screening Tool.

Local Sponsors: The local sponsors are **not** responsible for completing a Smart Growth Impact Statement. Proceed to **Step 3**.

Smart Growth Impact Statement

PIN:

Project Name:

Pursuant to ECL Article 6, this project is compliant with the New York State Smart Growth Public Infrastructure Policy Act. This project has been determined to meet the relevant criteria, to the extent practicable, described in ECL Sec. 6-0107. Specifically, the project:

-
-
-
-
-
-

This publically supported infrastructure project complies with the state policy of maximizing the social, economic and environmental benefits from public infrastructure development. The project will not contribute to the unnecessary costs of sprawl development, including environmental degradation, disinvestment in urban and suburban communities, or loss of open space induced by sprawl.

Review & Attestation Instructions (STEP 3)

Local Sponsors: Once the Smart Growth Screening Tool is completed, the next step is to submit the project certification statement **(Section A)** to Responsible Local Official for signature. After signing the document, the completed Screening Tool and Certification statement should be sent to NYSDOT for review as noted below.

NYSDOT: For state-let projects, the Screening Tool and SGIS is forwarded to Regional Director/ RPPM/Main Office Program Director or designee for review, and upon approval, the attestation is signed **(Section B.2).** For locally administered projects, the sponsor's submission and certification statement is reviewed by NYSDOT staff, the appropriate box **(Section B.1)** is checked, and the attestation is signed (Section B.2).

A. CERTIFICATION (LOCAL PROJECT)

I HEREBY CERTIFY*, to the best of my knowledge, all of the above to be true and correct.*

Preparer of this document:

Richard C. Bennett

Signature

11/13/20

Date

Project Manager

Title

Richard C. Bennett, PE

Printed Name

Responsible Local Official (for local projects):

Holly Barrett

Signature

11/18/2020

Date

City Engineer

Title

Holly E. Barrett, PE

Printed Name

B. ATTESTATION (NYSDOT)

1. ***I HEREBY:***

☑ *Concur with the above certification, thereby attesting that this project is in compliance with the State Smart Growth Public Infrastructure Policy Act*

☐ *Concur with the above certification, with the following conditions (information requests, confirming studies, project modifications, etc.):*

(Attach additional sheets as needed)

☐ do not concur with the above certification, thereby deeming this project ineligible to be a recipient of State funding or a subrecipient of Federal funding in accordance with the State Smart Growth Public Infrastructure Policy Act.

2. ***NOW THEREFORE,*** pursuant to ECL Article 6, this project is compliant with the New York State Smart Growth Public Infrastructure Policy Act, to the extent practicable, as described in the attached Smart Growth Impact Statement.

NYSDOT Commissioner, Regional Director, MO Program Director,
Regional Planning & Programming Manager (or official designee):

Frank DiCostanzo

Signature

11/19/2020

Date

RLPL

Title

Frank DiCostanzo

Printed Name

Exhibit 18-1 Pedestrian Generator Checklist

P.I.N.: **4CR0.06** Project Location: **City of Rochester, Monroe County, New York**

PEDESTRIAN GENERATOR CHECKLIST

Note: The term "generator" in this document refers to both pedestrian generators (where pedestrians originate) and destinations (where pedestrians travel to).
A check of" yes" indicates a potential need to accommodate pedestrians and coordination with the Regional Bicycle and Pedestrian Coordinator is necessary during project scoping. Answers to the following questions should be checked with the local municipality to ensure accuracy.

1.	Is there an existing or planned sidewalk, trail, or pedestrian-crossing facility?	**YES** X **NO**□
2.	Are there bus stops, transit stations or depots/terminals located in or within 800 m of the project area?	**YES** X **NO**□
3.	Is there more than occasional pedestrian activity? Evidence of pedestrian activity may include a worn path.	**YES** X **NO**□
4.	Are there existing or approved plans for generators of pedestrian activity in or within 800m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as schools, parks, playgrounds, places of employment, places of worship, post offices, municipal buildings, restaurants, shopping centers, or other commercial areas, or shared-use paths?	**YES** X **NO**□
5.	Are there existing or approved plans for seasonal generators of pedestrian activity in or within 800 m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as ski resorts, state parks, camps, amusement parks?	**YES**□ **NO** X
6.	Is the project located in a residential area within 800 m of existing or planned pedestrian generators such as those listed in 4 above?	**YES**□ **NO** X
7.	From record plans, were pedestrian facilities removed during a previous highway reconstruction project?	**YES**□ **NO** X
8.	Did a study of secondary impacts indicate that the project promotes or is likely to promote commercial and/or residential development within the intended life cycle of the project?	**YES**□ **NO** X
9.	Does the community's comprehensive plan call for development of pedestrian facilities in the area?	**YES**□ **NO** X
10.	Based on the ability of students to walk and bicycle to school, would the project benefit from engineering measures under the Safe-Routes-To-School program? Eligible infrastructure-related improvements must be within a 3.2 km radius of the project.	**YES**□ **NO** X

Note: This checklist should be revisited due to a project delay or if site conditions or local planning changes during the project development process.

Comments:

Regional Bicycle and Pedestrian Coordinator:

Project Designer:

June 17, 2020

Hazardous Waste and Contaminated Materials Screening: Department of Transportation State Street Reconstruction Project

This summary letter is being provided to document the findings of a Hazardous Waste and Contaminated Materials Screening along the proposed route of the State Street Reconstruction Project located in Monroe County, New York. The purpose of this assessment is to identify potential contaminant locations that may be encountered during construction. This assessment is necessary for the New York State Department of Transportation (NYSDOT) to avoid becoming the unwitting owner of a hazardous waste site or hazardous materials, to contemplate disposal alternatives for excavated soils, and to identify health and safety concerns that could affect contractors and the surrounding community.

STATE STREET RECONSTRUCTION HAZARDOUS WASTE AND CONTAMINATED MATERIALS SCREENING

The major components of this Hazardous Waste and Contaminated Materials Screening include the review of the following resources within the Project Corridor.

- Regulatory records search of American Society for Testing and Materials (ASTM) E1527-13 required databases were provided by Environmental Risk Information Services (ERIS), independent research firms. It should be noted that while ASTM E1527-13 databases were searched by ERIS, this document is not an ASTM E1527-13 Standard Practice for Environmental Site Assessments Phase I Environmental Site Assessment Process. The regulatory records reviewed are detailed below:
    - United States Environmental Protection Agency (USEPA) National Priority List (NPL)
    - USEPA Delisted NPL
    - USEPA Superfund Enterprise Management System (SEMS) and SEMS Archived Sites
    - USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and Archived (No Further Remedial Action Planned – NFRAP) CERCLIS Sites
    - USEPA Resource Conservation and Recovery Act (RCRA) Corrective Action Sties (CORRACTS) Treatment, Storage, and Disposal Facility Listing (TSD)
    - USEPA RCRA non-CORRACTS TSD
    - USEPA RCRA Generator Listings
    - National Response Center Emergency Response and Notification System Listing (ERNS)
    - Federal, state and local Institutional Controls/Engineering Controls and Land Use Restrictions
    - New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites (IHWDS) (state equivalent of NPL Sites)

  - NYSDEC Registry of Brownfield Cleanup Program Sites (BCP), Voluntary Cleanup Program Sites (VCP) and Environmental Restoration Program Sites (ERP)
  - NYSDEC Part 360 Permitted Solid Waste Disposal Facilities
  - NYSDEC Listing of Registered Petroleum Bulk Storage Facilities (PBS), Chemical Bulk Storage Facilities (CBS) and Major Oil Storage Facilities (MOSF)
  - NYSDEC Listing of Active Spills and Leaking Storage Tanks
- Review of available historical Sanborn Fire Insurance Maps for Project Corridor provided by ERIS.
- Summary of Areas of Potential Environmental Concern and need for additional investigation (e.g., soil sampling adjacent and/or in the immediate vicinity to Areas of Potential Environmental Concern)

FINDINGS

This screening identified a total of 42 sites of environmental concern within the Project area and adjacent properties. The following pertinent information includes data obtained from regulatory listings, as identified and provided by ERIS in addition to historical information obtained from LaBella's review of available historical Sanborn Fire Insurance Maps, also provided by ERIS. This regulatory listing database and historical fire insurance map package is available for review upon request due to the immense size of the ERIS packages. LaBella's pertinent findings, based on this cumulative information, are detailed below:

State Street Reconstruction:
Sites/ Locations of Concern

Site No.	Parcel Address (Tax ID)	Regulatory Listings	Additional Historical Aerial/FIRM information	Project Site Impacts	Recommended Action
1	100 State Street	**FINDS/FRS, RCRA non-gen-** Federal Building and US Courthouse **GEN MANIFEST**- Ignitable waste, spent non-halogenated solvents, spend solvent mixtures present in 1992 **NY SPILLS**: Spill #9000376 (chemical odor from marble installation, closed) Spill #0485692 (small amount of petroleum product spilled on	Historic commercial operations including sign painting store. Court house and federal building from at least 1971.	None anticipated. No violations reported at the facility	None anticipated

Site No.	Parcel Address (Tax ID)	Regulatory Listings	Additional Historical Aerial/FIRM information	Project Site Impacts	Recommended Action
		handicapped ramp, cleaned up, closed) Spill #9870429 (Potential anthrax poisoning on envelope in mail room, area secured, inactive) **UST**- PBS 8-600005 3,000 G diesel- closed/removed			
2	39 State Street	**FINDS/FRS**- Real estate agents and managers **FTTS INSP** **FTTS ADMIN** **ICIS**	Historically utilized as a bank from at least 1892 until at least 1971. Currently utilized as commercial space.	None anticipated. No violations reported at the facility.	None anticipated
3	43 State Street	**NY SPILLS:** Spill #9415388 (1-2 G of gas spilled, cleaned up, closed)	Historically utilized as an office building from at least 1892 until at least 1971. Currently utilized as office space	None anticipated. Spill appears to be related to surface spill clean-up.	None anticipated
4	Andrews Street Bridge over	**FINDS/FRS**- City of Rochester Andrews Street Bridge	Roadway from at least 1892 until date of report.	None anticipated. No violations reported at the facility.	None anticipated
5/ 14	150 State Street	**FINDS/FRS**- Rochester District Heating **GEN MANIFEST**- Mercury containing waste present in 2011 **RCRA non gen**- Rochester District Heating **NY SPILLS**: Spill #0550305 (Approx. 40 G of hydraulic oil spilled to sewer, cleaned up and closed)	Historically commercial space since 1892 including liquor store, fixture and kitchen equipment store, and office building.	None anticipated. No violations reported at the facility	None anticipated
6/7	700 Cross Roads, 2 State Street	**FINDS/FRS**- Sibley Mortgage Corp **RCRA NON GEN**- Sibley Mortgage Corp. **PRP**- Referred to removal, no further action plan	Historically utilized as the Exchange Place Building with multiple stores and office spaces since at least 1892.	None anticipated. No violations reported at the facility	None anticipated

Site No.	Parcel Address (Tax ID)	Regulatory Listings	Additional Historical Aerial/FIRM information	Project Site Impacts	Recommended Action
8	1 W. Main Street	**AST**- PBS 8-601425 825 G diesel- in service **GEN MANIFEST**- Waste containing PCBs present in 1987 **TIER 2**- Level 3 Communications, LLC	Historically utilized as multiple stores and office spaces since at least 1892.	None anticipated. No violations reported at the facility.	None anticipated
9	Mile Marker QC371.5 State Street and Allen Street	**NY SPILLS:** Spill #1700275 (15 G of lube oil spilled on soil, cleaned up, inactive)	Roadway from at least 1892 until date of report.	None anticipated. Spill appears to be related to surface spill clean-up.	None anticipated
10	1 E. Main Street	**PRP**- On final NPL, settlement on 09/21/1990	Historically utilized as Wilder Building with multiple stores, offices, and restaurants since at least 1892.	None anticipated. No violations reported at the facility.	None anticipated
11	8 Church Street	**FINDS/FRS**- Fairport Central School District	Historically utilized as a store and a restaurant from at least 1892, followed by a parking lot in at least 1971.	None anticipated. No violations reported at the facility.	None anticipated
12	Inner Loop at State Street	**NY SPILLS:** Spill #9305563 (vehicle spilled approx. 5 G of oil spilled to driveway, cleaned up, closed)	Roadway from at least 1892 until date of report.	None anticipated. Spill appears to be related to surface spill clean-up.	None anticipated
13	16 E. Main Street	**UST**- PBS 8-600169 6,000 G fuel oil- closed in place	Historically utilized as a store, followed by a bank in at least 1971.	None anticipated. The spill is located outside the Project limit of disturbance	None anticipated
15	30 State Street	**ALT FUELS**- Elec charging station **FINDS/FRS**- City of Rochester- plant aquaculture, vocational rehab services **GEN MANIFEST**- Waste containing mercury present in 2001, Non halogenated solvents present in 1989, spent halogenated solvents present in	Historically utilized as a post office federal building from at least 1892. Currently Rochester City Hall building.	None anticipated. Spills appear to be related to surface spill clean-up. No violations reported at the facility	None anticipated

Site No.	Parcel Address (Tax ID)	Regulatory Listings	Additional Historical Aerial/FIRM information	Project Site Impacts	Recommended Action
		2008, lead containing waste present in 1999 **HIST MLTS**- City of Rochester **NY SPILLS**: Spill #9612788 (Freon released into building, unrecoverable) Spill #1301299 (2 G of diesel spilled to sewer, closed) **SWF/LF**- Rochester landfill permit **UST**- PBS 8-601693 275 G gasoline- closed/ removed			
16	120 State Street	N/A	Historically utilized as a gasoline filling station in at least 1950 with two gas tanks observed.	Contamination may be encountered during the reconstruction of State Street at the intersection of State Street and Andrews Street.	Screening during construction adjacent to facility to determine the presence/absence of contamination associated with historic use as a gas station.

120 State Street

According to the review of available historical information, it appears the northern adjacent property, addressed as 120 State Street, was historically utilized as a gasoline filling station in at least 1950 with at least two (2) associated historical USTs documented in 1950. As of the date of this report submission, no additional information associated with the UST system at the property was obtained or provided to LaBella.

Based on the usage of the Site as a gasoline filling station, there is the potential for additional generations of underground storage tanks to have been installed, removed, closed in place, and/or abandoned on this property, with a potential for contamination to migrate onto State Street. Therefore it is recommended that a specification be added to the contract documents for screening, segregating and disposing of non-hazardous petroleum contaminated soil for the proposed work adjacent to this site. The plans should identify this property as a location where petroleum contamination may be encountered.

Key

USTs – Underground Storage Tank
ASTs – Aboveground Storage Tank
SWF/LF- Solid Waste Facilities and Landfills
FINDS/FRS- Facility Registry Service/ Facility Index
PRP- Potentially Responsible Parties List
ALT FUELS- Alternative Fueling Stations
PCB- Polychlorinated Biphenyl
GEN MANIFEST- Generators From Hazardous Waste Manifests

PRELIMINARY ASBESTOS SCREENING

Date: May 27, 2020

Re: State Street Reconstruction Project

LaBella Associates, D.P.C. (LaBella) conducted a preliminary asbestos screening of areas scheduled to be impacted by the upcoming State Street Reconstruction Project located in Monroe County, New York. The objective was to identify suspect asbestos-containing materials (ACM) which may require abatement or removal prior to or in conjunction with the reconstruction project, due to applicable regulations.

In accordance with the NYSDOT Environmental Manual (TEM), three samples of each suspect homogenous material must be collected prior to the construction project. Impacted materials that are asbestos-containing materials (ACM) must be handled in accordance with all applicable federal, state, and local laws. A material is defined as an ACM under the Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 if it contains greater than one percent (>1%) asbestos by weight.

The following procedures were used to obtain the data for this screening:

A. A review of record drawings supplied by City of Rochester personnel was conduct to develop an understanding of the possible presence of confirmed (or assumed) ACMs.

Other than review of record drawings, no other investigation was performed by LaBella to determine the possible presence of suspect ACMs within the proposed project area.

FINDINGS

The asbestos screening identified a total of 25 different materials along the planned route of the State Street Reconstruction Project. Due to an unknown history of renovations along this route, LaBella's findings outlined below shall be field verified as some materials may no longer be present in locations noted in the record drawings. LaBella's pertinent findings, based on the provided drawings, are detailed below:

Item No.	***Description***	***Drawing No. Location***	***Estimated Amount***
680.730208RS	Signal cable 2-conductor 8 AWG	600-15/Church St.	70 LF
680.730714RS	Signal cable 7-conductor 14 AWG	600-15/Church St.	311 LF
680.730914RS	Signal cable 9-conductor 14 AWG	600-15/Church St.	832 LF
686.7201RS	Inductance loop wire	600-15/Church St.	777 LF
Unknown	Electrical conduits	A-1/State St.	unknown

Item No.	*Description*	*Drawing No. Location*	*Estimated Amount*
Unknown	Steam lines	A-1/State St.	Unknown
Unknown	Water lines	A-1/State St.	Unknown
Unknown	Electric panels	A-1/State St.	Unknown
Unknown	Temporary Lighting wire	A-1/State St.	Unknown
Unknown	Joint Sealant	A-2/State St. Powers Building	Unknown
Unknown	Waterproofing membrane	A-2/State St. Powers Building	Unknown
Unknown	Electrical conduits	A-3/State St. Powers Building	Unknown
Unknown	Joint sealant	A-3/State St. Powers Building	Unknown
Unknown	Gas lines	A-3/State St. Powers Building	Unknown
Unknown	Water lines	A-3/State St. Powers Building	Unknown
Unknown	Steam lines	A-3/State St. Powers Building	Unknown
Unknown	Gas lines	A-4/35 State St. First National Bank	Unknown
Unknown	Electrical conduits	A-4/35 State St. First National Bank	Unknown
Unknown	Water lines	A-4/35 State St. First National Bank	Unknown
Unknown	Lighting	A-4/35 State St. First National Bank	Unknown
Unknown	Electrical conduits	Drawing No. 1 of 3/State St.	Unknown
Unknown	Telephone conduits	Drawing No. 1 of 3/State St.	Unknown
Unknown	4” V.T.P. Underdrain Pipe	Drawing No.1 of 1/Allen St.	Unknown
Unknown	Waterproofing membrane	Drawing No. 2 of 2/State St. Section A-A	Unknown
Unknown	3 Ply Waterproofing	Drawing No. 1/State St. Areaways	Unknown

APPENDIX C

TRAFFIC AND SAFETY INFORMATION

C-1 TRAFFIC ANALYSIS
- TRAFFIC VOLUMES
- CAPACITY ANALYSIS

C-2 SAFETY ANALYSIS
- SUMMARY
- ACCIDENT SUMMARY SHEETS
- COLLISION DIAGRAMS
- CRASH RATE CALCULATIONS

APPENDIX C-1

TRAFFIC ANALYSIS

TRAFFIC ANALYSIS

TRAFFIC VOLUME FIGURES

FILE NAME : \\Projects2\ProjectsNZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\NIC\2200377_cph_traffic_volumes.dgn
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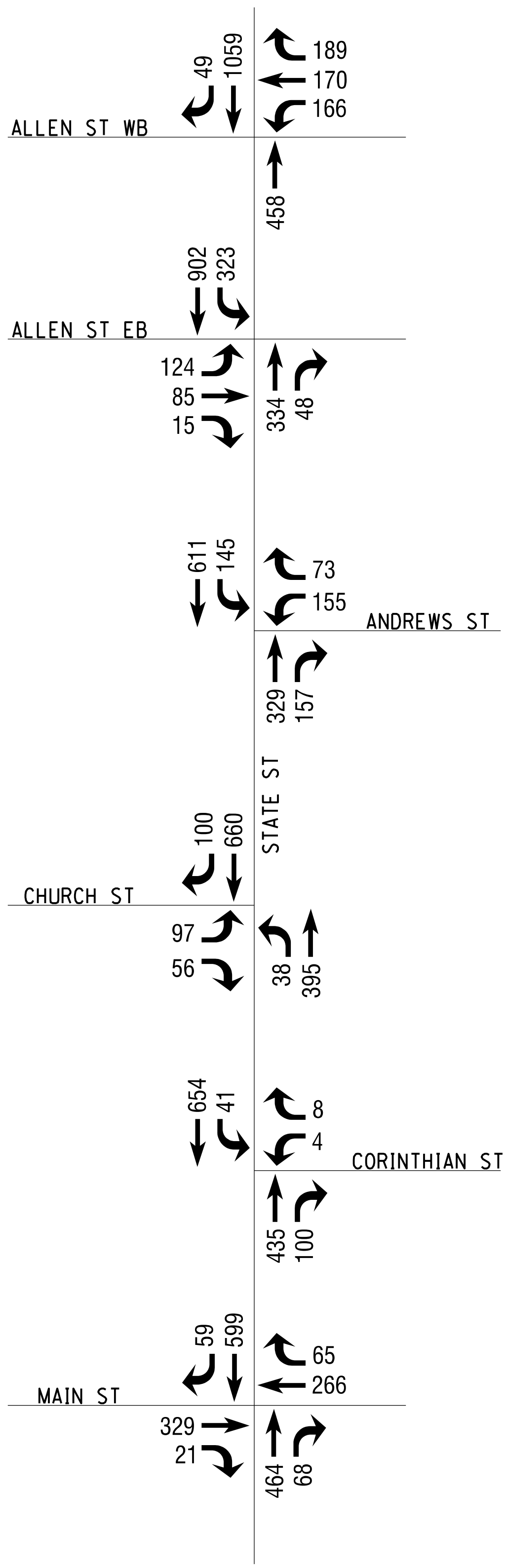
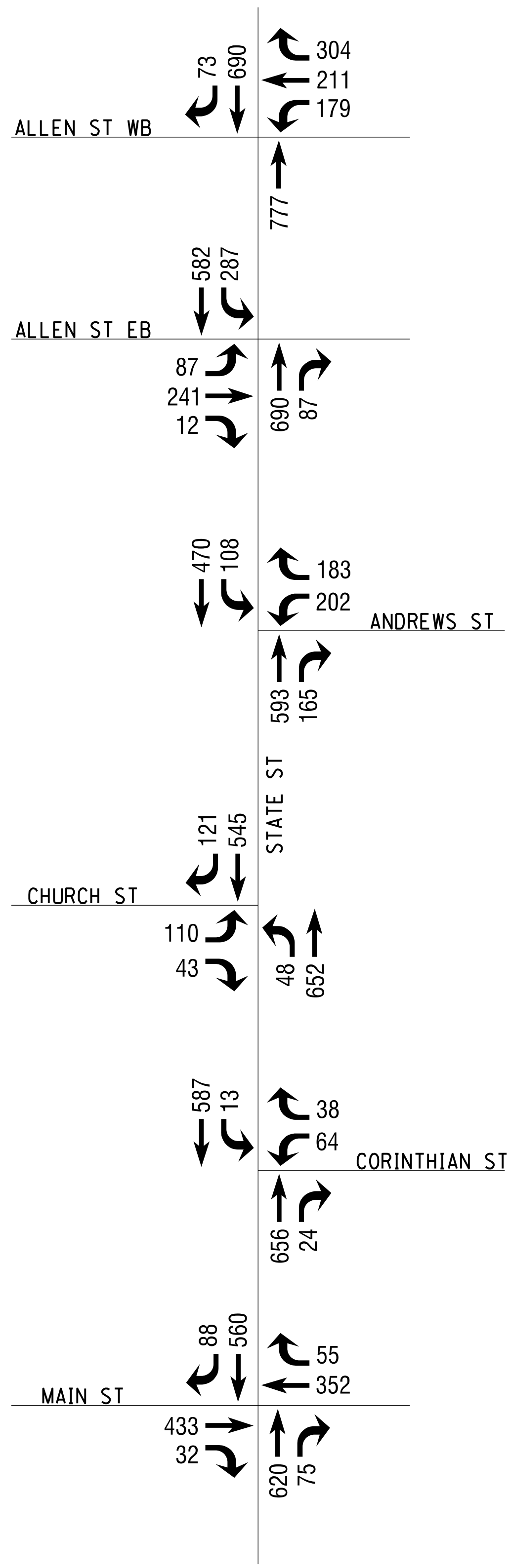
TIME : 4:07:47 PM

GRID NORTH



EXISTING (2020)
AM PEAK HOUR



EXISTING (2020)
PM PEAK HOUR

LaBella
Powered by partnership.

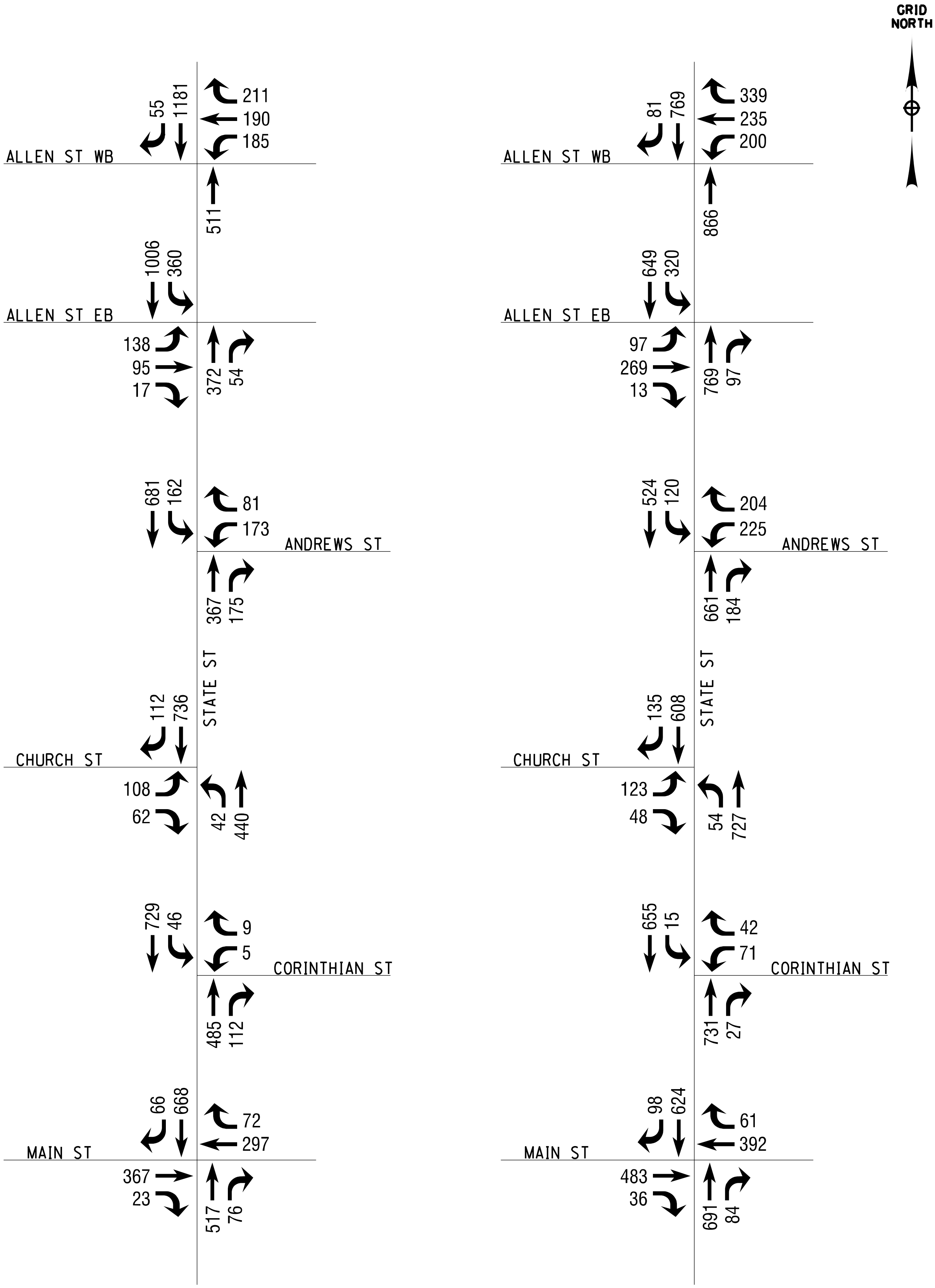
STATE ST RECONSTRUCTION

TRAFFIC VOLUMES
EXISTING (2020)

ALL DIMENSIONS ARE IN ft UNLESS OTHERWISE NOTED

CITY OF ROCHESTER
DEPARTMENT OF
ENVIRONMENTAL SERVICES

DRAWING NO.: Existing | SCALE: NTS | MONROE COUNTY | PROJECT NO. 2200377



ETC+20 (2043)
AM PEAK HOUR

ETC+20 (2043)
PM PEAK HOUR

LaBella Powered by partnership.	STATE ST RECONSTRUCTION		ALL DIMENSIONS ARE IN ft UNLESS OTHERWISE NOTED	
	TRAFFIC VOLUMES ETC+20 (2043)		CITY OF ROCHESTER DEPARTMENT OF ENVIRONMENTAL SERVICES	
	DRAWING NO.: ETC+20	SCALE: NTS	MONROE COUNTY	PROJECT NO. 2200377

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TRAFFIC ANALYSIS

CAPACITY ANALYSIS
Existing (2020) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	329	21	0	266	65	0	464	68	0	599	59
Future Volume (veh/h)	0	329	21	0	266	65	0	464	68	0	599	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1683	1683	0	1683	1683	0	1683	1683	0	1683	1683
Adj Flow Rate, veh/h	0	416	28	0	302	88	0	527	93	0	673	84
Peak Hour Factor	0.90	0.79	0.75	0.90	0.88	0.74	0.90	0.88	0.73	0.90	0.89	0.70
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	741	608	0	741	608	0	1182	207	0	1253	156
Arrive On Green	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.44	0.44
Sat Flow, veh/h	0	1683	1381	0	1683	1383	0	2771	471	0	2932	355
Grp Volume(v), veh/h	0	416	28	0	302	88	0	312	308	0	378	379
Grp Sat Flow(s),veh/h/ln	0	1683	1381	0	1683	1383	0	1599	1559	0	1599	1603
Q Serve(g_s), s	0.0	23.0	1.7	0.0	16.3	5.6	0.0	17.9	18.0	0.0	17.3	17.4
Cycle Q Clear(g_c), s	0.0	23.0	1.7	0.0	16.3	5.6	0.0	17.9	18.0	0.0	17.3	17.4
Prop In Lane	0.00		1.00	0.00		1.00	0.00		0.30	0.00		0.22
Lane Grp Cap(c), veh/h	0	741	608	0	741	608	0	704	686	0	704	705
V/C Ratio(X)	0.00	0.56	0.05	0.00	0.41	0.14	0.00	0.44	0.45	0.00	0.54	0.54
Avail Cap(c_a), veh/h	0	741	608	0	741	608	0	704	686	0	704	705
HCM Platoon Ratio	1.00	0.33	0.33	1.00	0.33	0.33	1.00	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.92	0.92	0.00	0.99	0.99	0.00	0.96	0.96	0.00	0.93	0.93
Uniform Delay (d), s/veh	0.0	33.8	24.7	0.0	30.9	26.3	0.0	31.6	31.6	0.0	20.5	20.5
Incr Delay (d2), s/veh	0.0	2.8	0.1	0.0	1.6	0.5	0.0	1.9	2.0	0.0	2.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.9	0.6	0.0	7.7	2.0	0.0	8.0	7.9	0.0	6.8	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	36.6	24.8	0.0	32.5	26.8	0.0	33.5	33.7	0.0	23.2	23.3
LnGrp LOS	A	D	C	A	C	C	A	C	C	A	C	C
Approach Vol, veh/h		444			390			620			757	
Approach Delay, s/veh		35.8			31.3			33.6			23.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		50.0		50.0		50.0		50.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		44.0		44.0		44.0		44.0
Max Q Clear Time (g_c+I1), s		20.0		25.0		19.4		18.3
Green Ext Time (p_c), s		2.6		1.8		3.3		1.6

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	8	435	100	41	654
Future Volume (veh/h)	4	8	435	100	41	654
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.92		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	8	12	489	116	56	688
Peak Hour Factor	0.50	0.67	0.89	0.86	0.73	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	133	199	1746	412	161	1860
Arrive On Green	0.22	0.22	0.90	0.90	0.68	0.68
Sat Flow, veh/h	603	904	2652	606	176	2812
Grp Volume(v), veh/h	21	0	303	302	375	369
Grp Sat Flow(s),veh/h/ln	1582	0	1599	1574	1456	1455
Q Serve(g_s), s	1.0	0.0	2.4	2.5	0.0	10.9
Cycle Q Clear(g_c), s	1.0	0.0	2.4	2.5	9.2	10.9
Prop In Lane	0.38	0.57		0.38	0.15	
Lane Grp Cap(c), veh/h	348	0	1087	1071	1031	990
V/C Ratio(X)	0.06	0.00	0.28	0.28	0.36	0.37
Avail Cap(c_a), veh/h	348	0	1087	1071	1031	990
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.91	0.91	0.93	0.93
Uniform Delay (d), s/veh	30.8	0.0	1.6	1.6	6.6	6.9
Incr Delay (d2), s/veh	0.3	0.0	0.6	0.6	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.7	0.8	3.1	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.2	0.0	2.2	2.2	7.5	7.9
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	21		605			744
Approach Delay, s/veh	31.2		2.2			7.7
Approach LOS	C		A			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	73.0	73.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	68.0	68.0	22.0
Max Q Clear Time (g_c+I1), s	4.5	12.9	3.0
Green Ext Time (p_c), s	2.7	3.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	97	56	660	100	38	395
Future Volume (veh/h)	97	56	660	100	38	395
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	104	68	750	132	56	434
Peak Hour Factor	0.93	0.82	0.88	0.76	0.68	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	456	1855	799	187	1394
Arrive On Green	0.32	0.32	1.00	1.00	0.58	0.58
Sat Flow, veh/h	1603	1427	3282	1377	245	2480
Grp Volume(v), veh/h	104	68	750	132	231	259
Grp Sat Flow(s),veh/h/ln	1603	1427	1599	1377	1193	1455
Q Serve(g_s), s	4.7	3.4	0.0	0.0	0.7	9.1
Cycle Q Clear(g_c), s	4.7	3.4	0.0	0.0	7.0	9.1
Prop In Lane	1.00	1.00		1.00	0.24	
Lane Grp Cap(c), veh/h	513	456	1855	799	737	844
V/C Ratio(X)	0.20	0.15	0.40	0.17	0.31	0.31
Avail Cap(c_a), veh/h	513	456	1855	799	737	844
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.80	0.80	0.97	0.97
Uniform Delay (d), s/veh	24.7	24.3	0.0	0.0	10.2	10.7
Incr Delay (d2), s/veh	0.9	0.7	0.5	0.4	1.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.2	0.1	0.1	2.6	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.6	25.0	0.5	0.4	11.3	11.6
LnGrp LOS	C	C	A	A	B	B
Approach Vol, veh/h	172		882			490
Approach Delay, s/veh	25.4		0.5			11.5
Approach LOS	C		A			B
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		58.0		32.0		58.0
Max Q Clear Time (g_c+I1), s		11.1		6.7		2.0
Green Ext Time (p_c), s		2.5		0.7		4.8
Intersection Summary						
HCM 6th Ctrl Delay			6.8			
HCM 6th LOS			A			

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	155	73	145	611	329	157
Future Volume (vph)	155	73	145	611	329	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1593	1402		2912	3185	1388
Flt Permitted	0.95	1.00		0.76	1.00	1.00
Satd. Flow (perm)	1593	1402		2223	3185	1388
Peak-hour factor, PHF	0.88	0.85	0.71	0.84	0.87	0.91
Adj. Flow (vph)	176	86	204	727	378	173
RTOR Reduction (vph)	0	62	0	0	0	66
Lane Group Flow (vph)	176	24	0	931	378	107
Confl. Peds. (#/hr)	3	3	3			3
Parking (#/hr)				10		
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Actuated Green, G (s)	28.0	28.0		62.0	62.0	62.0
Effective Green, g (s)	28.0	28.0		62.0	62.0	62.0
Actuated g/C Ratio	0.28	0.28		0.62	0.62	0.62
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	4.0	4.0		2.0	2.0	2.0
Lane Grp Cap (vph)	446	392		1378	1974	860
v/s Ratio Prot	c0.11				0.12	
v/s Ratio Perm		0.02		c0.42		0.08
v/c Ratio	0.39	0.06		0.68	0.19	0.12
Uniform Delay, d1	29.1	26.4		12.4	8.2	7.8
Progression Factor	1.09	1.52		0.67	0.30	0.42
Incremental Delay, d2	2.6	0.3		1.0	0.2	0.3
Delay (s)	34.4	40.5		9.4	2.7	3.6
Level of Service	C	D		A	A	A
Approach Delay (s)	36.4			9.4	3.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	323	902	0	0	334	48	124	85	15	0	0	0
Future Volume (vph)	323	902	0	0	334	48	124	85	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.97				
Satd. Flow (prot)	1766	5085			3539	1553		3396				
Flt Permitted	0.53	1.00			1.00	1.00		0.97				
Satd. Flow (perm)	986	5085			3539	1553		3396				
Peak-hour factor, PHF	0.91	0.85	0.90	0.90	0.92	0.55	0.89	0.89	0.85	0.90	0.90	0.90
Adj. Flow (vph)	355	1061	0	0	363	87	139	96	18	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	40	0	7	0	0	0	0
Lane Group Flow (vph)	355	1061	0	0	363	47	0	246	0	0	0	0
Confl. Peds. (#/hr)	4					4			30			
Turn Type	pm+pt	NA			NA	Perm	Split	NA				
Protected Phases	3	1 3			1		4	4				
Permitted Phases	1 3					1						
Actuated Green, G (s)	72.5	77.5			53.7	53.7		12.5				
Effective Green, g (s)	72.5	77.5			53.7	53.7		12.5				
Actuated g/C Ratio	0.72	0.78			0.54	0.54		0.12				
Clearance Time (s)	5.0				5.0	5.0		5.0				
Vehicle Extension (s)	2.0				2.0	2.0		3.0				
Lane Grp Cap (vph)	861	3940			1900	833		424				
v/s Ratio Prot	c0.08	0.21			0.10			c0.07				
v/s Ratio Perm	c0.22					0.03						
v/c Ratio	0.41	0.27			0.19	0.06		0.58				
Uniform Delay, d1	6.1	3.2			11.9	11.1		41.3				
Progression Factor	0.40	0.09			0.55	0.12		1.16				
Incremental Delay, d2	0.1	0.0			0.2	0.1		1.9				
Delay (s)	2.5	0.3			6.8	1.5		49.9				
Level of Service	A	A			A	A		D				
Approach Delay (s)		0.8			5.7			49.9			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1059	49	0	458	0	0	0	0	166	170	189
Future Volume (vph)	0	1059	49	0	458	0	0	0	0	166	170	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		0.91	1.00		0.95						0.95	
Frt		1.00	0.85		1.00						0.95	
Flt Protected		1.00	1.00		1.00						0.98	
Satd. Flow (prot)		5085	1583		3539						3296	
Flt Permitted		1.00	1.00		1.00						0.98	
Satd. Flow (perm)		5085	1583		3539						3296	
Peak-hour factor, PHF	0.91	0.85	0.77	0.87	0.85	0.87	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	0	1246	64	0	539	0	0	0	0	195	200	222
RTOR Reduction (vph)	0	0	30	0	0	0	0	0	0	0	79	0
Lane Group Flow (vph)	0	1246	34	0	539	0	0	0	0	0	538	0
Turn Type		NA	Perm		NA					Split	NA	
Protected Phases		1			1 4					3	3	
Permitted Phases			1									
Actuated Green, G (s)		53.7	53.7		71.2						18.8	
Effective Green, g (s)		53.7	53.7		71.2						18.8	
Actuated g/C Ratio		0.54	0.54		0.71						0.19	
Clearance Time (s)		5.0	5.0								5.0	
Vehicle Extension (s)		2.0	2.0								2.0	
Lane Grp Cap (vph)		2730	850		2519						619	
v/s Ratio Prot		c0.25			c0.15						c0.16	
v/s Ratio Perm			0.02									
v/c Ratio		0.46	0.04		0.21						0.87	
Uniform Delay, d1		14.2	11.0		4.9						39.4	
Progression Factor		0.61	0.29		0.19						1.03	
Incremental Delay, d2		0.5	0.1		0.0						10.6	
Delay (s)		9.2	3.2		1.0						51.2	
Level of Service		A	A		A						D	
Approach Delay (s)		8.9			1.0			0.0			51.2	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC ANALYSIS

CAPACITY ANALYSIS
Existing (2020) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	433	32	0	352	55	0	620	75	0	560	88
Future Volume (veh/h)	0	433	32	0	352	55	0	620	75	0	560	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1683	1683	0	1683	1683	0	1683	1683	0	1683	1683
Adj Flow Rate, veh/h	0	498	36	0	383	73	0	633	94	0	651	119
Peak Hour Factor	0.90	0.87	0.89	0.90	0.92	0.75	0.90	0.98	0.80	0.90	0.86	0.74
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	741	604	0	741	593	0	1219	181	0	1180	215
Arrive On Green	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.44	0.44
Sat Flow, veh/h	0	1683	1373	0	1683	1349	0	2855	411	0	2766	489
Grp Volume(v), veh/h	0	498	36	0	383	73	0	365	362	0	388	382
Grp Sat Flow(s),veh/h/ln	0	1683	1373	0	1683	1349	0	1599	1583	0	1599	1572
Q Serve(g_s), s	0.0	28.0	2.3	0.0	21.0	4.7	0.0	21.1	21.2	0.0	17.9	18.0
Cycle Q Clear(g_c), s	0.0	28.0	2.3	0.0	21.0	4.7	0.0	21.1	21.2	0.0	17.9	18.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		0.26	0.00		0.31
Lane Grp Cap(c), veh/h	0	741	604	0	741	593	0	704	696	0	704	692
V/C Ratio(X)	0.00	0.67	0.06	0.00	0.52	0.12	0.00	0.52	0.52	0.00	0.55	0.55
Avail Cap(c_a), veh/h	0	741	604	0	741	593	0	704	696	0	704	692
HCM Platoon Ratio	1.00	0.33	0.33	1.00	0.33	0.33	1.00	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.00	0.87	0.87	0.00	0.96	0.96	0.00	0.95	0.95
Uniform Delay (d), s/veh	0.0	35.9	24.9	0.0	32.9	25.9	0.0	32.9	33.0	0.0	20.7	20.7
Incr Delay (d2), s/veh	0.0	4.4	0.2	0.0	2.2	0.4	0.0	2.6	2.7	0.0	2.9	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.5	0.8	0.0	9.9	1.6	0.0	9.5	9.4	0.0	7.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	40.3	25.1	0.0	35.2	26.3	0.0	35.6	35.6	0.0	23.6	23.7
LnGrp LOS	A	D	C	A	D	C	A	D	D	A	C	C
Approach Vol, veh/h		534			456			727			770	
Approach Delay, s/veh		39.2			33.7			35.6			23.7	
Approach LOS		D			C			D			C	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		50.0		50.0		50.0		50.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		44.0		44.0		44.0		44.0
Max Q Clear Time (g_c+I1), s		23.2		30.0		20.0		23.0
Green Ext Time (p_c), s		3.1		2.0		3.4		1.9

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	64	38	656	24	13	587
Future Volume (veh/h)	64	38	656	24	13	587
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.93		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	76	48	691	40	20	631
Peak Hour Factor	0.84	0.79	0.95	0.60	0.65	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	221	139	2089	121	74	2041
Arrive On Green	0.22	0.22	1.00	1.00	0.68	0.68
Sat Flow, veh/h	1003	633	3157	178	53	3079
Grp Volume(v), veh/h	125	0	359	372	342	309
Grp Sat Flow(s),veh/h/ln	1649	0	1599	1651	1600	1455
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	8.6
Cycle Q Clear(g_c), s	6.4	0.0	0.0	0.0	8.2	8.6
Prop In Lane	0.61	0.38		0.11	0.06	
Lane Grp Cap(c), veh/h	363	0	1087	1123	1126	990
V/C Ratio(X)	0.34	0.00	0.33	0.33	0.30	0.31
Avail Cap(c_a), veh/h	363	0	1087	1123	1126	990
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.86	0.86	0.96	0.96
Uniform Delay (d), s/veh	32.9	0.0	0.0	0.0	6.4	6.5
Incr Delay (d2), s/veh	2.6	0.0	0.7	0.7	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.2	0.2	2.8	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.5	0.0	0.7	0.7	7.1	7.3
LnGrp LOS	D	A	A	A	A	A
Approach Vol, veh/h	125		731			651
Approach Delay, s/veh	35.5		0.7			7.2
Approach LOS	D		A			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	73.0	73.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	68.0	68.0	22.0
Max Q Clear Time (g_c+I1), s	2.0	10.6	8.4
Green Ext Time (p_c), s	3.3	2.9	0.3

Intersection Summary	
HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	110	43	545	121	48	652
Future Volume (veh/h)	110	43	545	121	48	652
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	133	60	634	148	96	686
Peak Hour Factor	0.83	0.72	0.86	0.82	0.50	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	456	1855	817	207	1381
Arrive On Green	0.32	0.32	1.00	1.00	0.58	0.58
Sat Flow, veh/h	1603	1427	3282	1409	279	2457
Grp Volume(v), veh/h	133	60	634	148	359	423
Grp Sat Flow(s),veh/h/ln	1603	1427	1599	1409	1204	1455
Q Serve(g_s), s	6.2	3.0	0.0	0.0	9.9	17.2
Cycle Q Clear(g_c), s	6.2	3.0	0.0	0.0	15.3	17.2
Prop In Lane	1.00	1.00		1.00	0.27	
Lane Grp Cap(c), veh/h	513	456	1855	817	744	844
V/C Ratio(X)	0.26	0.13	0.34	0.18	0.48	0.50
Avail Cap(c_a), veh/h	513	456	1855	817	744	844
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.82	0.82	0.95	0.95
Uniform Delay (d), s/veh	25.2	24.1	0.0	0.0	11.6	12.4
Incr Delay (d2), s/veh	1.2	0.6	0.4	0.4	2.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.1	0.1	0.1	4.7	5.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.4	24.7	0.4	0.4	13.8	14.4
LnGrp LOS	C	C	A	A	B	B
Approach Vol, veh/h	193		782			782
Approach Delay, s/veh	25.9		0.4			14.1
Approach LOS	C		A			B

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	63.0	37.0	63.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	58.0	32.0	58.0
Max Q Clear Time (g_c+I1), s	19.2	8.2	2.0
Green Ext Time (p_c), s	4.2	0.7	4.1

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	202	183	108	470	593	165
Future Volume (vph)	202	183	108	470	593	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1593	1402		2913	3185	1388
Flt Permitted	0.95	1.00		0.67	1.00	1.00
Satd. Flow (perm)	1593	1402		1982	3185	1388
Peak-hour factor, PHF	0.75	0.76	0.79	0.95	0.92	0.92
Adj. Flow (vph)	269	241	137	495	645	179
RTOR Reduction (vph)	0	174	0	0	0	68
Lane Group Flow (vph)	269	67	0	632	645	111
Confl. Peds. (#/hr)	3	3	3			3
Parking (#/hr)				10		
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Actuated Green, G (s)	28.0	28.0		62.0	62.0	62.0
Effective Green, g (s)	28.0	28.0		62.0	62.0	62.0
Actuated g/C Ratio	0.28	0.28		0.62	0.62	0.62
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	4.0	4.0		2.0	2.0	2.0
Lane Grp Cap (vph)	446	392		1228	1974	860
v/s Ratio Prot	c0.17				0.20	
v/s Ratio Perm		0.05		c0.32		0.08
v/c Ratio	0.60	0.17		0.51	0.33	0.13
Uniform Delay, d1	31.2	27.2		10.6	9.1	7.8
Progression Factor	0.93	1.07		0.57	0.58	0.34
Incremental Delay, d2	5.9	0.9		0.2	0.4	0.3
Delay (s)	34.8	30.0		6.2	5.7	3.0
Level of Service	C	C		A	A	A
Approach Delay (s)	32.6			6.2	5.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	287	582	0	0	690	87	87	241	12	0	0	0
Future Volume (vph)	287	582	0	0	690	87	87	241	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0				
Lane Util. Factor	1.00	0.91			0.95	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		1.00				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1769	5085			3539	1553		3476				
Flt Permitted	0.26	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	477	5085			3539	1553		3476				
Peak-hour factor, PHF	0.92	0.91	0.90	0.90	0.91	0.62	0.75	0.66	0.75	0.90	0.90	0.90
Adj. Flow (vph)	312	640	0	0	758	140	116	365	16	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	81	0	2	0	0	0	0
Lane Group Flow (vph)	312	640	0	0	758	59	0	495	0	0	0	0
Confl. Peds. (#/hr)	4					4			30			
Turn Type	pm+pt	NA			NA	Perm	Split	NA				
Protected Phases	3	1 3			1		4	4				
Permitted Phases	1 3					1						
Actuated Green, G (s)	65.4	70.4			40.4	40.4		19.6				
Effective Green, g (s)	65.4	70.4			40.4	40.4		19.6				
Actuated g/C Ratio	0.65	0.70			0.40	0.40		0.20				
Clearance Time (s)	5.0				5.0	5.0		5.0				
Vehicle Extension (s)	2.0				2.0	2.0		3.0				
Lane Grp Cap (vph)	634	3579			1429	627		681				
v/s Ratio Prot	c0.12	0.13			c0.21			c0.14				
v/s Ratio Perm	0.20					0.04						
v/c Ratio	0.49	0.18			0.53	0.09		0.73				
Uniform Delay, d1	17.8	5.0			22.6	18.5		37.7				
Progression Factor	0.88	0.11			0.54	0.07		1.08				
Incremental Delay, d2	2.5	0.1			1.4	0.3		3.7				
Delay (s)	18.1	0.7			13.5	1.6		44.6				
Level of Service	B	A			B	A		D				
Approach Delay (s)		6.4			11.6			44.6			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	690	73	0	777	0	0	0	0	179	211	304
Future Volume (vph)	0	690	73	0	777	0	0	0	0	179	211	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		0.91	1.00		0.95						0.95	
Frt		1.00	0.85		1.00						0.93	
Flt Protected		1.00	1.00		1.00						0.99	
Satd. Flow (prot)		5085	1583		3539						3264	
Flt Permitted		1.00	1.00		1.00						0.99	
Satd. Flow (perm)		5085	1583		3539						3264	
Peak-hour factor, PHF	0.91	0.89	0.76	0.87	0.90	0.87	0.90	0.90	0.90	0.90	0.91	0.90
Adj. Flow (vph)	0	775	96	0	863	0	0	0	0	199	232	338
RTOR Reduction (vph)	0	0	56	0	0	0	0	0	0	0	142	0
Lane Group Flow (vph)	0	775	40	0	863	0	0	0	0	0	627	0
Turn Type		NA	Perm		NA					Split	NA	
Protected Phases		1			1 4					3	3	
Permitted Phases			1									
Actuated Green, G (s)		40.4	40.4		65.0						25.0	
Effective Green, g (s)		40.4	40.4		65.0						25.0	
Actuated g/C Ratio		0.40	0.40		0.65						0.25	
Clearance Time (s)		5.0	5.0								5.0	
Vehicle Extension (s)		2.0	2.0								2.0	
Lane Grp Cap (vph)		2054	639		2300						816	
v/s Ratio Prot		0.15			c0.24						c0.19	
v/s Ratio Perm			0.03									
v/c Ratio		0.38	0.06		0.38						0.77	
Uniform Delay, d1		21.0	18.2		8.1						34.8	
Progression Factor		0.65	1.38		0.12						1.59	
Incremental Delay, d2		0.5	0.2		0.1						6.0	
Delay (s)		14.2	25.3		1.1						61.2	
Level of Service		B	C		A						E	
Approach Delay (s)		15.4			1.1			0.0			61.2	
Approach LOS		B			A			A			E	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC ANALYSIS

CAPACITY ANALYSIS
Alternative A
ETC+20 (2043) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	367	23	0	297	72	0	517	76	0	668	66
Future Volume (veh/h)	0	367	23	0	297	72	0	517	76	0	668	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1683	1683	0	1683	1683	0	1683	1683	0	1683	1683
Adj Flow Rate, veh/h	0	465	31	0	338	97	0	588	104	0	751	94
Peak Hour Factor	0.90	0.79	0.75	0.90	0.88	0.74	0.90	0.88	0.73	0.90	0.89	0.70
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	741	608	0	741	608	0	1181	208	0	1252	157
Arrive On Green	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.44	0.44
Sat Flow, veh/h	0	1683	1381	0	1683	1383	0	2769	473	0	2930	356
Grp Volume(v), veh/h	0	465	31	0	338	97	0	349	343	0	422	423
Grp Sat Flow(s),veh/h/ln	0	1683	1381	0	1683	1383	0	1599	1559	0	1599	1603
Q Serve(g_s), s	0.0	26.0	1.9	0.0	18.4	6.1	0.0	20.1	20.3	0.0	20.1	20.1
Cycle Q Clear(g_c), s	0.0	26.0	1.9	0.0	18.4	6.1	0.0	20.1	20.3	0.0	20.1	20.1
Prop In Lane	0.00		1.00	0.00		1.00	0.00		0.30	0.00		0.22
Lane Grp Cap(c), veh/h	0	741	608	0	741	608	0	704	686	0	704	705
V/C Ratio(X)	0.00	0.63	0.05	0.00	0.46	0.16	0.00	0.50	0.50	0.00	0.60	0.60
Avail Cap(c_a), veh/h	0	741	608	0	741	608	0	704	686	0	704	705
HCM Platoon Ratio	1.00	0.33	0.33	1.00	0.33	0.33	1.00	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.92	0.92	0.00	0.99	0.99	0.00	0.96	0.96	0.00	0.90	0.90
Uniform Delay (d), s/veh	0.0	35.0	24.8	0.0	31.8	26.6	0.0	32.5	32.6	0.0	21.3	21.3
Incr Delay (d2), s/veh	0.0	3.7	0.1	0.0	2.0	0.6	0.0	2.4	2.5	0.0	3.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	0.6	0.0	8.7	2.2	0.0	9.0	8.9	0.0	7.9	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.7	24.9	0.0	33.8	27.1	0.0	34.9	35.1	0.0	24.7	24.7
LnGrp LOS	A	D	C	A	C	C	A	C	D	A	C	C
Approach Vol, veh/h		496			435			692			845	
Approach Delay, s/veh		37.9			32.3			35.0			24.7	
Approach LOS		D			C			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.0		50.0		50.0		50.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		44.0		44.0		44.0		44.0				
Max Q Clear Time (g_c+I1), s		22.3		28.0		22.1		20.4				
Green Ext Time (p_c), s		2.9		1.9		3.7		1.8				

Intersection Summary			
HCM 6th Ctrl Delay			31.6
HCM 6th LOS			C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	9	485	112	46	729
Future Volume (veh/h)	5	9	485	112	46	729
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.92		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	10	13	545	130	63	767
Peak Hour Factor	0.50	0.67	0.89	0.86	0.73	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	146	190	1743	414	161	1841
Arrive On Green	0.22	0.22	0.90	0.90	0.68	0.68
Sat Flow, veh/h	663	862	2648	609	176	2784
Grp Volume(v), veh/h	24	0	339	336	413	417
Grp Sat Flow(s),veh/h/ln	1591	0	1599	1574	1428	1455
Q Serve(g_s), s	1.2	0.0	2.8	2.8	0.0	12.8
Cycle Q Clear(g_c), s	1.2	0.0	2.8	2.8	10.4	12.8
Prop In Lane	0.42	0.54		0.39	0.15	
Lane Grp Cap(c), veh/h	350	0	1087	1070	1013	990
V/C Ratio(X)	0.07	0.00	0.31	0.31	0.41	0.42
Avail Cap(c_a), veh/h	350	0	1087	1070	1013	990
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.88	0.88	0.91	0.91
Uniform Delay (d), s/veh	30.9	0.0	1.7	1.7	6.8	7.2
Incr Delay (d2), s/veh	0.4	0.0	0.7	0.7	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.8	0.8	3.6	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.3	0.0	2.3	2.3	7.9	8.4
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	24		675			830
Approach Delay, s/veh	31.3		2.3			8.1
Approach LOS	C		A			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	73.0	73.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	68.0	68.0	22.0
Max Q Clear Time (g_c+I1), s	4.8	14.8	3.2
Green Ext Time (p_c), s	3.1	4.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	5.9
HCM 6th LOS	A

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	108	62	736	112	42	440
Future Volume (veh/h)	108	62	736	112	42	440
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	116	76	836	147	62	484
Peak Hour Factor	0.93	0.82	0.88	0.76	0.68	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	456	1855	799	183	1365
Arrive On Green	0.32	0.32	1.00	1.00	0.58	0.58
Sat Flow, veh/h	1603	1427	3282	1377	238	2430
Grp Volume(v), veh/h	116	76	836	147	250	296
Grp Sat Flow(s),veh/h/ln	1603	1427	1599	1377	1136	1455
Q Serve(g_s), s	5.3	3.8	0.0	0.0	2.2	10.7
Cycle Q Clear(g_c), s	5.3	3.8	0.0	0.0	8.3	10.7
Prop In Lane	1.00	1.00		1.00	0.25	
Lane Grp Cap(c), veh/h	513	456	1855	799	704	844
V/C Ratio(X)	0.23	0.17	0.45	0.18	0.35	0.35
Avail Cap(c_a), veh/h	513	456	1855	799	704	844
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.67	0.67	0.96	0.96
Uniform Delay (d), s/veh	24.9	24.4	0.0	0.0	10.4	11.1
Incr Delay (d2), s/veh	1.0	0.8	0.5	0.3	1.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	0.1	0.1	2.8	3.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.9	25.2	0.5	0.3	11.7	12.2
LnGrp LOS	C	C	A	A	B	B
Approach Vol, veh/h	192		983			546
Approach Delay, s/veh	25.7		0.5			12.0
Approach LOS	C		A			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		58.0		32.0		58.0
Max Q Clear Time (g_c+I1), s		12.7		7.3		2.0
Green Ext Time (p_c), s		2.9		0.7		5.6

Intersection Summary						
HCM 6th Ctrl Delay			6.9			
HCM 6th LOS			A			

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	173	81	162	681	367	175
Future Volume (vph)	173	81	162	681	367	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1593	1402		2992	3185	1388
Flt Permitted	0.95	1.00		0.73	1.00	1.00
Satd. Flow (perm)	1593	1402		2206	3185	1388
Peak-hour factor, PHF	0.88	0.79	0.71	0.84	0.87	0.91
Adj. Flow (vph)	197	103	228	811	422	192
RTOR Reduction (vph)	0	74	0	0	0	96
Lane Group Flow (vph)	197	29	0	1039	422	96
Confl. Peds. (#/hr)	3	3	3			3
Parking (#/hr)				0		
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Actuated Green, G (s)	28.0	28.0		62.0	50.0	50.0
Effective Green, g (s)	28.0	28.0		62.0	50.0	50.0
Actuated g/C Ratio	0.28	0.28		0.62	0.50	0.50
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	4.0	4.0		2.0	2.0	2.0
Lane Grp Cap (vph)	446	392		1422	1592	694
v/s Ratio Prot	c0.12			c0.05	0.13	
v/s Ratio Perm		0.02		c0.40		0.07
v/c Ratio	0.44	0.07		0.73	0.27	0.14
Uniform Delay, d1	29.6	26.5		13.2	14.4	13.4
Progression Factor	1.09	1.57		0.71	0.65	0.65
Incremental Delay, d2	3.1	0.4		3.3	0.4	0.4
Delay (s)	35.3	42.0		12.7	9.7	9.1
Level of Service	D	D		B	A	A
Approach Delay (s)	37.6			12.7	9.5	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	360	1006	0	0	372	54	138	95	17	0	0	0
Future Volume (vph)	360	1006	0	0	372	54	138	95	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.91			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.99				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1767	5085			3423			3391				
Flt Permitted	0.44	1.00			1.00			0.97				
Satd. Flow (perm)	810	5085			3423			3391				
Peak-hour factor, PHF	0.91	0.85	0.90	0.90	0.92	0.55	0.89	0.89	0.75	0.90	0.90	0.90
Adj. Flow (vph)	396	1184	0	0	404	98	155	107	23	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	8	0	0	0	0
Lane Group Flow (vph)	396	1184	0	0	485	0	0	277	0	0	0	0
Confl. Peds. (#/hr)	4					4			30			
Turn Type	pm+pt	NA			NA		Split	NA				
Protected Phases	3	1 3			1		4	4				
Permitted Phases	1 3											
Actuated Green, G (s)	71.5	76.5			50.7			13.5				
Effective Green, g (s)	71.5	76.5			50.7			13.5				
Actuated g/C Ratio	0.72	0.76			0.51			0.14				
Clearance Time (s)	5.0				5.0			5.0				
Vehicle Extension (s)	2.0				2.0			3.0				
Lane Grp Cap (vph)	778	3890			1735			457				
v/s Ratio Prot	c0.11	0.23			0.14			c0.08				
v/s Ratio Perm	c0.26											
v/c Ratio	0.51	0.30			0.28			0.61				
Uniform Delay, d1	9.4	3.6			14.2			40.7				
Progression Factor	0.76	0.08			0.57			1.19				
Incremental Delay, d2	0.2	0.0			0.4			2.1				
Delay (s)	7.3	0.3			8.4			50.5				
Level of Service	A	A			A			D				
Approach Delay (s)		2.0			8.4			50.5			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1181	55	0	511	0	0	0	0	185	190	211
Future Volume (vph)	0	1181	55	0	511	0	0	0	0	185	190	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		0.91	1.00		0.95						0.95	
Frt		1.00	0.85		1.00						0.95	
Flt Protected		1.00	1.00		1.00						0.98	
Satd. Flow (prot)		5085	1583		3539						3296	
Flt Permitted		1.00	1.00		1.00						0.98	
Satd. Flow (perm)		5085	1583		3539						3296	
Peak-hour factor, PHF	0.91	0.85	0.77	0.87	0.85	0.87	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	0	1389	71	0	601	0	0	0	0	218	224	248
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	0	0	79	0
Lane Group Flow (vph)	0	1389	36	0	601	0	0	0	0	0	611	0
Turn Type		NA	Perm		NA					Split	NA	
Protected Phases		1			1 4					3	3	
Permitted Phases			1									
Actuated Green, G (s)		50.7	50.7		69.2						20.8	
Effective Green, g (s)		50.7	50.7		69.2						20.8	
Actuated g/C Ratio		0.51	0.51		0.69						0.21	
Clearance Time (s)		5.0	5.0								5.0	
Vehicle Extension (s)		2.0	2.0								2.0	
Lane Grp Cap (vph)		2578	802		2448						685	
v/s Ratio Prot		c0.27			c0.17						c0.19	
v/s Ratio Perm			0.02									
v/c Ratio		0.54	0.04		0.25						0.89	
Uniform Delay, d1		16.7	12.4		5.7						38.5	
Progression Factor		0.61	0.32		0.20						1.02	
Incremental Delay, d2		0.8	0.1		0.1						12.0	
Delay (s)		10.9	4.1		1.2						51.5	
Level of Service		B	A		A						D	
Approach Delay (s)		10.6			1.2			0.0			51.5	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC ANALYSIS

CAPACITY ANALYSIS
Alternative A
ETC+20 (2043) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	483	36	0	392	61	0	691	84	0	624	98
Future Volume (veh/h)	0	483	36	0	392	61	0	691	84	0	624	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1683	1683	0	1683	1683	0	1683	1683	0	1683	1683
Adj Flow Rate, veh/h	0	555	40	0	426	81	0	705	105	0	726	132
Peak Hour Factor	0.90	0.87	0.89	0.90	0.92	0.75	0.90	0.98	0.80	0.90	0.86	0.74
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	741	604	0	741	593	0	1219	181	0	1181	215
Arrive On Green	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.44	0.44
Sat Flow, veh/h	0	1683	1373	0	1683	1349	0	2854	412	0	2768	488
Grp Volume(v), veh/h	0	555	40	0	426	81	0	407	403	0	432	426
Grp Sat Flow(s),veh/h/ln	0	1683	1373	0	1683	1349	0	1599	1582	0	1599	1572
Q Serve(g_s), s	0.0	31.6	2.5	0.0	23.6	5.2	0.0	23.7	23.8	0.0	20.8	20.8
Cycle Q Clear(g_c), s	0.0	31.6	2.5	0.0	23.6	5.2	0.0	23.7	23.8	0.0	20.8	20.8
Prop In Lane	0.00		1.00	0.00		1.00	0.00		0.26	0.00		0.31
Lane Grp Cap(c), veh/h	0	741	604	0	741	593	0	704	696	0	704	692
V/C Ratio(X)	0.00	0.75	0.07	0.00	0.58	0.14	0.00	0.58	0.58	0.00	0.61	0.62
Avail Cap(c_a), veh/h	0	741	604	0	741	593	0	704	696	0	704	692
HCM Platoon Ratio	1.00	0.33	0.33	1.00	0.33	0.33	1.00	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.00	0.87	0.87	0.00	0.96	0.96	0.00	0.94	0.94
Uniform Delay (d), s/veh	0.0	37.5	25.0	0.0	34.0	26.2	0.0	34.1	34.1	0.0	21.5	21.5
Incr Delay (d2), s/veh	0.0	6.2	0.2	0.0	2.8	0.4	0.0	3.3	3.4	0.0	3.8	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.5	0.8	0.0	11.2	1.8	0.0	10.8	10.7	0.0	8.2	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	43.6	25.2	0.0	36.8	26.6	0.0	37.4	37.5	0.0	25.2	25.3
LnGrp LOS	A	D	C	A	D	C	A	D	D	A	C	C
Approach Vol, veh/h		595			507			810			858	
Approach Delay, s/veh		42.4			35.2			37.4			25.3	
Approach LOS		D			D			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.0		50.0		50.0		50.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		44.0		44.0		44.0		44.0				
Max Q Clear Time (g_c+I1), s		25.8		33.6		22.8		25.6				
Green Ext Time (p_c), s		3.4		2.0		3.8		2.0				

Intersection Summary			
HCM 6th Ctrl Delay			34.3
HCM 6th LOS			C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	71	42	731	27	15	655
Future Volume (veh/h)	71	42	731	27	15	655
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.93		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	85	53	769	45	23	704
Peak Hour Factor	0.84	0.79	0.95	0.60	0.65	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	222	138	2088	122	76	2030
Arrive On Green	0.22	0.22	1.00	1.00	0.68	0.68
Sat Flow, veh/h	1009	629	3155	180	55	3062
Grp Volume(v), veh/h	139	0	400	414	380	347
Grp Sat Flow(s),veh/h/ln	1650	0	1599	1651	1585	1455
Q Serve(g_s), s	7.2	0.0	0.0	0.0	0.0	10.0
Cycle Q Clear(g_c), s	7.2	0.0	0.0	0.0	9.3	10.0
Prop In Lane	0.61	0.38		0.11	0.06	
Lane Grp Cap(c), veh/h	363	0	1087	1123	1116	990
V/C Ratio(X)	0.38	0.00	0.37	0.37	0.34	0.35
Avail Cap(c_a), veh/h	363	0	1087	1123	1116	990
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.81	0.81	0.94	0.94
Uniform Delay (d), s/veh	33.2	0.0	0.0	0.0	6.6	6.7
Incr Delay (d2), s/veh	3.0	0.0	0.8	0.8	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.2	0.2	3.2	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.3	0.0	0.8	0.8	7.4	7.6
LnGrp LOS	D	A	A	A	A	A
Approach Vol, veh/h	139		814			727
Approach Delay, s/veh	36.3		0.8			7.5
Approach LOS	D		A			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	73.0	73.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	68.0	68.0	22.0
Max Q Clear Time (g_c+I1), s	2.0	12.0	9.2
Green Ext Time (p_c), s	3.8	3.4	0.4

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	123	48	608	135	54	727
Future Volume (veh/h)	123	48	608	135	54	727
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	148	67	707	165	108	765
Peak Hour Factor	0.83	0.72	0.86	0.82	0.50	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	456	1855	817	206	1348
Arrive On Green	0.32	0.32	1.00	1.00	0.58	0.58
Sat Flow, veh/h	1603	1427	3282	1409	276	2401
Grp Volume(v), veh/h	148	67	707	165	389	484
Grp Sat Flow(s),veh/h/ln	1603	1427	1599	1409	1144	1455
Q Serve(g_s), s	6.9	3.4	0.0	0.0	13.7	20.9
Cycle Q Clear(g_c), s	6.9	3.4	0.0	0.0	18.9	20.9
Prop In Lane	1.00	1.00		1.00	0.28	
Lane Grp Cap(c), veh/h	513	456	1855	817	710	844
V/C Ratio(X)	0.29	0.15	0.38	0.20	0.55	0.57
Avail Cap(c_a), veh/h	513	456	1855	817	710	844
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.78	0.78	0.93	0.93
Uniform Delay (d), s/veh	25.5	24.3	0.0	0.0	12.2	13.2
Incr Delay (d2), s/veh	1.4	0.7	0.5	0.4	2.8	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.2	0.1	0.1	5.4	7.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	24.9	0.5	0.4	15.1	15.8
LnGrp LOS	C	C	A	A	B	B
Approach Vol, veh/h	215		872			873
Approach Delay, s/veh	26.3		0.5			15.5
Approach LOS	C		A			B
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		58.0		32.0		58.0
Max Q Clear Time (g_c+I1), s		22.9		8.9		2.0
Green Ext Time (p_c), s		5.0		0.8		4.7
Intersection Summary						
HCM 6th Ctrl Delay			10.0			
HCM 6th LOS			A			

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	225	204	120	524	661	184
Future Volume (vph)	225	204	120	524	661	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.99	1.00	1.00
Satd. Flow (prot)	1593	1402		3150	3185	1388
Flt Permitted	0.95	1.00		0.64	1.00	1.00
Satd. Flow (perm)	1593	1402		2033	3185	1388
Peak-hour factor, PHF	0.75	0.76	0.79	0.95	0.92	0.92
Adj. Flow (vph)	300	268	152	552	718	200
RTOR Reduction (vph)	0	193	0	0	0	72
Lane Group Flow (vph)	300	75	0	704	718	128
Confl. Peds. (#/hr)	3	3	3			3
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	8		1	6	2	
Permitted Phases		8	6			2
Actuated Green, G (s)	28.0	28.0		62.0	62.0	62.0
Effective Green, g (s)	28.0	28.0		62.0	62.0	62.0
Actuated g/C Ratio	0.28	0.28		0.62	0.62	0.62
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	4.0	4.0		2.0	2.0	2.0
Lane Grp Cap (vph)	446	392		1260	1974	860
v/s Ratio Prot	c0.19				0.23	
v/s Ratio Perm		0.05		c0.35		0.09
v/c Ratio	0.67	0.19		0.56	0.36	0.15
Uniform Delay, d1	31.9	27.4		11.0	9.3	8.0
Progression Factor	0.93	1.05		0.66	0.57	0.30
Incremental Delay, d2	7.8	1.1		0.3	0.4	0.3
Delay (s)	37.7	29.8		7.6	5.7	2.7
Level of Service	D	C		A	A	A
Approach Delay (s)	34.0			7.6	5.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	320	649	0	0	769	97	97	269	13	0	0	0
Future Volume (vph)	320	649	0	0	769	97	97	269	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.91			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.98			1.00				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	5085			3446			3477				
Flt Permitted	0.14	1.00			1.00			0.99				
Satd. Flow (perm)	258	5085			3446			3477				
Peak-hour factor, PHF	0.92	0.91	0.90	0.90	0.91	0.62	0.75	0.66	0.75	0.90	0.90	0.90
Adj. Flow (vph)	348	713	0	0	845	156	129	408	17	0	0	0
RTOR Reduction (vph)	0	0	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	348	713	0	0	987	0	0	552	0	0	0	0
Confl. Peds. (#/hr)	4					4			30			
Turn Type	pm+pt	NA			NA		Split	NA				
Protected Phases	3	1 3			1		4	4				
Permitted Phases	1 3											
Actuated Green, G (s)	64.1	69.1			39.1			20.9				
Effective Green, g (s)	64.1	69.1			39.1			20.9				
Actuated g/C Ratio	0.64	0.69			0.39			0.21				
Clearance Time (s)	5.0				5.0			5.0				
Vehicle Extension (s)	2.0				2.0			3.0				
Lane Grp Cap (vph)	543	3513			1347			726				
v/s Ratio Prot	c0.16	0.14			c0.29			c0.16				
v/s Ratio Perm	0.25											
v/c Ratio	0.64	0.20			0.73			0.76				
Uniform Delay, d1	23.7	5.6			26.0			37.2				
Progression Factor	0.88	0.14			0.57			1.07				
Incremental Delay, d2	4.9	0.1			3.4			4.5				
Delay (s)	25.8	0.9			18.1			44.4				
Level of Service	C	A			B			D				
Approach Delay (s)		9.0			18.1			44.4			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	769	81	0	866	0	0	0	0	200	235	339
Future Volume (vph)	0	769	81	0	866	0	0	0	0	200	235	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		0.91	1.00		0.95						0.95	
Frt		1.00	0.85		1.00						0.93	
Flt Protected		1.00	1.00		1.00						0.99	
Satd. Flow (prot)		5085	1583		3539						3263	
Flt Permitted		1.00	1.00		1.00						0.99	
Satd. Flow (perm)		5085	1583		3539						3263	
Peak-hour factor, PHF	0.91	0.89	0.76	0.87	0.90	0.87	0.90	0.90	0.90	0.86	0.91	0.88
Adj. Flow (vph)	0	864	107	0	962	0	0	0	0	233	258	385
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	0	117	0
Lane Group Flow (vph)	0	864	50	0	962	0	0	0	0	0	759	0
Turn Type		NA	Perm		NA					Split	NA	
Protected Phases		1			1 4					3	3	
Permitted Phases			1									
Actuated Green, G (s)		39.1	39.1		65.0						25.0	
Effective Green, g (s)		39.1	39.1		65.0						25.0	
Actuated g/C Ratio		0.39	0.39		0.65						0.25	
Clearance Time (s)		5.0	5.0								5.0	
Vehicle Extension (s)		2.0	2.0								2.0	
Lane Grp Cap (vph)		1988	618		2300						815	
v/s Ratio Prot		0.17			c0.27						c0.23	
v/s Ratio Perm			0.03									
v/c Ratio		0.43	0.08		0.42						0.93	
Uniform Delay, d1		22.3	19.1		8.4						36.7	
Progression Factor		0.67	1.19		0.20						1.52	
Incremental Delay, d2		0.7	0.2		0.1						16.9	
Delay (s)		15.6	23.0		1.8						72.7	
Level of Service		B	C		A						E	
Approach Delay (s)		16.4			1.8			0.0			72.7	
Approach LOS		B			A			A			E	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC ANALYSIS

CAPACITY ANALYSIS
Alternative B
ETC+20 (2043) AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	367	23	0	297	72	0	517	76	0	668	66
Future Volume (veh/h)	0	367	23	0	297	72	0	517	76	0	668	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.93	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1683	1683	0	1683	1683	0	1683	1683	0	1683	1683
Adj Flow Rate, veh/h	0	465	31	0	338	97	0	588	104	0	751	94
Peak Hour Factor	0.90	0.79	0.75	0.90	0.88	0.74	0.90	0.88	0.73	0.90	0.89	0.70
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	741	608	0	741	596	0	741	586	0	741	604
Arrive On Green	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.44	0.44
Sat Flow, veh/h	0	1683	1381	0	1683	1354	0	1683	1333	0	1683	1373
Grp Volume(v), veh/h	0	465	31	0	338	97	0	588	104	0	751	94
Grp Sat Flow(s),veh/h/ln	0	1683	1381	0	1683	1354	0	1683	1333	0	1683	1373
Q Serve(g_s), s	0.0	26.0	1.9	0.0	18.4	6.3	0.0	33.7	6.8	0.0	44.0	4.1
Cycle Q Clear(g_c), s	0.0	26.0	1.9	0.0	18.4	6.3	0.0	33.7	6.8	0.0	44.0	4.1
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	741	608	0	741	596	0	741	586	0	741	604
V/C Ratio(X)	0.00	0.63	0.05	0.00	0.46	0.16	0.00	0.79	0.18	0.00	1.01	0.16
Avail Cap(c_a), veh/h	0	741	608	0	741	596	0	741	586	0	741	604
HCM Platoon Ratio	1.00	0.33	0.33	1.00	0.33	0.33	1.00	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.92	0.92	0.00	0.99	0.99	0.00	0.96	0.96	0.00	0.71	0.71
Uniform Delay (d), s/veh	0.0	35.0	24.8	0.0	31.8	26.6	0.0	38.4	26.9	0.0	28.0	16.8
Incr Delay (d2), s/veh	0.0	3.7	0.1	0.0	2.0	0.6	0.0	8.3	0.6	0.0	31.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	0.6	0.0	8.7	2.2	0.0	16.8	2.4	0.0	23.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.7	24.9	0.0	33.8	27.2	0.0	46.6	27.5	0.0	59.4	17.2
LnGrp LOS	A	D	C	A	C	C	A	D	C	A	F	B
Approach Vol, veh/h		496			435			692			845	
Approach Delay, s/veh		37.9			32.3			43.7			54.7	
Approach LOS		D			C			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.0		50.0		50.0		50.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		44.0		44.0		44.0		44.0				
Max Q Clear Time (g_c+I1), s		35.7		28.0		46.0		20.4				
Green Ext Time (p_c), s		2.1		1.9		0.0		1.8				

Intersection Summary			
HCM 6th Ctrl Delay			44.3
HCM 6th LOS			D

Lane Group	EBT	EBR	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	465	31	338	97	588	104	751	94
v/c Ratio	0.63	0.05	0.46	0.17	0.80	0.20	1.02	0.17
Control Delay	21.1	16.0	22.5	17.4	27.0	14.3	61.4	19.2
Queue Delay	0.3	0.0	1.3	0.0	0.4	0.0	18.6	0.0
Total Delay	21.4	16.0	23.8	17.4	27.4	14.3	80.1	19.2
Queue Length 50th (ft)	113	7	173	45	191	31	~370	26
Queue Length 95th (ft)	155	17	94	29	374	44	#711	42
Internal Link Dist (ft)	342		273		368		167	
Turn Bay Length (ft)		150		150				100
Base Capacity (vph)	737	583	737	584	737	533	737	568
Starvation Cap Reductn	36	0	215	0	16	0	37	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.05	0.65	0.17	0.82	0.20	1.07	0.17

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.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	9	485	112	46	729
Future Volume (veh/h)	5	9	485	112	46	729
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.86		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	10	13	545	130	63	767
Peak Hour Factor	0.50	0.67	0.89	0.86	0.73	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	141	183	1145	970	502	1145
Arrive On Green	0.22	0.22	0.90	0.90	0.68	0.68
Sat Flow, veh/h	639	831	1683	1427	687	1683
Grp Volume(v), veh/h	24	0	545	130	63	767
Grp Sat Flow(s),veh/h/ln	1534	0	1683	1427	687	1683
Q Serve(g_s), s	1.2	0.0	5.4	1.0	3.8	26.8
Cycle Q Clear(g_c), s	1.2	0.0	5.4	1.0	9.2	26.8
Prop In Lane	0.42	0.54		1.00	1.00	
Lane Grp Cap(c), veh/h	337	0	1145	970	502	1145
V/C Ratio(X)	0.07	0.00	0.48	0.13	0.13	0.67
Avail Cap(c_a), veh/h	337	0	1145	970	502	1145
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.64	0.64	0.50	0.50
Uniform Delay (d), s/veh	30.9	0.0	1.8	1.6	7.7	9.4
Incr Delay (d2), s/veh	0.4	0.0	0.9	0.2	0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.4	0.3	0.6	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.3	0.0	2.7	1.8	8.0	11.0
LnGrp LOS	C	A	A	A	A	B
Approach Vol, veh/h	24		675			830
Approach Delay, s/veh	31.3		2.5			10.8
Approach LOS	C		A			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	73.0	73.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	68.0	68.0	22.0
Max Q Clear Time (g_c+I1), s	7.4	28.8	3.2
Green Ext Time (p_c), s	3.2	4.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	545	130	63	767
v/c Ratio	0.07	0.48	0.13	0.14	0.67
Control Delay	20.2	1.7	0.2	1.2	2.6
Queue Delay	234.6	1.8	0.7	0.0	5.8
Total Delay	254.9	3.4	0.9	1.2	8.4
Queue Length 50th (ft)	5	11	0	1	12
Queue Length 95th (ft)	11	m24	m0	m2	m30
Internal Link Dist (ft)	155	167			304
Turn Bay Length (ft)			100	100	
Base Capacity (vph)	324	1139	1010	456	1139
Starvation Cap Reductn	0	413	646	0	177
Spillback Cap Reductn	318	0	0	0	311
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	3.83	0.75	0.36	0.14	0.93

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	108	62	736	112	42	440
Future Volume (veh/h)	108	62	736	112	42	440
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	116	76	836	147	62	484
Peak Hour Factor	0.93	0.82	0.88	0.76	0.68	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	456	976	799	157	976
Arrive On Green	0.32	0.32	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1603	1427	1683	1377	515	1683
Grp Volume(v), veh/h	116	76	836	147	62	484
Grp Sat Flow(s),veh/h/ln	1603	1427	1683	1377	515	1683
Q Serve(g_s), s	5.3	3.8	41.4	5.0	11.4	16.9
Cycle Q Clear(g_c), s	5.3	3.8	41.4	5.0	52.9	16.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	513	456	976	799	157	976
V/C Ratio(X)	0.23	0.17	0.86	0.18	0.39	0.50
Avail Cap(c_a), veh/h	513	456	976	799	157	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.53	0.53	0.87	0.87
Uniform Delay (d), s/veh	24.9	24.4	17.5	9.9	39.6	12.4
Incr Delay (d2), s/veh	1.0	0.8	5.4	0.3	6.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	16.0	1.5	1.7	6.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.9	25.2	22.9	10.1	45.9	13.9
LnGrp LOS	C	C	C	B	D	B
Approach Vol, veh/h	192		983			546
Approach Delay, s/veh	25.7		21.0			17.6
Approach LOS	C		C			B
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		58.0		32.0		58.0
Max Q Clear Time (g_c+I1), s		54.9		7.3		43.4
Green Ext Time (p_c), s		0.9		0.7		4.4
Intersection Summary						
HCM 6th Ctrl Delay			20.4			
HCM 6th LOS			C			

Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	116	76	836	147	62	484
v/c Ratio	0.23	0.16	0.86	0.19	0.40	0.50
Control Delay	26.5	6.7	23.9	7.1	11.3	6.1
Queue Delay	0.0	0.0	31.7	0.0	0.0	0.2
Total Delay	26.5	6.7	55.5	7.1	11.3	6.3
Queue Length 50th (ft)	54	0	306	14	6	46
Queue Length 95th (ft)	99	26	m459	m30	10	66
Internal Link Dist (ft)	301		289			304
Turn Bay Length (ft)	125			100	100	
Base Capacity (vph)	509	476	972	776	156	972
Starvation Cap Reductn	0	0	181	0	0	89
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.16	1.06	0.19	0.40	0.55

Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	173	81	162	681	367	175
Future Volume (veh/h)	173	81	162	681	367	175
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	197	103	228	811	422	192
Peak Hour Factor	0.88	0.79	0.71	0.84	0.87	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	449	399	412	1044	842	711
Arrive On Green	0.28	0.28	0.02	0.20	0.50	0.50
Sat Flow, veh/h	1603	1427	1603	1683	1683	1422
Grp Volume(v), veh/h	197	103	228	811	422	192
Grp Sat Flow(s),veh/h/ln	1603	1427	1603	1683	1683	1422
Q Serve(g_s), s	10.1	5.6	0.0	45.6	16.7	7.8
Cycle Q Clear(g_c), s	10.1	5.6	0.0	45.6	16.7	7.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	449	399	412	1044	842	711
V/C Ratio(X)	0.44	0.26	0.55	0.78	0.50	0.27
Avail Cap(c_a), veh/h	449	399	412	1044	842	711
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.99	0.99	1.00	1.00	0.90	0.90
Uniform Delay (d), s/veh	29.6	27.9	29.8	33.2	16.7	14.5
Incr Delay (d2), s/veh	3.1	1.5	5.3	5.7	1.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	2.1	5.7	22.0	6.6	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.6	29.5	35.1	38.9	18.6	15.3
LnGrp LOS	C	C	D	D	B	B
Approach Vol, veh/h	300			1039	614	
Approach Delay, s/veh	31.5			38.1	17.6	
Approach LOS	C			D	B	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.0	55.0				67.0		33.0
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0
Max Green Setting (Gmax), s	7.0	50.0				62.0		28.0
Max Q Clear Time (g_c+I1), s	2.0	18.7				47.6		12.1
Green Ext Time (p_c), s	0.2	1.5				2.0		1.6

Intersection Summary		
HCM 6th Ctrl Delay		30.6
HCM 6th LOS		C

Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Group Flow (vph)	197	103	228	811	422	192
v/c Ratio	0.44	0.22	0.46	0.87	0.50	0.25
Control Delay	36.1	10.2	9.2	24.1	12.2	2.3
Queue Delay	79.2	0.0	0.5	0.2	0.6	0.0
Total Delay	115.2	10.2	9.7	24.3	12.8	2.3
Queue Length 50th (ft)	116	9	15	495	89	0
Queue Length 95th (ft)	177	37	16	595	136	10
Internal Link Dist (ft)	453			125	289	
Turn Bay Length (ft)	150					100
Base Capacity (vph)	446	466	497	935	838	776
Starvation Cap Reductn	0	0	72	0	153	0
Spillback Cap Reductn	351	0	0	8	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.07	0.22	0.54	0.87	0.62	0.25

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	360	1006	0	0	372	54	138	95	17	0	0	0
Future Volume (vph)	360	1006	0	0	372	54	138	95	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.91			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.99				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1767	5085			3423			3391				
Flt Permitted	0.44	1.00			1.00			0.97				
Satd. Flow (perm)	810	5085			3423			3391				
Peak-hour factor, PHF	0.91	0.85	0.90	0.90	0.92	0.55	0.89	0.89	0.75	0.90	0.90	0.90
Adj. Flow (vph)	396	1184	0	0	404	98	155	107	23	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	8	0	0	0	0
Lane Group Flow (vph)	396	1184	0	0	485	0	0	277	0	0	0	0
Confl. Peds. (#/hr)	4					4			30			
Turn Type	pm+pt	NA			NA		Split	NA				
Protected Phases	3	1 3			1		4	4				
Permitted Phases	1 3											
Actuated Green, G (s)	71.5	76.5			50.7			13.5				
Effective Green, g (s)	71.5	76.5			50.7			13.5				
Actuated g/C Ratio	0.72	0.76			0.51			0.14				
Clearance Time (s)	5.0				5.0			5.0				
Vehicle Extension (s)	2.0				2.0			3.0				
Lane Grp Cap (vph)	778	3890			1735			457				
v/s Ratio Prot	c0.11	0.23			0.14			c0.08				
v/s Ratio Perm	c0.26											
v/c Ratio	0.51	0.30			0.28			0.61				
Uniform Delay, d1	9.4	3.6			14.2			40.7				
Progression Factor	0.76	0.08			0.86			1.19				
Incremental Delay, d2	0.2	0.0			0.4			2.1				
Delay (s)	7.3	0.3			12.5			50.5				
Level of Service	A	A			B			D				
Approach Delay (s)		2.0			12.5			50.5			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1181	55	0	511	0	0	0	0	185	190	211
Future Volume (vph)	0	1181	55	0	511	0	0	0	0	185	190	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		0.91	1.00		0.95						0.95	
Frt		1.00	0.85		1.00						0.95	
Flt Protected		1.00	1.00		1.00						0.98	
Satd. Flow (prot)		5085	1583		3539						3296	
Flt Permitted		1.00	1.00		1.00						0.98	
Satd. Flow (perm)		5085	1583		3539						3296	
Peak-hour factor, PHF	0.91	0.85	0.77	0.87	0.85	0.87	0.90	0.90	0.90	0.85	0.85	0.85
Adj. Flow (vph)	0	1389	71	0	601	0	0	0	0	218	224	248
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	0	0	79	0
Lane Group Flow (vph)	0	1389	36	0	601	0	0	0	0	0	611	0
Turn Type		NA	Perm		NA					Split	NA	
Protected Phases		1			1 4					3	3	
Permitted Phases			1									
Actuated Green, G (s)		50.7	50.7		69.2						20.8	
Effective Green, g (s)		50.7	50.7		69.2						20.8	
Actuated g/C Ratio		0.51	0.51		0.69						0.21	
Clearance Time (s)		5.0	5.0								5.0	
Vehicle Extension (s)		2.0	2.0								2.0	
Lane Grp Cap (vph)		2578	802		2448						685	
v/s Ratio Prot		c0.27			c0.17						c0.19	
v/s Ratio Perm			0.02									
v/c Ratio		0.54	0.04		0.25						0.89	
Uniform Delay, d1		16.7	12.4		5.7						38.5	
Progression Factor		0.61	0.32		0.29						1.03	
Incremental Delay, d2		0.8	0.1		0.1						12.0	
Delay (s)		10.9	4.1		1.7						51.5	
Level of Service		B	A		A						D	
Approach Delay (s)		10.6			1.7			0.0			51.5	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC ANALYSIS

CAPACITY ANALYSIS
Alternative B
ETC+20 (2043) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	483	36	0	392	61	0	691	84	0	624	98
Future Volume (veh/h)	0	483	36	0	392	61	0	691	84	0	624	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1683	1683	0	1683	1683	0	1683	1683	0	1683	1683
Adj Flow Rate, veh/h	0	555	40	0	426	81	0	705	105	0	726	132
Peak Hour Factor	0.90	0.87	0.89	0.90	0.92	0.75	0.90	0.98	0.80	0.90	0.86	0.74
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	741	604	0	741	571	0	741	595	0	741	603
Arrive On Green	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.15	0.15	0.00	0.44	0.44
Sat Flow, veh/h	0	1683	1373	0	1683	1297	0	1683	1352	0	1683	1371
Grp Volume(v), veh/h	0	555	40	0	426	81	0	705	105	0	726	132
Grp Sat Flow(s),veh/h/ln	0	1683	1373	0	1683	1297	0	1683	1352	0	1683	1371
Q Serve(g_s), s	0.0	31.6	2.5	0.0	23.6	5.5	0.0	41.5	6.8	0.0	42.5	6.0
Cycle Q Clear(g_c), s	0.0	31.6	2.5	0.0	23.6	5.5	0.0	41.5	6.8	0.0	42.5	6.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	741	604	0	741	571	0	741	595	0	741	603
V/C Ratio(X)	0.00	0.75	0.07	0.00	0.58	0.14	0.00	0.95	0.18	0.00	0.98	0.22
Avail Cap(c_a), veh/h	0	741	604	0	741	571	0	741	595	0	741	603
HCM Platoon Ratio	1.00	0.33	0.33	1.00	0.33	0.33	1.00	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.00	0.87	0.87	0.00	0.96	0.96	0.00	0.79	0.79
Uniform Delay (d), s/veh	0.0	37.5	25.0	0.0	34.0	26.3	0.0	41.7	26.8	0.0	27.6	17.3
Incr Delay (d2), s/veh	0.0	6.2	0.2	0.0	2.8	0.5	0.0	22.6	0.6	0.0	25.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.5	0.8	0.0	11.2	1.8	0.0	23.3	2.4	0.0	21.3	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	43.6	25.2	0.0	36.8	26.7	0.0	64.3	27.5	0.0	52.6	18.0
LnGrp LOS	A	D	C	A	D	C	A	E	C	A	D	B
Approach Vol, veh/h		595			507			810			858	
Approach Delay, s/veh		42.4			35.2			59.5			47.2	
Approach LOS		D			D			E			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.0		50.0		50.0		50.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		44.0		44.0		44.0		44.0				
Max Q Clear Time (g_c+I1), s		43.5		33.6		44.5		25.6				
Green Ext Time (p_c), s		0.2		2.0		0.0		2.1				
Intersection Summary												
HCM 6th Ctrl Delay			47.6									
HCM 6th LOS			D									

Lane Group	EBT	EBR	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	555	40	426	81	705	105	726	132
v/c Ratio	0.75	0.07	0.58	0.16	0.96	0.19	0.99	0.23
Control Delay	19.9	9.5	23.6	16.2	47.8	13.7	46.8	13.2
Queue Delay	0.2	0.0	1.9	0.2	0.0	0.0	25.6	1.2
Total Delay	20.2	9.5	25.4	16.4	47.8	13.7	72.4	14.3
Queue Length 50th (ft)	210	7	209	36	444	27	239	41
Queue Length 95th (ft)	272	m16	141	16	#679	43	#640	66
Internal Link Dist (ft)	342		273		368		167	
Turn Bay Length (ft)		150		150				100
Base Capacity (vph)	737	573	737	512	737	550	737	571
Starvation Cap Reductn	15	0	172	0	0	0	58	273
Spillback Cap Reductn	0	0	13	128	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.07	0.75	0.21	0.96	0.19	1.07	0.44

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	71	42	731	27	15	655
Future Volume (veh/h)	71	42	731	27	15	655
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.88		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	85	53	769	45	23	704
Peak Hour Factor	0.84	0.79	0.95	0.60	0.65	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	217	135	1145	969	415	1145
Arrive On Green	0.22	0.22	0.90	0.90	0.68	0.68
Sat Flow, veh/h	986	615	1683	1425	604	1683
Grp Volume(v), veh/h	139	0	769	45	23	704
Grp Sat Flow(s),veh/h/ln	1613	0	1683	1425	604	1683
Q Serve(g_s), s	7.4	0.0	11.1	0.3	1.7	23.0
Cycle Q Clear(g_c), s	7.4	0.0	11.1	0.3	12.8	23.0
Prop In Lane	0.61	0.38		1.00	1.00	
Lane Grp Cap(c), veh/h	355	0	1145	969	415	1145
V/C Ratio(X)	0.39	0.00	0.67	0.05	0.06	0.62
Avail Cap(c_a), veh/h	355	0	1145	969	415	1145
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.37	0.37	0.68	0.68
Uniform Delay (d), s/veh	33.3	0.0	2.1	1.5	9.7	8.8
Incr Delay (d2), s/veh	3.2	0.0	1.2	0.0	0.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	2.0	0.1	0.2	7.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.5	0.0	3.2	1.6	9.8	10.5
LnGrp LOS	D	A	A	A	A	B
Approach Vol, veh/h	139		814			727
Approach Delay, s/veh	36.5		3.2			10.5
Approach LOS	D		A			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	73.0	73.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0
Max Green Setting (Gmax), s	68.0	68.0	22.0
Max Q Clear Time (g_c+I1), s	13.1	25.0	9.4
Green Ext Time (p_c), s	4.4	3.9	0.4

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	138	769	45	23	704
v/c Ratio	0.40	0.68	0.05	0.07	0.62
Control Delay	30.3	7.9	1.4	7.8	12.3
Queue Delay	0.1	2.9	0.0	0.0	33.3
Total Delay	30.3	10.8	1.4	7.8	45.6
Queue Length 50th (ft)	59	77	1	6	198
Queue Length 95th (ft)	106	m95	m0	m8	249
Internal Link Dist (ft)	155	167			304
Turn Bay Length (ft)			100	100	
Base Capacity (vph)	342	1139	959	308	1139
Starvation Cap Reductn	0	256	0	0	182
Spillback Cap Reductn	7	54	0	0	469
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.87	0.05	0.07	1.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (veh/h)	123	48	608	135	54	727
Future Volume (veh/h)	123	48	608	135	54	727
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	148	67	707	165	108	765
Peak Hour Factor	0.83	0.72	0.86	0.82	0.50	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	456	976	817	402	976
Arrive On Green	0.32	0.32	1.00	1.00	0.58	0.58
Sat Flow, veh/h	1603	1427	1683	1409	570	1683
Grp Volume(v), veh/h	148	67	707	165	108	765
Grp Sat Flow(s),veh/h/ln	1603	1427	1683	1409	570	1683
Q Serve(g_s), s	6.9	3.4	0.0	0.0	9.8	35.0
Cycle Q Clear(g_c), s	6.9	3.4	0.0	0.0	9.8	35.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	513	456	976	817	402	976
V/C Ratio(X)	0.29	0.15	0.72	0.20	0.27	0.78
Avail Cap(c_a), veh/h	513	456	976	817	402	976
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	0.68	0.68
Uniform Delay (d), s/veh	25.5	24.3	0.0	0.0	10.9	16.2
Incr Delay (d2), s/veh	1.4	0.7	3.7	0.4	1.1	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.2	1.0	0.1	1.3	13.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	24.9	3.7	0.4	12.0	20.5
LnGrp LOS	C	C	A	A	B	C
Approach Vol, veh/h	215		872			873
Approach Delay, s/veh	26.3		3.1			19.5
Approach LOS	C		A			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		58.0		32.0		58.0
Max Q Clear Time (g_c+I1), s		37.0		8.9		2.0
Green Ext Time (p_c), s		5.1		0.8		4.6

Intersection Summary		
HCM 6th Ctrl Delay		12.9
HCM 6th LOS		B

Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	148	67	707	165	108	765
v/c Ratio	0.29	0.14	0.73	0.20	0.46	0.79
Control Delay	27.4	7.0	18.5	5.1	10.9	12.3
Queue Delay	0.0	0.0	1.2	0.0	0.0	4.9
Total Delay	27.4	7.0	19.7	5.1	10.9	17.2
Queue Length 50th (ft)	70	0	233	15	16	116
Queue Length 95th (ft)	111	18	430	42	26	512
Internal Link Dist (ft)	301		289			304
Turn Bay Length (ft)	125			100	100	
Base Capacity (vph)	509	474	972	828	236	972
Starvation Cap Reductn	0	0	107	0	0	147
Spillback Cap Reductn	0	0	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.14	0.82	0.20	0.46	0.93

Intersection Summary

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (veh/h)	225	204	120	524	661	184
Future Volume (veh/h)	225	204	120	524	661	184
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1683	1683	1683	1683	1683	1683
Adj Flow Rate, veh/h	300	268	152	552	718	200
Peak Hour Factor	0.75	0.76	0.79	0.95	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	449	399	243	1044	842	711
Arrive On Green	0.28	0.28	0.02	0.20	0.50	0.50
Sat Flow, veh/h	1603	1427	1603	1683	1683	1422
Grp Volume(v), veh/h	300	268	152	552	718	200
Grp Sat Flow(s),veh/h/ln	1603	1427	1603	1683	1683	1422
Q Serve(g_s), s	16.6	16.7	1.1	29.2	37.2	8.2
Cycle Q Clear(g_c), s	16.6	16.7	1.1	29.2	37.2	8.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	449	399	243	1044	842	711
V/C Ratio(X)	0.67	0.67	0.62	0.53	0.85	0.28
Avail Cap(c_a), veh/h	449	399	243	1044	842	711
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.96	0.96	1.00	1.00	0.64	0.64
Uniform Delay (d), s/veh	31.9	31.9	43.4	26.7	21.8	14.5
Incr Delay (d2), s/veh	7.4	8.4	3.7	1.9	7.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	6.6	3.9	13.6	15.4	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.3	40.3	47.1	28.7	29.0	15.2
LnGrp LOS	D	D	D	C	C	B
Approach Vol, veh/h	568			704	918	
Approach Delay, s/veh	39.7			32.6	26.0	
Approach LOS	D			C	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.0	55.0				67.0		33.0
Change Period (Y+Rc), s	5.0	5.0				5.0		5.0
Max Green Setting (Gmax), s	7.0	50.0				62.0		28.0
Max Q Clear Time (g_c+I1), s	3.1	39.2				31.2		18.7
Green Ext Time (p_c), s	0.1	2.0				1.3		2.5

Intersection Summary			
HCM 6th Ctrl Delay			31.7
HCM 6th LOS			C

Lane Group	WBL	WBR	SEL	SET	NWT	NWR
Lane Group Flow (vph)	300	268	152	552	718	200
v/c Ratio	0.67	0.46	0.53	0.53	0.86	0.27
Control Delay	38.5	6.6	18.5	9.1	19.9	3.2
Queue Delay	4.0	0.0	0.0	0.1	7.9	0.0
Total Delay	42.5	6.6	18.5	9.2	27.8	3.2
Queue Length 50th (ft)	171	11	21	71	186	2
Queue Length 95th (ft)	215	22	53	125	#614	m15
Internal Link Dist (ft)	453			125	289	
Turn Bay Length (ft)	150					100
Base Capacity (vph)	446	581	287	1039	838	744
Starvation Cap Reductn	0	0	0	34	94	0
Spillback Cap Reductn	82	10	0	37	63	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.47	0.53	0.55	0.97	0.27

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	320	649	0	0	769	97	97	269	13	0	0	0
Future Volume (vph)	320	649	0	0	769	97	97	269	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.91			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.98			1.00				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	5085			3446			3477				
Flt Permitted	0.14	1.00			1.00			0.99				
Satd. Flow (perm)	258	5085			3446			3477				
Peak-hour factor, PHF	0.92	0.91	0.90	0.90	0.91	0.62	0.75	0.66	0.75	0.90	0.90	0.90
Adj. Flow (vph)	348	713	0	0	845	156	129	408	17	0	0	0
RTOR Reduction (vph)	0	0	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	348	713	0	0	987	0	0	552	0	0	0	0
Confl. Peds. (#/hr)	4					4			30			
Turn Type	pm+pt	NA			NA		Split	NA				
Protected Phases	3	1 3			1		4	4				
Permitted Phases	1 3											
Actuated Green, G (s)	64.1	69.1			39.1			20.9				
Effective Green, g (s)	64.1	69.1			39.1			20.9				
Actuated g/C Ratio	0.64	0.69			0.39			0.21				
Clearance Time (s)	5.0				5.0			5.0				
Vehicle Extension (s)	2.0				2.0			3.0				
Lane Grp Cap (vph)	543	3513			1347			726				
v/s Ratio Prot	c0.16	0.14			c0.29			c0.16				
v/s Ratio Perm	0.25											
v/c Ratio	0.64	0.20			0.73			0.76				
Uniform Delay, d1	23.7	5.6			26.0			37.2				
Progression Factor	0.88	0.14			0.62			1.07				
Incremental Delay, d2	4.9	0.1			2.4			4.5				
Delay (s)	25.8	0.9			18.6			44.4				
Level of Service	C	A			B			D				
Approach Delay (s)		9.0			18.6			44.4			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	769	81	0	866	0	0	0	0	200	235	339
Future Volume (vph)	0	769	81	0	866	0	0	0	0	200	235	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		0.91	1.00		0.95						0.95	
Frt		1.00	0.85		1.00						0.93	
Flt Protected		1.00	1.00		1.00						0.99	
Satd. Flow (prot)		5085	1583		3539						3263	
Flt Permitted		1.00	1.00		1.00						0.99	
Satd. Flow (perm)		5085	1583		3539						3263	
Peak-hour factor, PHF	0.91	0.89	0.76	0.87	0.90	0.87	0.90	0.90	0.90	0.86	0.91	0.88
Adj. Flow (vph)	0	864	107	0	962	0	0	0	0	233	258	385
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	0	117	0
Lane Group Flow (vph)	0	864	50	0	962	0	0	0	0	0	759	0
Turn Type		NA	Perm		NA					Split	NA	
Protected Phases		1			1 4					3	3	
Permitted Phases			1									
Actuated Green, G (s)		39.1	39.1		65.0						25.0	
Effective Green, g (s)		39.1	39.1		65.0						25.0	
Actuated g/C Ratio		0.39	0.39		0.65						0.25	
Clearance Time (s)		5.0	5.0								5.0	
Vehicle Extension (s)		2.0	2.0								2.0	
Lane Grp Cap (vph)		1988	618		2300						815	
v/s Ratio Prot		0.17			c0.27						c0.23	
v/s Ratio Perm			0.03									
v/c Ratio		0.43	0.08		0.42						0.93	
Uniform Delay, d1		22.3	19.1		8.4						36.7	
Progression Factor		0.67	1.19		0.26						1.52	
Incremental Delay, d2		0.7	0.2		0.1						16.9	
Delay (s)		15.6	23.0		2.3						72.7	
Level of Service		B	C		A						E	
Approach Delay (s)		16.4			2.3			0.0			72.7	
Approach LOS		B			A			A			E	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX C-2

SAFETY ANALYSIS

1. Introduction

An analysis of vehicular crashes within the project area was performed to document crash types and severity, as well as to analyze crash patterns, attributing factors and possible countermeasures. MV-104 crash reports were provided for the thirty-four month period of January 1, 2016 through October 31, 2018. Limits of the analysis were 0.1 mile south of Main Street to 0.1 mile north of the Inner Loop. The provided information generally included location, time and date, crash type, and weather & pavement conditions. Many of the reports also included a written description and/or diagram of the crash. A total of 127 crashes occurred along State Street within the thirty-four month analysis period, including intersections and highway segments.

2. Crash Type and Severity

A summary of crash type and severity for the overall project limits is included in Table 1.

Table 1
Crash Type and Severity

34-Month Period (1/1/2016 to 10/31/2018) Overall Project Limits		
Type of Crash	**Number**	**Percentage**
Sideswipe	46	36%
Rear End	37	29%
Right Angle	26	20%
Left Turn	10	8%
Pedestrian	3	2%
Right Turn	2	2%
Bicycle	1	1%
Head On	1	1%
Other/Unknown	1	1%
Total	**127**	**100%**
Severity	**Number**	**Percentage**
Non-Reportable	47	37%
Property Damage	60	47%
Injury	20	16%
Fatality	0	0%
Total	**127**	**100%**

3. Intersection Crash Rates and Types

A description of the intersection and segment crashes, apparent patterns and calculated crash rates follows. Refer to Collision Diagrams, Crash Summary Sheets and Crash Rates Calculations for additional crash data.

A. State Street & Main Street Intersection

Twenty-four crashes occurred during the analysis period, including 4 Injury, 11 Property Damage and 9 Non-Reportable crashes. Sideswipe (10 crashes) and rear end (8) were the predominant crash types, and the remaining crashes were right angle (4), left turn (1), and bicycle (1).

The bicycle crash occurred as a westbound vehicle on Main St attempted to turn right on State St and struck a bicyclist in the crosswalk.

Four sideswipe accidents at the Main Street intersection involved the misuse or confusion over the use of the westbound curb lane, which has Bus Only markings on East Main Street. Two collisions at Main Street involved cars parked illegally on State Street on the northbound side. There is no apparent crash pattern related to the unusual geometry of the State & Main intersection.

The intersection crash rate was calculated to be 0.84 accidents per million entering vehicles (Acc/MEV). The calculated rate is lower than the Monroe County average rate for similar facilities of 1.42 Acc/MEV.

B. State Street Segment: Main Street to Corinthian Street

Two crashes occurred during the analysis period, both Non-Reportable. Both crashes were sideswipe and occurred in the southbound direction.

The segment crash rate was calculated to be 3.46 accidents per million vehicle miles (Acc/MVM). The calculated rate is higher than the Monroe County average rate for similar facilities of 2.73 Acc/MVM.

C. State Street & Corinthian Street Intersection

Four crashes occurred during the analysis period, two of which were Non-Reportable and two involved property damage only. Crash types were rear end (2) and sideswipe (2). Both rear end crashes occurred at the State Street southbound approach, and the sideswipe crashes were split between the northbound and southbound approaches.

The intersection crash rate was calculated to be 0.21 Acc/MEV. The calculated rate is lower than the Monroe County average rate for similar facilities of 0.50 Acc/MEV.

D. State Street Segment: Corinthian Street to Church Street

Eleven crashes occurred during the analysis period, including 1 with injury, 7 with property damage only and 3 Non-Reportable. The predominate crash type was sideswipe (8), and the remaining crash types included rear end (1), right angle (1), and right turn (1). There were five northbound sideswipe collisions where lane changes were attempted without yielding. There were also three sideswipe collisions with cars parked in the southbound curb lane.

The segment crash rate was calculated to be 36.62 Acc/MVM, which is more than fourteen times the Monroe County average rate for similar facilities of 2.73 Acc/MVM. However, the segment rate is skewed high due to the very short length of less than 0.1 mile.

E. State Street & Church Street Intersection

Six crashes occurred during the analysis period, including 1 with injury and 5 Non-Reportable. Crash types included sideswipe (3), rear end (2), and pedestrian (1). The pedestrian crash occurred when a southbound vehicle attempted to turn right and struck a pedestrian in the crosswalk, and was attributed to driver inattention. There were no other apparent patterns or deficiencies noted.

The intersection crash rate was calculated to be 0.29 Acc/MEV. The calculated rate is lower than the Monroe County average rate for similar facilities of 0.50 Acc/MEV.

F. State Street Segment: Church Street to Andrews Street

Seven crashes occurred during the analysis period, six of which involved property damage only and one was Non-Reportable. Most crashes (4) were sideswipe, and the remaining crash types were right angle (2) and rear end (1). Most sideswipe crashes involved vehicles parked or entering / leaving street parking spaces.

The segment crash rate was calculated to be 6.84 Acc/MVM, which is higher than the Monroe County average rate for similar facilities of 2.73 Acc/MVM. Similar to other segments, the short length of less than 0.1 mile skews the segment crash rate higher.

G. State Street & Andrews Street Intersection

Seventeen crashes occurred during the analysis period, including 3 with injury, 8 with property damage only and 6 Non-Reportable. The predominate crash type was sideswipe (9), and the remaining crash types included rear end (4), right angle (1), left turn (1), other/unknown (1), and pedestrian (1). There is a crash pattern on the southbound approach to the Andrews Street intersection. There were seven sideswipe collisions during the study period at this approach. Two collisions were vehicles changing from the right lane to the center lane and five were changing from the center to the right lane.

The pedestrian crash occurred as a driver attempted to turn left from Andrews Street and struck pedestrians in the crosswalk. The crash was attributed to driver inattention and possibly sun glare.

The intersection crash rate was calculated to be 0.72 Acc/MEV, which is lower than the Monroe County average rate for similar facilities of 0.91 Acc/MEV.

H. State Street Segment: Andrews Street to Allen Street

Three crashes occurred during the analysis period, including 1 with injury and 2 with property damage only. Crash types included sideswipe (2) and rear end (1). The sideswipe crashes involved vehicles parked or entering / leaving street parking spaces.

The segment crash rate was calculated to be 2.71 Acc/MVM, which is slightly lower than the Monroe County average rate for similar facilities of 2.73 Acc/MVM.

I. State Street & Allen Street (Eastbound) Intersection

Twenty-three crashes occurred during the analysis period, including 4 with injury, 12 with property damage and 7 Non-Reportable. Predominate crash types were rear end (8) and right angle (8), with the remaining types including sideswipe (3), left turn (2), right turn (1), and pedestrian (1). A cluster of rear end crashes is present at the northbound approach, and a cluster of right angle crashes is present between northbound and eastbound vehicles.

The pedestrian crash occurred when a vehicle eastbound on Allen St collided with a pedestrian in a crosswalk traveling north along the east side of State Street. It was unclear whether the driver or pedestrian had the right-of-way.

The intersection crash rate was calculated to be 0.85 Acc/MEV, which is higher than the New York State average crash rate of 0.25 Acc/MEV (New York State crash rates are used for comparison as NYSDOT maintains jurisdiction over this intersection).

J. State Street & Allen Street (Westbound) Intersection

Thirty crashes occurred during the analysis period, including 6 with injury, 12 with property damage, and 12 Non-Reportable. Predominate crash types were rear end (10) and right angle (10), with the remaining types including left turn (6), sideswipe (3) and head on (1). A cluster of rear end crashes is present at the southbound approach, and a cluster of right angle crashes is present between southbound and westbound vehicles.

The intersection crash rate was calculated to be 0.98 Acc/MEV, which is higher than the New York State average crash rate of 0.20 Acc/MEV (New York State crash rates are used for comparison as NYSDOT maintains jurisdiction over this intersection).

4. Previous Safety Analyses

Portions of the project corridor have undergone review of crash history as part of corridor evaluations at least twice in the last decade.

Monroe County and the City of Rochester reviewed State Street from Allen Street to Lyell Avenue for the potential conversion of curb lanes to parking and right turn only lanes. Crashes at the Allen Street / Inner Loop intersection with State Street were considered as part of that investigation. A crash pattern with southbound left turns at the Inner Loop eastbound ramp was noted. The New York State Department of Transportation (NYSDOT) maintains jurisdiction over the Allen St / Inner Loop intersections, and NYSDOT modified the southbound lane configuration the intersection subsequent to the State Street study to address that particular crash pattern. The State Street study also noted a high crash rate involving westbound traffic from Allen St / Inner Loop westbound exit ramp. Signal head visibility was noted as a factor. Subsequently, traffic signal improvements including reflective backplates and revised signal timing were implemented at the Allen St / Inner Loop intersections.

In 2016, MCDOT conducted a Priority Investigation Location (PIL) study of State Street from Main Street to Andrews Street. They reviewed over 4 ½ years of accidents for that section of the corridor. Non-intersection crash rates were found to be generally higher than the critical rate, and only the Church Street intersection crash rate was higher than the critical rate. The types and relative proportions of crashes were generally consistent with the more recent data reviewed for the current analysis.

SAFETY ANALYSIS

ACCIDENT SUMMARY SHEETS

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State Street Totals	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	99	78
Dawn	2	2
Dusk	0	0
Dark Lighted	26	20
Dark Unlighted	0	0
Unknown	0	0
Total	127	100.00%

Time of Year	#	%
Winter (Dec-Feb)	25	20
Spring (Mar-May)	40	31
Summer (Jun-Aug)	37	29
Fall (Sep-Nov)	25	20
Total	127	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	37	29
Right Angle	26	20
Left Turn	10	8
Sideswipe	46	36
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	3	2
Bicycle	1	1
Animal	0	0
Right Turn	2	2
Head On	1	1
Other / Unknown	1	1
Total	127	100.00%

Roadway Characteristics	#	%
Straight & Level	123	97
Straight & Grade	1	1
Straight & Hillcrest	0	0
Curve & Level	3	2
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	127	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	20	16
Prop Damage Only	60	47
Non-Reportable	47	37
Unknown	0	0
Total	127	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	2	2
Slush	0	0
Unknown	125	98
Total	127	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State Street at Main Street	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	17	71
Dawn	0	0
Dusk	0	0
Dark Lighted	7	29
Dark Unlighted	0	0
Unknown	0	0
Total	24	100.00%

Time of Year	#	%
Winter (Dec-Feb)	3	13
Spring (Mar-May)	11	46
Summer (Jun-Aug)	6	25
Fall (Sep-Nov)	4	17
Total	24	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	8	33
Right Angle	4	17
Left Turn	1	4
Sideswipe	10	42
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	1	4
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	0	0
Total	24	100.00%

Roadway Characteristics	#	%
Straight & Level	23	96
Straight & Grade	1	4
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	24	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	4	17
Prop Damage Only	11	46
Non-Reportable	9	38
Unknown	0	0
Total	24	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	24	100
Total	24	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	Main to Corinthian	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	2	100
Dawn	0	0
Dusk	0	0
Dark Lighted	0	0
Dark Unlighted	0	0
Unknown	0	0
Total	2	100.00%

Time of Year	#	%
Winter (Dec-Feb)	1	50
Spring (Mar-May)	1	50
Summer (Jun-Aug)	0	0
Fall (Sep-Nov)	0	0
Total	2	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	0	0
Right Angle	0	0
Left Turn	0	0
Sideswipe	2	100
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	0	0
Total	2	100.00%

Roadway Characteristics	#	%
Straight & Level	2	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	2	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	0	0
Prop Damage Only	0	0
Non-Reportable	2	100
Unknown	0	0
Total	2	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	2	100
Total	2	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State St at Corinthian St	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	2	50
Dawn	0	0
Dusk	0	0
Dark Lighted	2	50
Dark Unlighted	0	0
Unknown	0	0
Total	4	100.00%

Time of Year	#	%
Winter (Dec-Feb)	0	0
Spring (Mar-May)	2	50
Summer (Jun-Aug)	0	0
Fall (Sep-Nov)	2	50
Total	4	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	2	50
Right Angle	0	0
Left Turn	0	0
Sideswipe	2	50
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	0	0
Total	4	100.00%

Roadway Characteristics	#	%
Straight & Level	4	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	4	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	0	0
Prop Damage Only	2	50
Non-Reportable	2	50
Unknown	0	0
Total	4	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	4	100
Total	4	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	Corinthian to Church St	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	9	82
Dawn	0	0
Dusk	0	0
Dark Lighted	2	18
Dark Unlighted	0	0
Unknown	0	0
Total	11	100.00%

Time of Year	#	%
Winter (Dec-Feb)	1	9
Spring (Mar-May)	3	27
Summer (Jun-Aug)	3	27
Fall (Sep-Nov)	4	36
Total	11	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	1	9
Right Angle	1	9
Left Turn	0	0
Sideswipe	8	73
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	0	0
Animal	0	0
Right Turn	1	9
Head On	0	0
Other / Unknown	0	0
Total	11	100.00%

Roadway Characteristics	#	%
Straight & Level	11	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	11	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	1	9
Prop Damage Only	7	64
Non-Reportable	3	27
Unknown	0	0
Total	11	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	11	100
Total	11	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State Street at Church Street	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	5	83
Dawn	0	0
Dusk	0	0
Dark Lighted	1	17
Dark Unlighted	0	0
Unknown	0	0
Total	6	100.00%

Time of Year	#	%
Winter (Dec-Feb)	1	17
Spring (Mar-May)	2	33
Summer (Jun-Aug)	1	17
Fall (Sep-Nov)	2	33
Total	6	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	2	33
Right Angle	0	0
Left Turn	0	0
Sideswipe	3	50
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	1	17
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	0	0
Total	6	100.00%

Roadway Characteristics	#	%
Straight & Level	6	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	6	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	1	17
Prop Damage Only	0	0
Non-Reportable	5	83
Unknown	0	0
Total	6	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	1	17
Slush	0	0
Unknown	5	83
Total	6	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	Church St to Andrews St	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition

	#	%
Daylight	7	100
Dawn	0	0
Dusk	0	0
Dark Lighted	0	0
Dark Unlighted	0	0
Unknown	0	0
Total	7	100.00%

Time of Year

	#	%
Winter (Dec-Feb)	2	29
Spring (Mar-May)	1	14
Summer (Jun-Aug)	3	43
Fall (Sep-Nov)	1	14
Total	7	100.00%

Accident Type

	#	%
Overtaking	0	0
Rear End	1	14
Right Angle	2	29
Left Turn	0	0
Sideswipe	4	57
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	0	0
Total	7	100.00%

Roadway Characteristics

	#	%
Straight & Level	4	57
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	3	43
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	7	100.00%

Accident Severity

	#	%
Fatal	0	0
Injury	0	0
Prop Damage Only	6	86
Non-Reportable	1	14
Unknown	0	0
Total	7	100.00%

Roadway Surface Condition

	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	7	100
Total	7	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State Street at Andrews Street	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	12	71
Dawn	2	12
Dusk	0	0
Dark Lighted	3	18
Dark Unlighted	0	0
Unknown	0	0
Total	17	100.00%

Time of Year	#	%
Winter (Dec-Feb)	1	6
Spring (Mar-May)	4	24
Summer (Jun-Aug)	11	65
Fall (Sep-Nov)	1	6
Total	17	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	4	24
Right Angle	1	6
Left Turn	1	6
Sideswipe	9	53
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	1	6
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	1	6
Total	17	100.00%

Roadway Characteristics	#	%
Straight & Level	17	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	17	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	3	18
Prop Damage Only	8	47
Non-Reportable	6	35
Unknown	0	0
Total	17	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	17	100
Total	17	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	Andrews to Inner Loop	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition

	#	%
Daylight	2	67
Dawn	0	0
Dusk	0	0
Dark Lighted	1	33
Dark Unlighted	0	0
Unknown	0	0
Total	3	100.00%

Time of Year

	#	%
Winter (Dec-Feb)	1	33
Spring (Mar-May)	0	0
Summer (Jun-Aug)	2	67
Fall (Sep-Nov)	0	0
Total	3	100.00%

Accident Type

	#	%
Overtaking	0	0
Rear End	1	33
Right Angle	0	0
Left Turn	0	0
Sideswipe	2	67
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	0	0
Other / Unknown	0	0
Total	3	100.00%

Roadway Characteristics

	#	%
Straight & Level	3	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	3	100.00%

Accident Severity

	#	%
Fatal	0	0
Injury	1	33
Prop Damage Only	2	67
Non-Reportable	0	0
Unknown	0	0
Total	3	100.00%

Roadway Surface Condition

	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	3	100
Total	3	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State Street at Allen IL EB	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition

	#	%
Daylight	21	91
Dawn	0	0
Dusk	0	0
Dark Lighted	2	9
Dark Unlighted	0	0
Unknown	0	0
Total	23	100.00%

Time of Year

	#	%
Winter (Dec-Feb)	7	30
Spring (Mar-May)	6	26
Summer (Jun-Aug)	5	22
Fall (Sep-Nov)	5	22
Total	23	100.00%

Accident Type

	#	%
Overtaking	0	0
Rear End	8	35
Right Angle	8	35
Left Turn	2	9
Sideswipe	3	13
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	1	4
Bicycle	0	0
Animal	0	0
Right Turn	1	4
Head On	0	0
Other / Unknown	0	0
Total	23	100.00%

Roadway Characteristics

	#	%
Straight & Level	23	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	23	100.00%

Accident Severity

	#	%
Fatal	0	0
Injury	4	17
Prop Damage Only	12	52
Non-Reportable	7	30
Unknown	0	0
Total	23	100.00%

Roadway Surface Condition

	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	1	4
Slush	0	0
Unknown	22	96
Total	23	100.00%

Accident Summary Sheet

State Street Reconstruction, City of Rochester

Project No. 2200377

Location:	State Street at Allen IL WB	City:	Rochester
Period Covered:	1/1/2016 to 10/31/2018	County:	Monroe
Date:	4/6/2020		

Light Condition	#	%
Daylight	22	73
Dawn	0	0
Dusk	0	0
Dark Lighted	8	27
Dark Unlighted	0	0
Unknown	0	0
Total	30	100.00%

Time of Year	#	%
Winter (Dec-Feb)	8	27
Spring (Mar-May)	10	33
Summer (Jun-Aug)	6	20
Fall (Sep-Nov)	6	20
Total	30	100.00%

Accident Type	#	%
Overtaking	0	0
Rear End	10	33
Right Angle	10	33
Left Turn	6	20
Sideswipe	3	10
Run Off Road	0	0
Fixed Object	0	0
Pedestrian	0	0
Bicycle	0	0
Animal	0	0
Right Turn	0	0
Head On	1	3
Other / Unknown	0	0
Total	30	100.00%

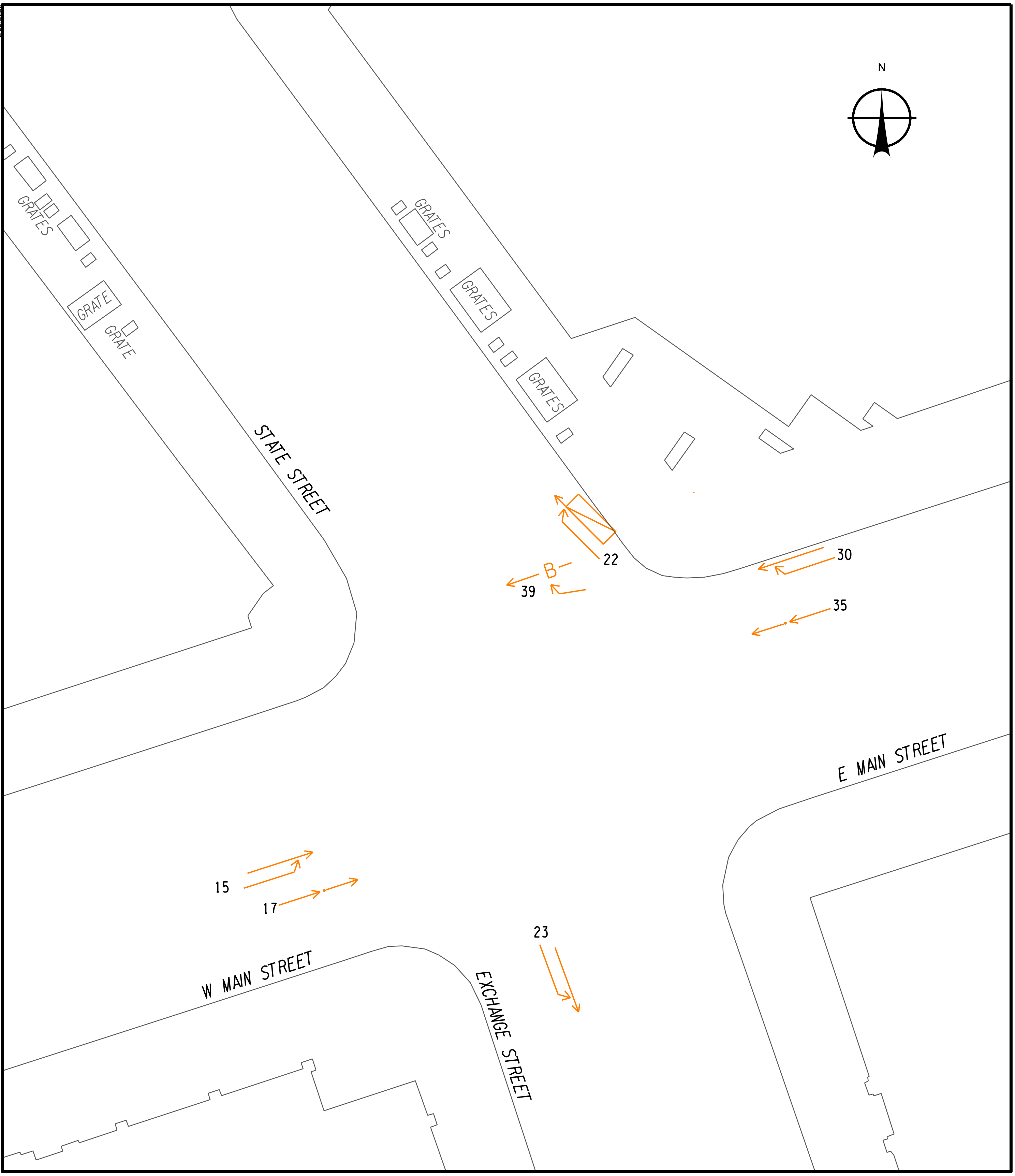
Roadway Characteristics	#	%
Straight & Level	30	100
Straight & Grade	0	0
Straight & Hillcrest	0	0
Curve & Level	0	0
Curve & Grade	0	0
Curve & Hillcrest	0	0
Unknown	0	0
Total	30	100.00%

Accident Severity	#	%
Fatal	0	0
Injury	6	20
Prop Damage Only	12	40
Non-Reportable	12	40
Unknown	0	0
Total	30	100.00%

Roadway Surface Condition	#	%
Dry	0	0
Wet	0	0
Muddy	0	0
Snow/Ice	0	0
Slush	0	0
Unknown	30	100
Total	30	100.00%

SAFETY ANALYSIS

COLLISION DIAGRAMS



DATE: 5/22/2020

MODEL 2016 MAIN STREET
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2016.dgn

SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

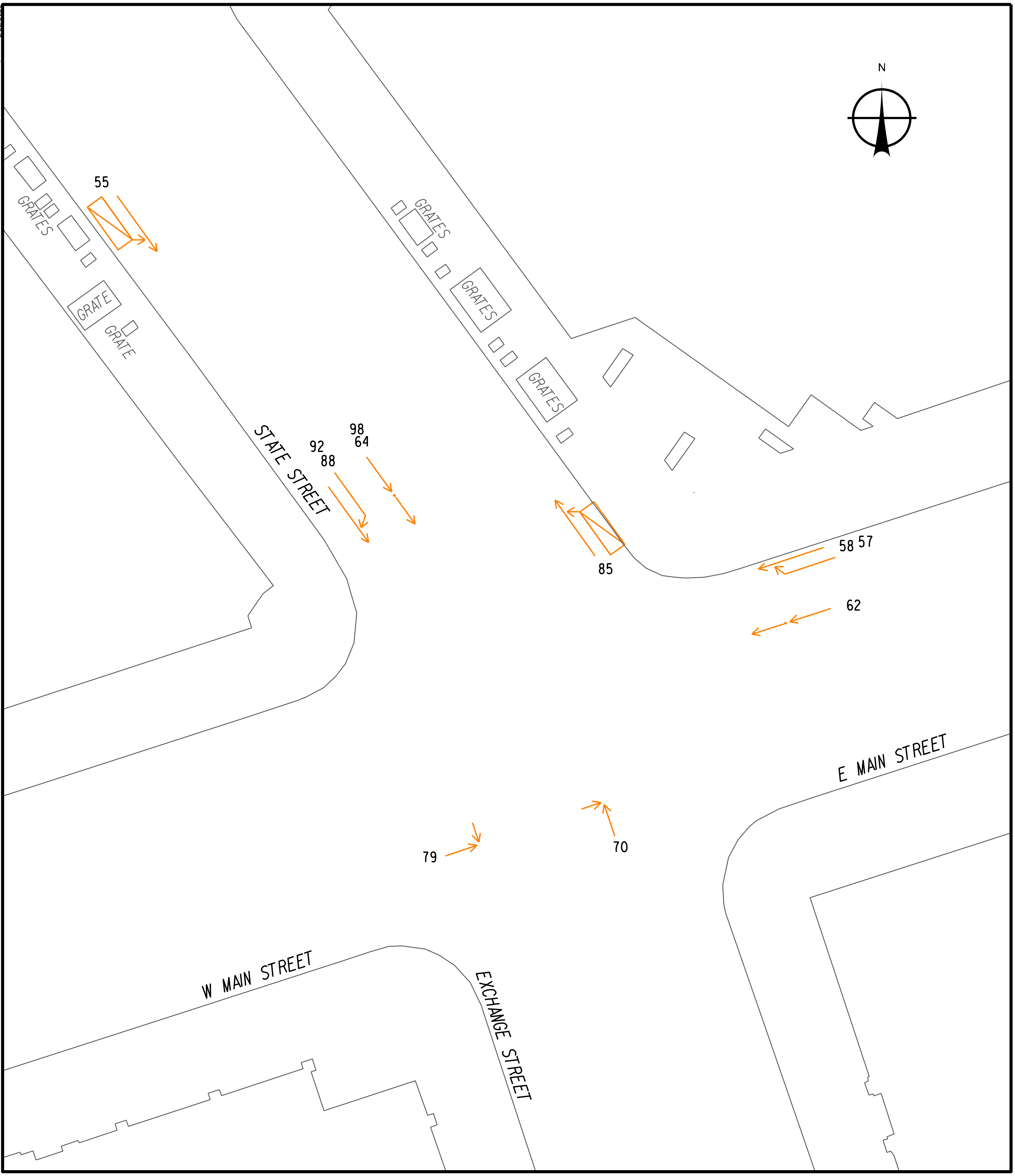
STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT MAIN STREET

COLLISION DIAGRAM

2016



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT MAIN STREET

COLLISION DIAGRAM

2017

MODEL 2016 MAIN STREET
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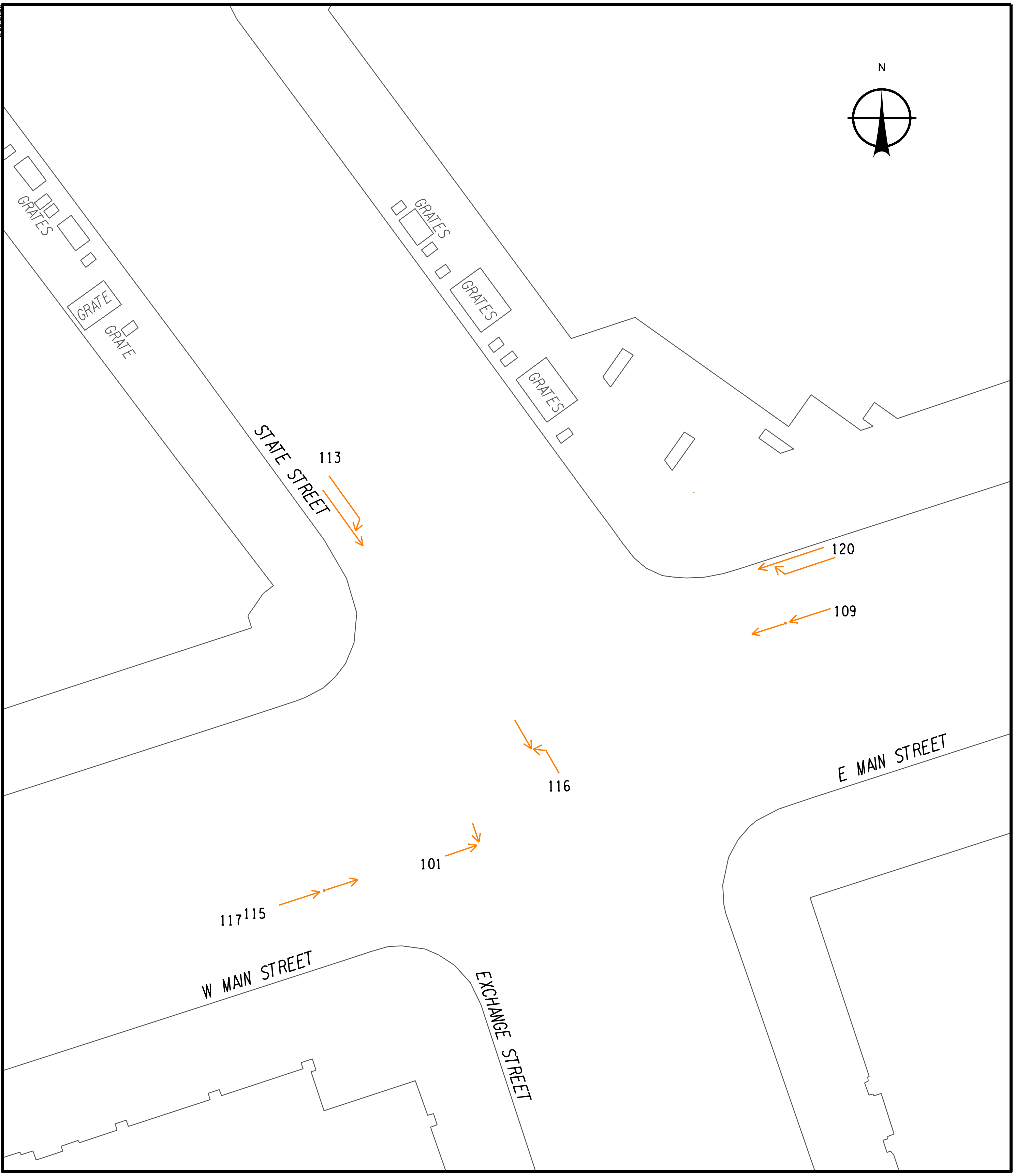
DATE: 5/22/2020



DATE: 5/22/2020

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SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

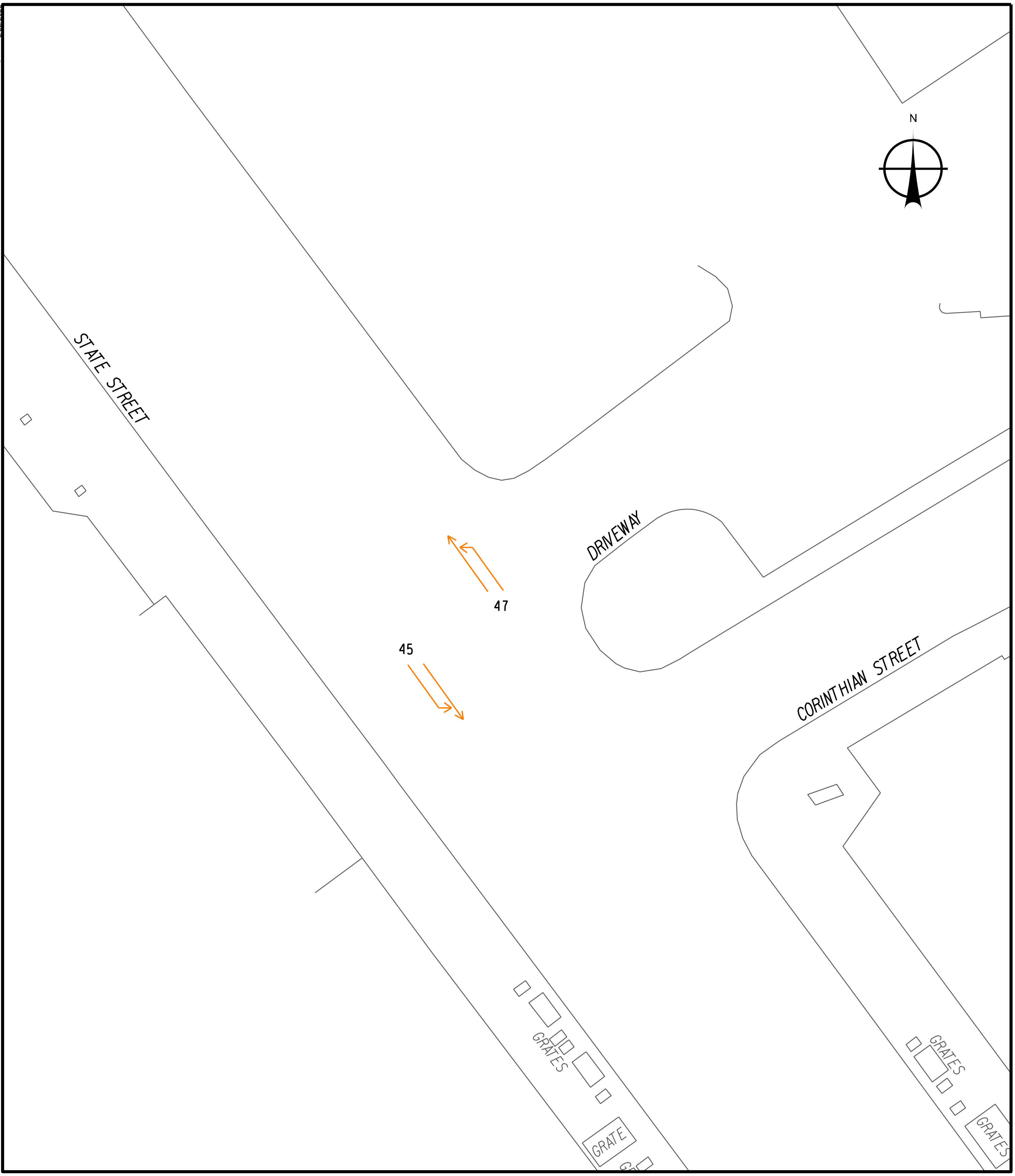
STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT MAIN STREET

COLLISION DIAGRAM

2018



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

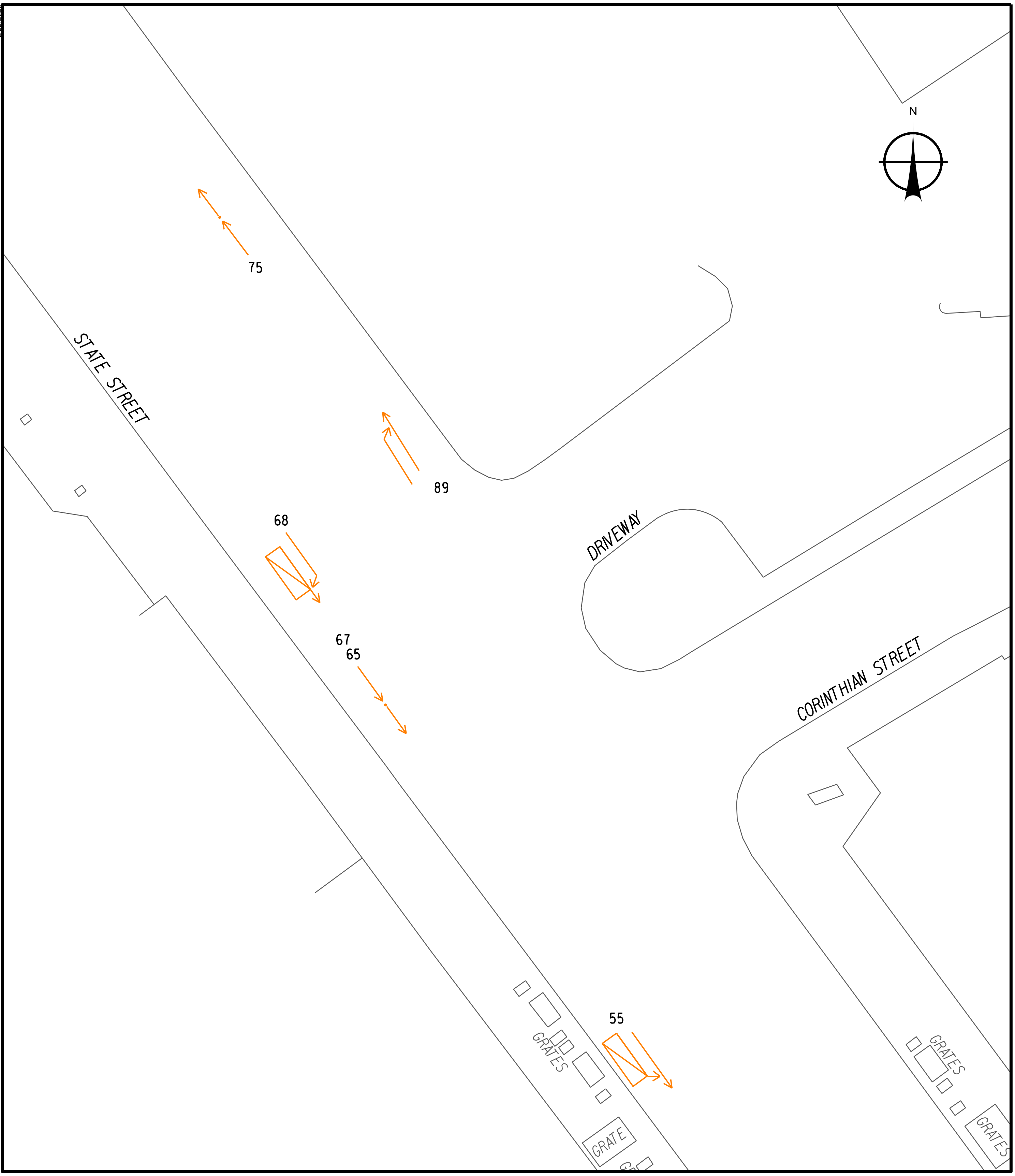
LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT CORINTHIAN STREET

COLLISION DIAGRAM

2016

MODEL CORINTHIAN STREET
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2016.dgn
DATE: 5/22/2020



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

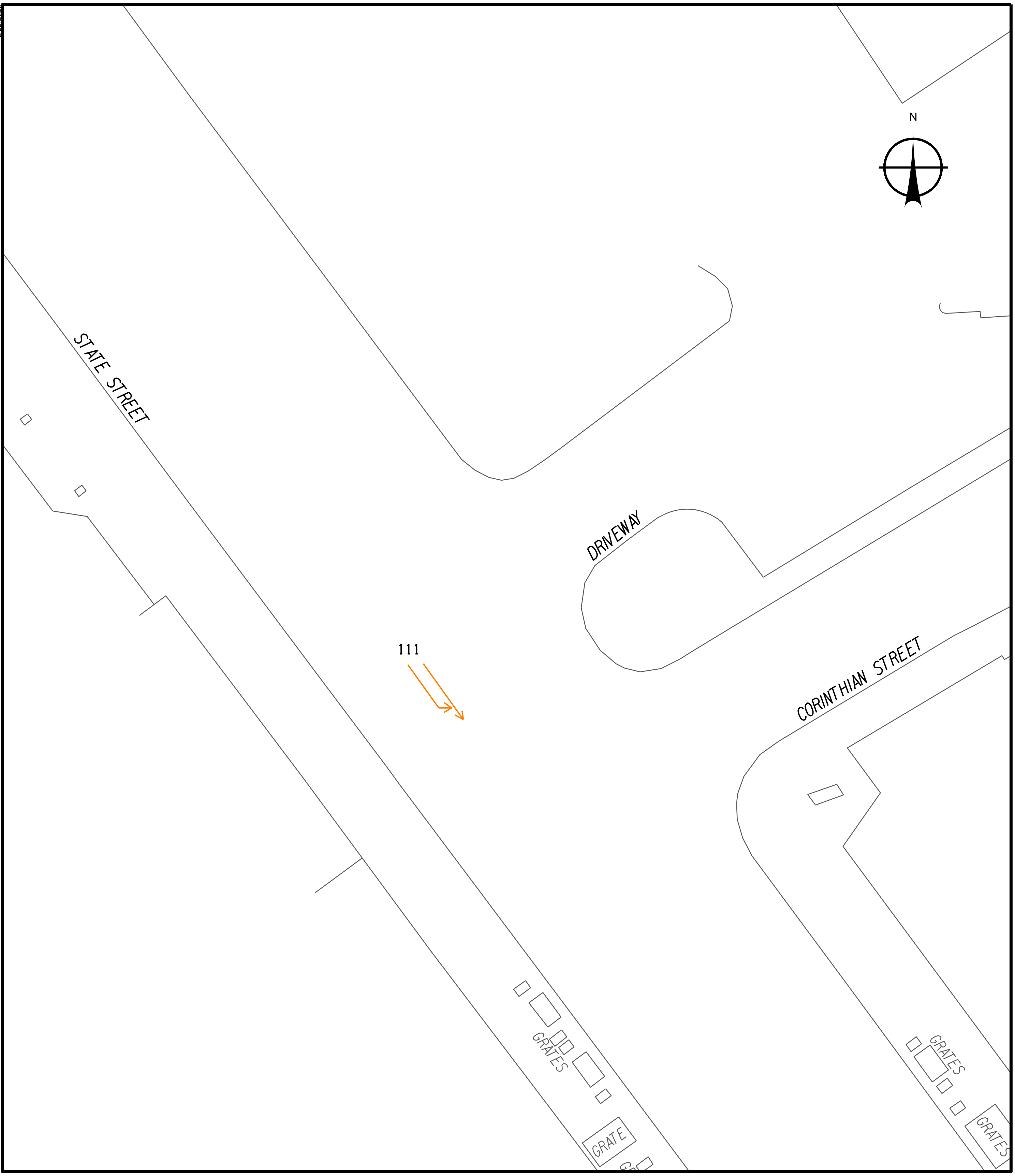
LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT CORINTHIAN STREET

COLLISION DIAGRAM

2017

MODEL CORINTHIAN STREET
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2017.dgn
DATE: 5/22/2020



SOURCES:

ENGINEER: CAE

DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377

DATE: APRIL 2020

STATE STREET AT CORINTHIAN STREET

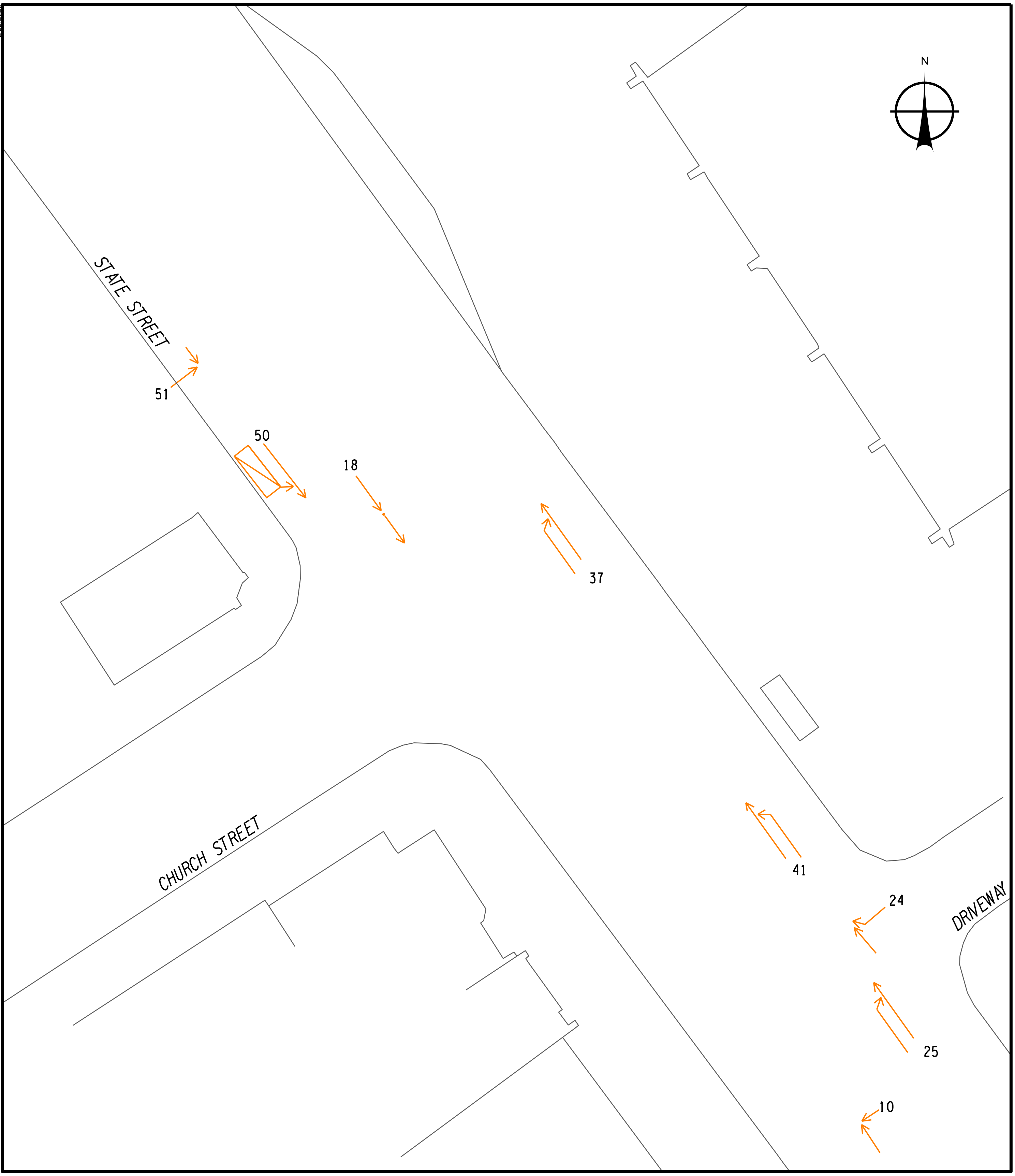
COLLISION DIAGRAM

2018

MODEL CORINTHIAN STREET

FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2018.dgn

DATE: 5/22/2020



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

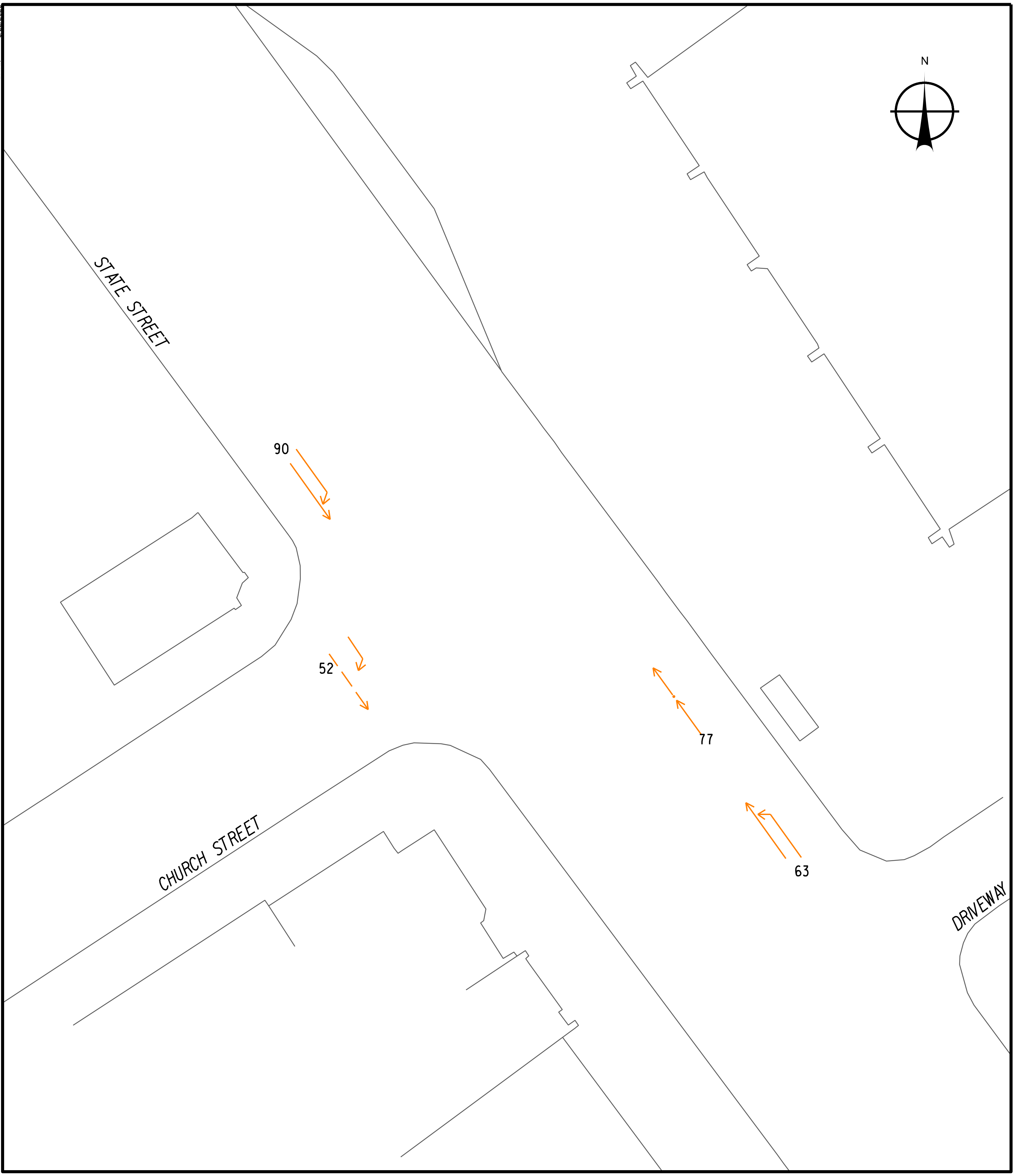
STATE STREET AT CHURCH STREET

COLLISION DIAGRAM

2016

MODEL CHURCH STREET
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2016.dgn

DATE: 5/22/2020



SOURCES:

ENGINEER: CAE

DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377

DATE: APRIL 2020

STATE STREET AT CHURCH STREET

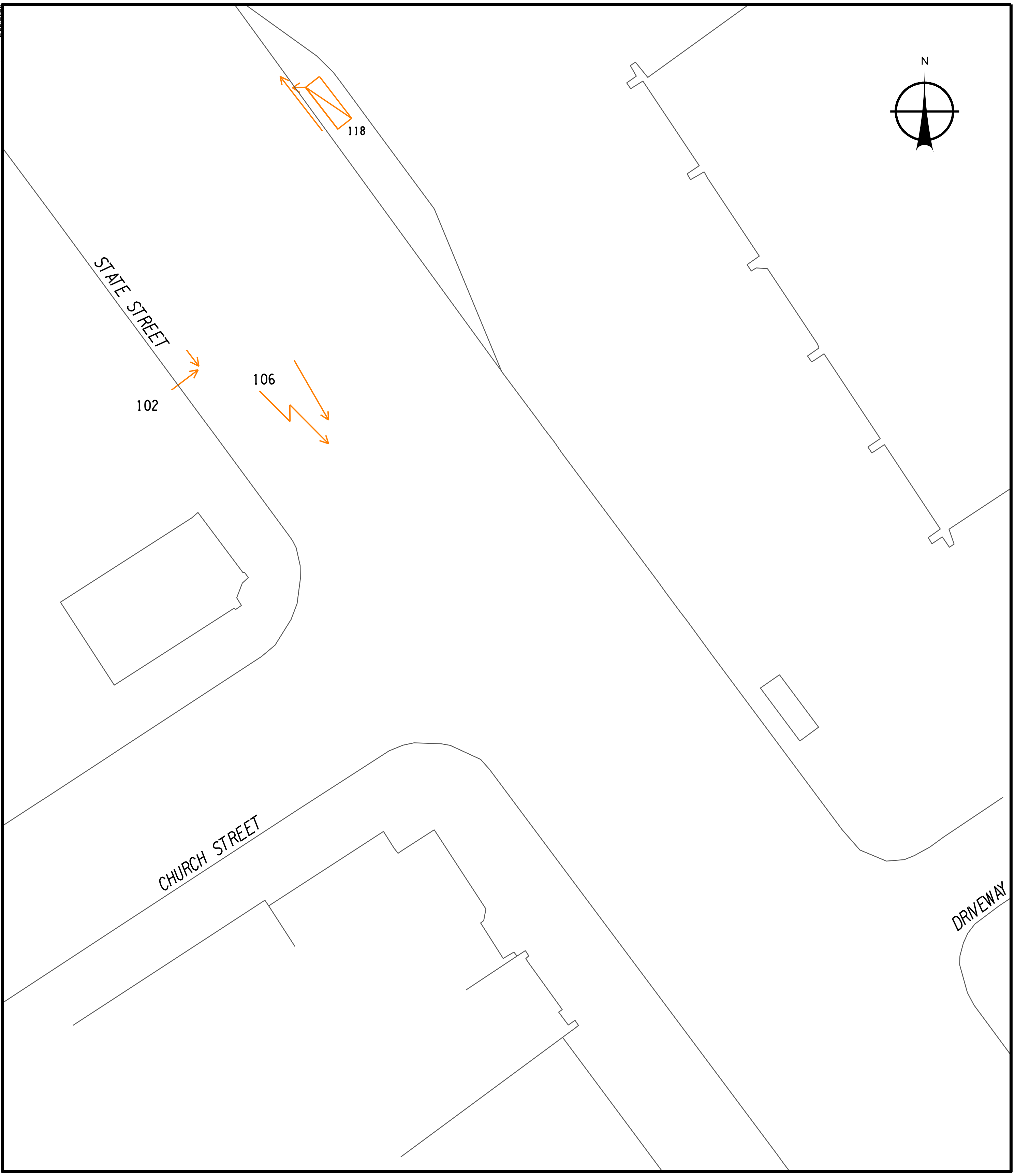
COLLISION DIAGRAM

2017

MODEL CHURCH STREET

FILE PATH \\Projects2\Projects\Z-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2017.dgn

DATE: 5/22/2020



SOURCES:

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CITY OF ROCHESTER

ENGINEER: CAE
DESIGNER: XXX

STATE STREET RECONSTRUCTION

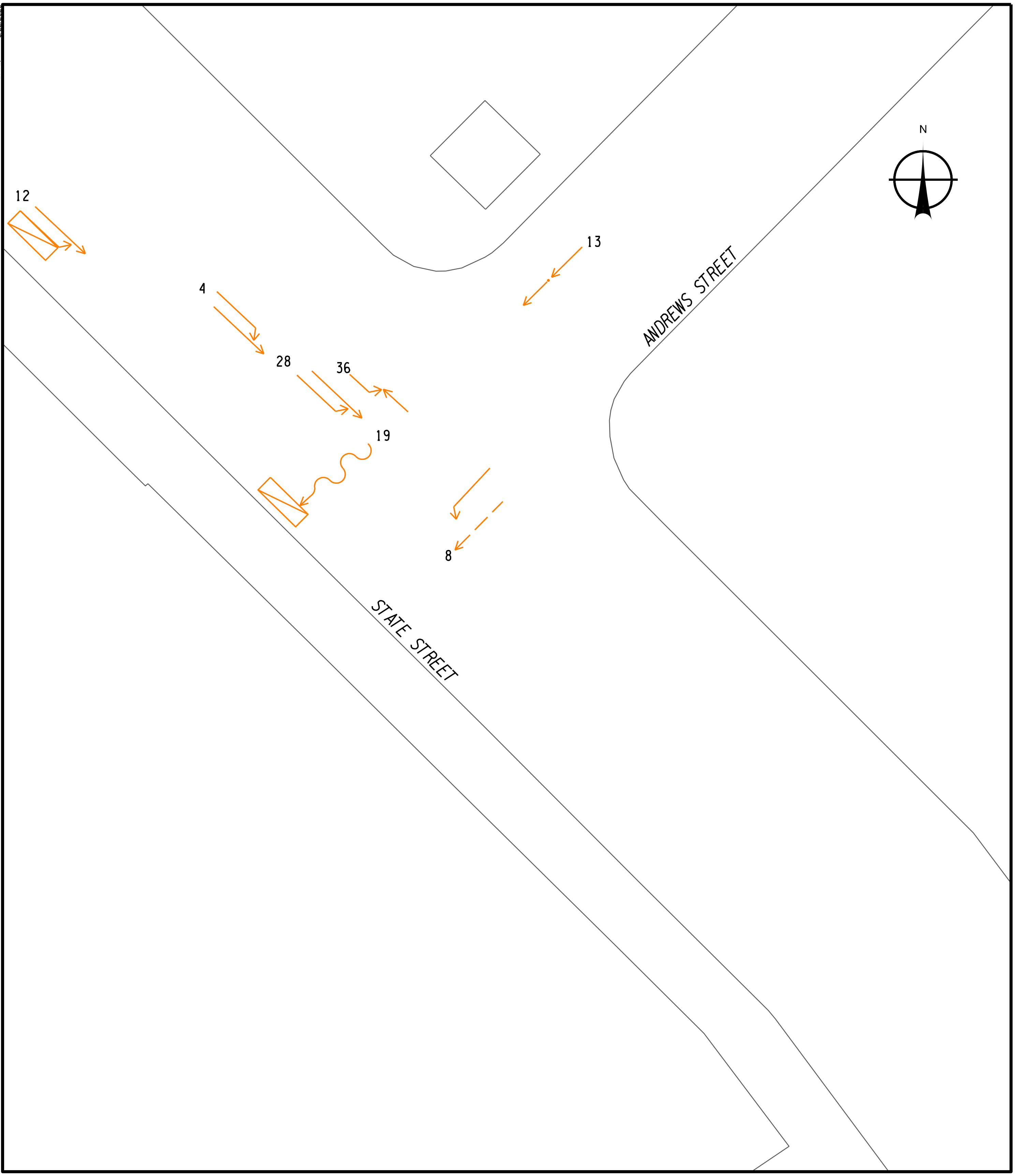
LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT CHURCH STREET

COLLISION DIAGRAM

2018

DATE: 5/22/2020
MODEL: CHURCH STREET
FILE PATH: \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2018.dgn



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

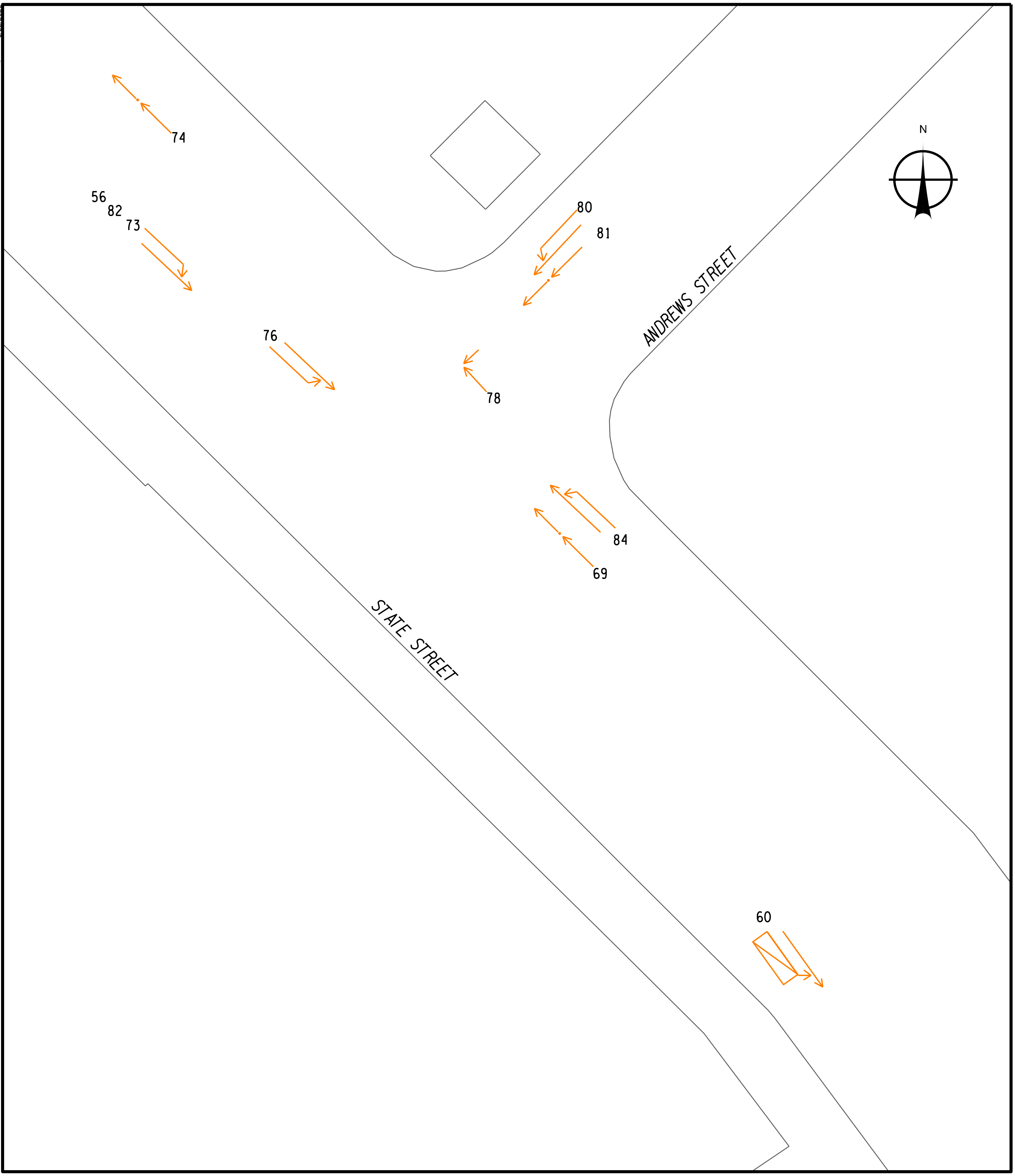
LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT ANDREWS STREET

COLLISION DIAGRAM

2016

MODEL ANDREWS STREET
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2016.dgn
DATE: 5/22/2020



SOURCES:

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT ANDREWS STREET

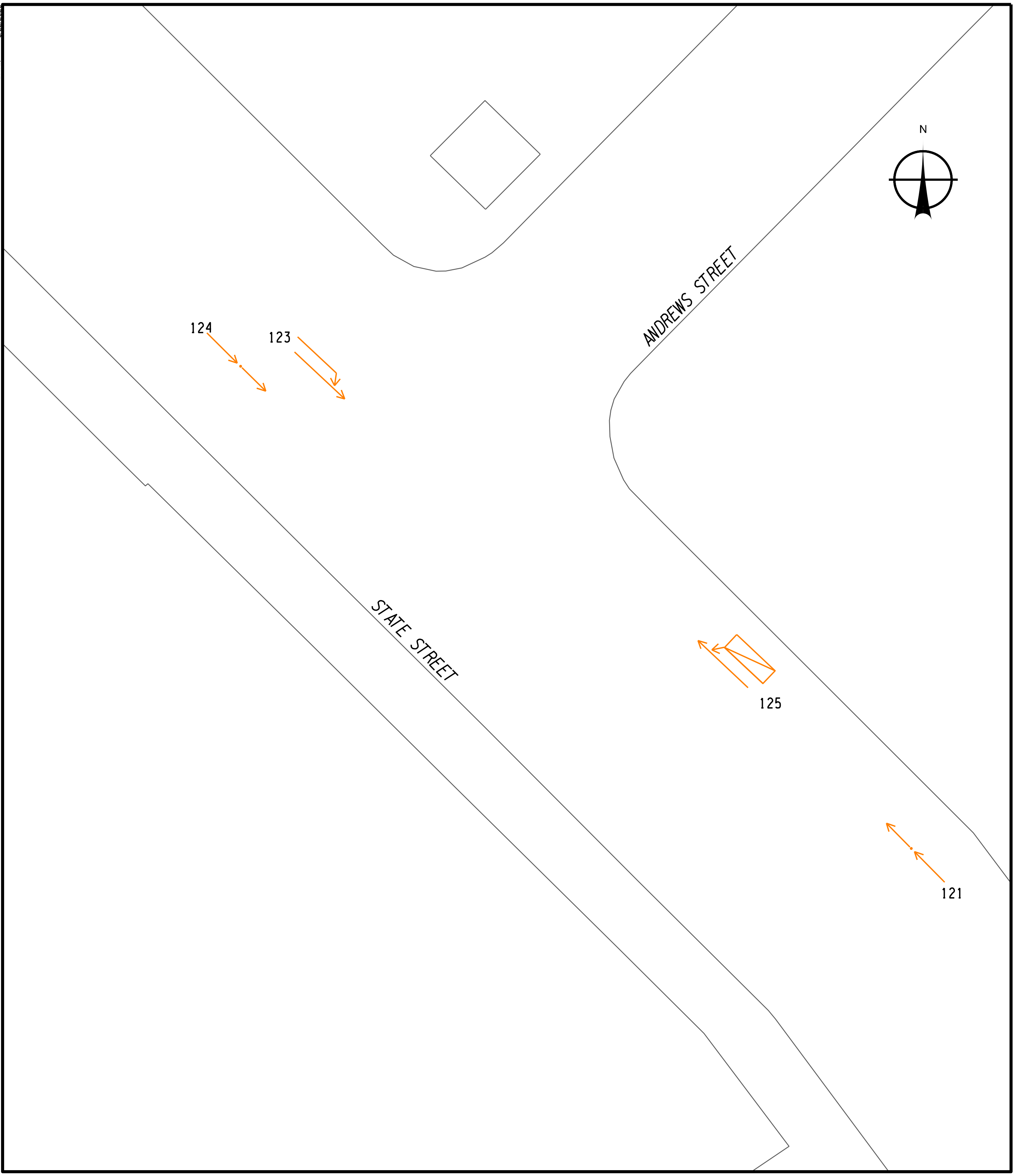
COLLISION DIAGRAM

2017

ENGINEER: CAE
DESIGNER: XXX

MODEL ANDREWS STREET
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2017.dgn

DATE: 5/22/2020



SOURCES:

LaBella
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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT ANDREWS STREET

COLLISION DIAGRAM

2018

ENGINEER: CAE
DESIGNER: XXX

MODEL ANDREWS STREET
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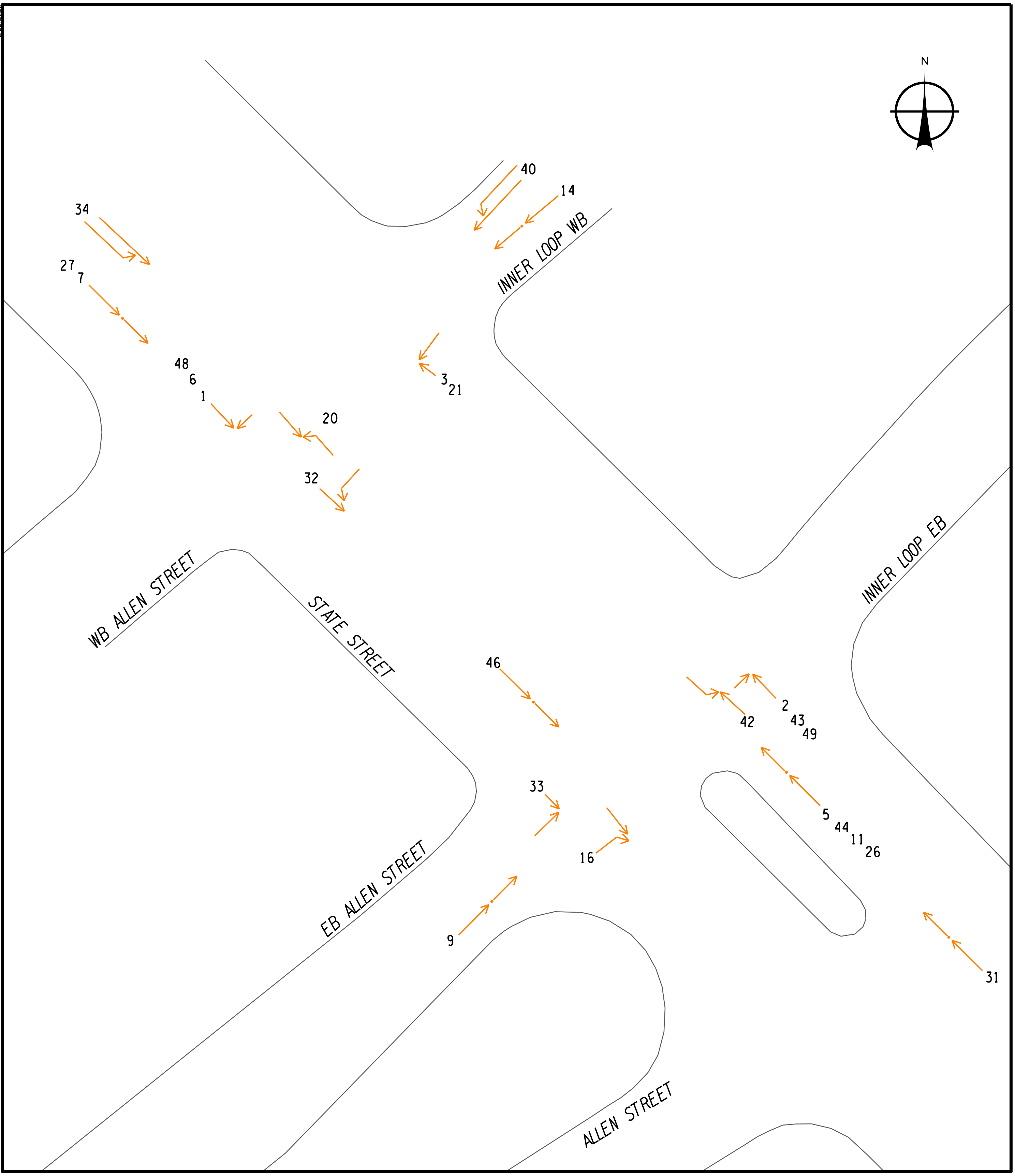

SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

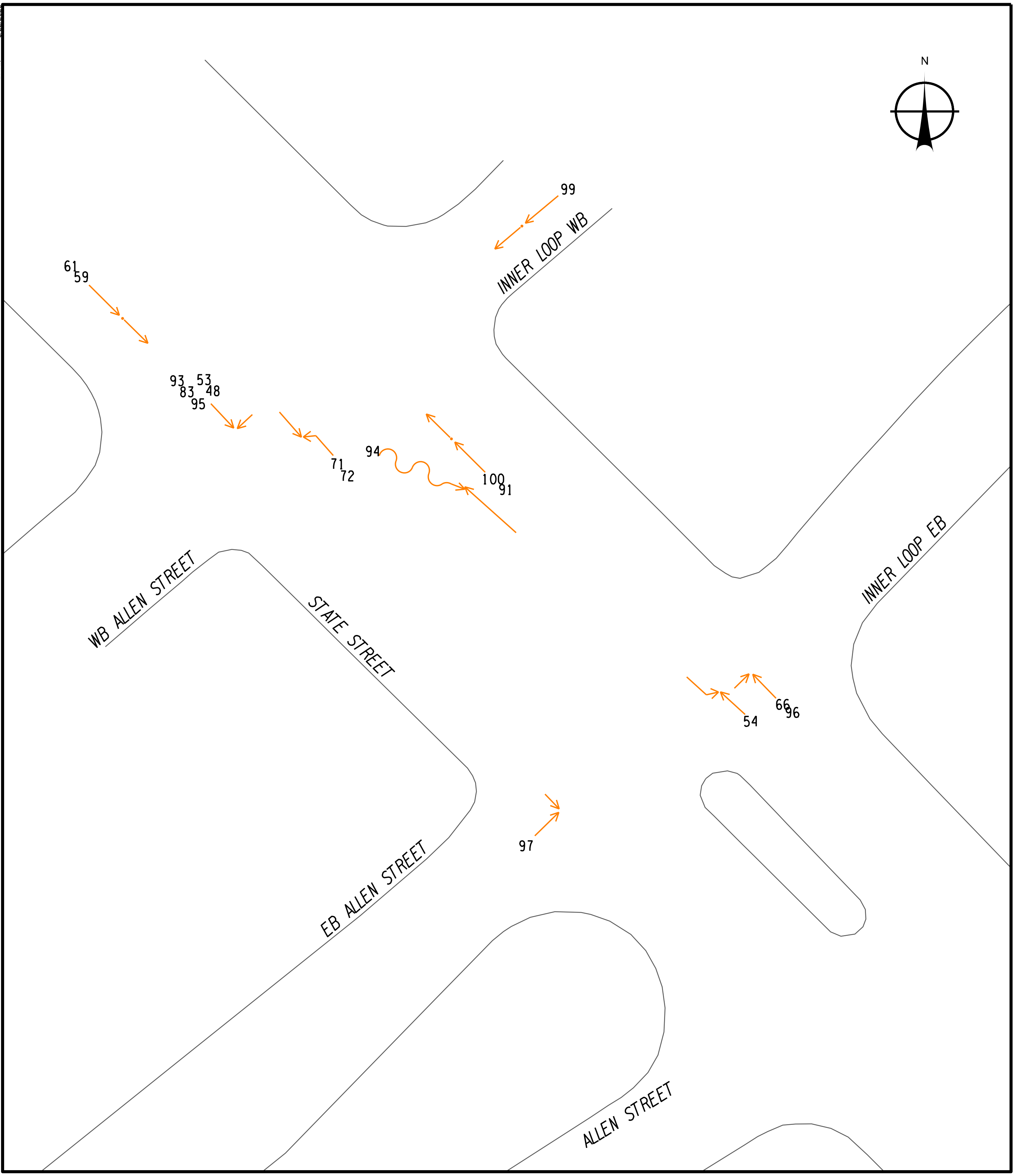
LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT ALLEN ST/INNER LOOP

COLLISION DIAGRAM

2016

MODEL ALLEN STREET EB
FILE PATH \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2016.dgn
DATE: 5/22/2020



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

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CITY OF ROCHESTER

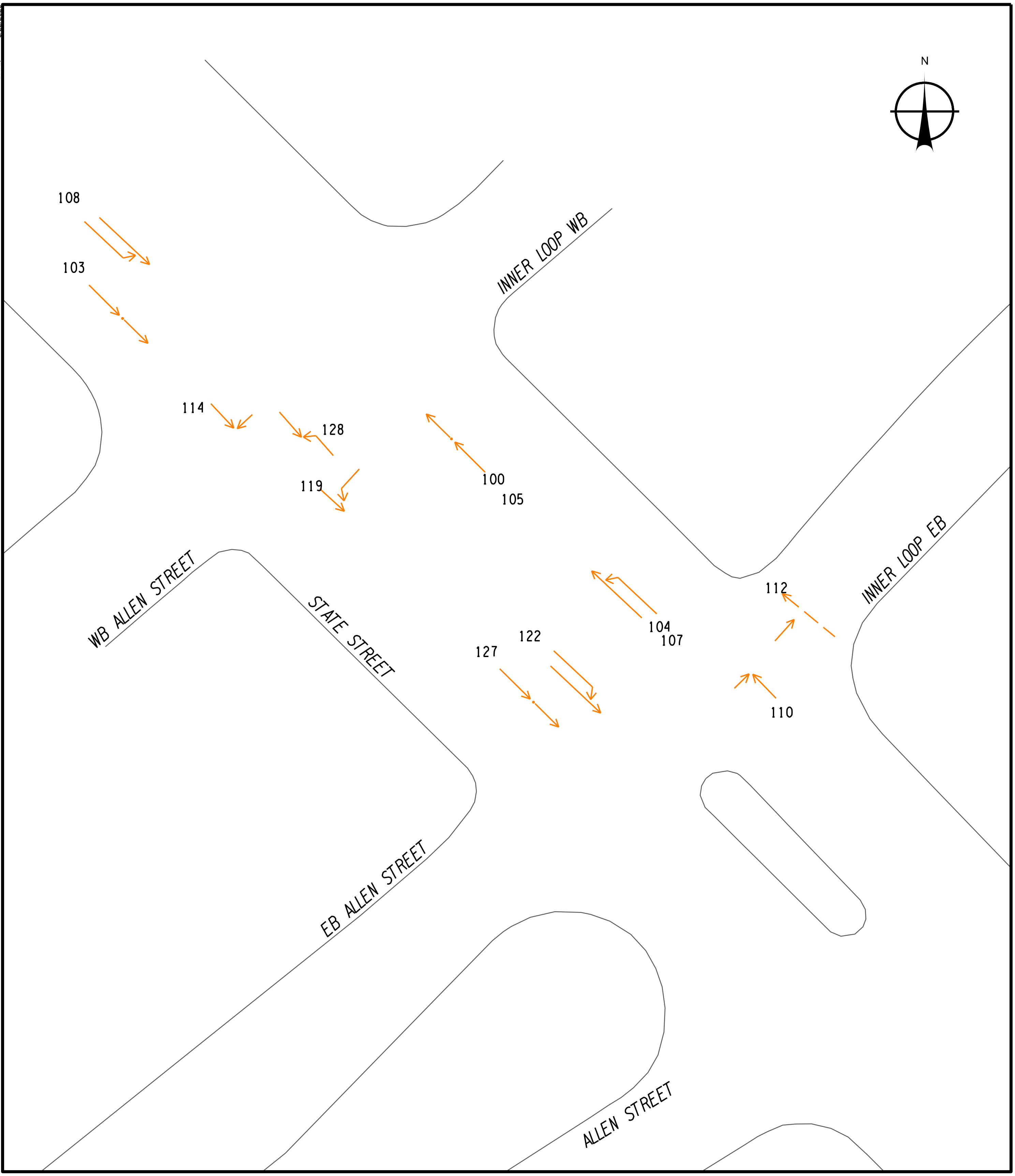
STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT ALLEN ST/INNER LOOP

COLLISION DIAGRAM

2017



SOURCES:

ENGINEER: CAE
DESIGNER: XXX

LaBella
Powered by partnership.

CITY OF ROCHESTER

STATE STREET RECONSTRUCTION

LABELLA PROJECT: 2200377
DATE: APRIL 2020

STATE STREET AT ALLEN ST/INNER LOOP

COLLISION DIAGRAM

2018

DATE: 5/22/2020
MODEL: ALLEN STREET EB
FILE PATH: \\Projects2\Projects\NZ-2\Rochester, City\2200377 - State St Reconstruction\Drawings\Transportation\Figures\2200377_Collision_Diagrams2018.dgn

SAFETY ANALYSIS

CRASH RATE CALCULATIONS

State Street Reconstruction

Intersection Accident Rate Calculations

Study Data Period (months)		34		2.8333	yrs
State Street at Main Street	Total Accidents	24	Accidents / year	8.4706	Acc/yr
	PM Peak Entering Vehicles	2215	Intersection AADT	27,688	vpd
			MEV / year	10.106	MEV/yr
	Accident Rate			**0.84**	**Acc/MEV**
	MCDOT Average Accident Rate (See Note 2) Urban,Principal Arterial/Principal Arterial-Signalized			1.42	Acc/MEV
State Street at Corinthian	Total Accidents	4	Accidents / year	1.3333	Acc/yr
	PM Peak Entering Vehicles	1382	Intersection AADT	17,275	vpd
			MEV / year	6.305	MEV/yr
	Accident Rate			**0.21**	**Acc/MEV**
	MCDOT Average Accident Rate Urban, Principal Arterial/Local - Signalized			0.50	Acc/MEV
State Street at Church Street	Total Accidents	6	Accidents / year	2	Acc/yr
	PM Peak Entering Vehicles	1519	Intersection AADT	18,988	vpd
			MEV / year	6.930	MEV/yr
	Accident Rate			**0.29**	**Acc/MEV**
	MCDOT Average Accident Rate Urban, Principal Arterial/Local - Signalized			0.50	Acc/MEV
State Street at Andrews Street	Total Accidents	17	Accidents / year	5.6667	Acc/yr
	PM Peak Entering Vehicles	1721	Intersection AADT	21,513	vpd
			MEV / year	7.852	MEV/yr
	Accident Rate			**0.72**	**Acc/MEV**
	MCDOT Average Accident Rate Urban, Principal Arterial/Minor Arterial - Signalized			0.91	Acc/MEV

State Street Reconstruction

Intersection Accident Rate Calculations

State Street at Allen St EB	Total Accidents	23	Accidents / year	7.6667 Acc/yr
	PM Peak Entering Vehicles	1986	Intersection AADT	24,825 vpd
			MEV / year	9.061 MEV/yr
	Accident Rate			**0.85 Acc/MEV**
	NYSDOT Average Accident Rate Urban, 4-leg, Signal w/ left turn 5 & > lanes, all types			0.25 Acc/MEV
State Street at Allen St WB	Total Accidents	30	Accidents / year	10 Acc/yr
	PM Peak Entering Vehicles	2234	Intersection AADT	27,925 vpd
			MEV / year	10.193 MEV/yr
	Accident Rate			**0.98 Acc/MEV**
	NYSDOT Average Accident Rate Urban, 4-leg, Signal w/o left turn 5 & > lanes, all types			0.2 Acc/MEV

Notes:

1) NYSDOT Average rates obtained from *Average Accident Rates for State Highways by Facility Type* (Based on Accident Data from January 1, 2017 to December 31, 2018) published by the New York State Department of Transportation

2) MCDOT Average rates obtained from *Average Accident Rates for Monroe County, Accident Data for 2016-2018*

State Street Reconstruction
Segment Accident Rate Calculations

State Street Main St to Corinthian St	Total Accidents	2	Accidents / year	0.7059	Acc/yr
	AADT (Both Directions)	14,756	Million Veh / year	5.386	MV/yr
	Segment Length (mile)	0.04			
	Accident Rate			**3.46**	**Acc/MVM**
	MCDOT Average Accident Rates, Linear Accident Data for 2016-2018, Urban Principal Arterial			2.73	Acc/MVM
State Street Corinthian St to Church St	Total Accidents	11	Accidents / year	7.7465	Acc/yr
	AADT (Both Directions)	14,756	Million Veh / year	5.386	MV/yr
	Segment Length (mile)	0.08			
	Accident Rate			**17.54**	**Acc/MVM**
	MCDOT Average Accident Rates, Linear Accident Data for 2016-2018, Urban Principal Arterial			2.73	Acc/MVM
State Street Church St to Andrews St	Total Accidents	7	Accidents / year	2.4706	Acc/yr
	AADT (Both Directions)	15,822	Million Veh / year	5.775	MV/yr
	Segment Length (mile)	0.06			
	Accident Rate			**6.84**	**Acc/MVM**
	MCDOT Average Accident Rates, Linear Accident Data for 2016-2018, Urban Principal Arterial			2.73	Acc/MVM
State Street Andrews St to Inner Loop/Allen St	Total Accidents	3	Accidents / year	1.0588	Acc/yr
	AADT (Both Directions)	15,056	Million Veh / year	5.495	MV/yr
	Segment Length (mile)	0.07			
	Accident Rate			**2.71**	**Acc/MVM**
	MCDOT Average Accident Rates, Linear Accident Data for 2016-2018, Urban Principal Arterial			2.73	Acc/MVM

APPENDIX D

Pavement Information

PAVEMENT EVALUATION REPORT

State Street

Basin Street to Inner Loop

City of Rochester
Monroe County

PIN 4CR0.06
PROJECT # 2200377

JUNE 2020

PREPARED FOR:

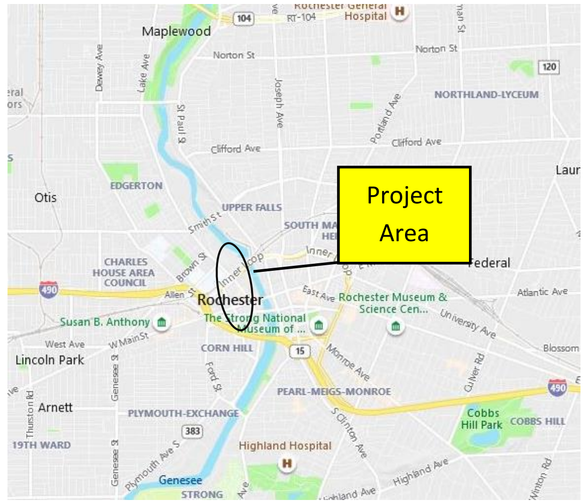
CITY OF ROCHESTER
30 CHURCH STREET
ROCHESTER, NEW YORK 14614

PREPARED BY:

LABELLA ASSOCIATES, DPC
300 STATE STREET
ROCHESTER, NEW YORK 14614

BACKGROUND

The subject section of State Street is considered an Urban Principal Arterial (Functional Class 14) under the functional classification system.



Project limits along State Street extend from Basin Street to the Inner Loop, approximately 0.3 miles. State Street generally has a relatively straight horizontal alignment and level vertical alignment. Within the subject limits with the southern portion from Basin Street to Main Street having a larger vertical grade. Daily traffic volumes along State Street are calculated at approximately 16,000 vehicles. Stormwater runoff is accommodated via closed drainage system out letting through the city's combined sewer system.

The earliest record plans for the project section of State Street indicate construction of a Medina block wearing surface on a concrete base. The section included two trolley tracks in the middle of a 54.5 foot wide road from Main Street to Church Street and then 59.5 feet wide north of Church Street. Plans from 1929 show the tracks remaining and the Medina block surface replaced with additional concrete and approximately three inches of asphalt. In 1942 the trolley tracks were removed and the void filled with concrete. The entire road was overlaid with a minimum of one inch of new asphalt. A 1985 downtown street beautification project widened a portion of State Street by three feet but retained a majority of the existing pavement and curb. The original concrete base from 1894 remains today.

Five pavement cores were obtained to determine the existing pavement structure. The pavement section for State Street consists of a Hot Mix Asphalt (HMA) layer varying in depth from 2-3/4" to 4" over a layer of concrete that varies from 8" to 10". Below the concrete, the structure consists of a grey gravel fill layer that varies in depth from 13" to 16". The native subgrade material is comprised of brown coarse, medium, fine sand with some silt and little aggregate. It is assumed from the native material composition and gravel fill that the working Resilient Modulus (M_r) is 11,200 psi. This Mr was calculated from observed soil strata contained in the boring logs.

EXISTING CONDITION

Pavement surface conditions were visually surveyed in June 2020 in accordance with NYSDOT's *Comprehensive Pavement Design Manual,* (CPDM). Representative photos taken for the pavement are included in this report. The pavement condition can be described as being in poor to fair condition with significant utility trench restorations and patches.

Travel lane distresses noted include the following:

- Minor corrugations and undulations within the surface course
- Major transverse and longitudinal cracking indicative of subbase failure
- Pavement patches and potholes

Equivalent single axle load (ESAL) calculations have been performed for State Street to determine if adequate pavement structure is provided. Documentation of the calculations is provided in Appendix B. Results of the calculations show that the recommended pavement structure to accommodate design loads is 6 ½" of hot mix asphalt over 11 inches of stone subbase.

POSSIBLE ALTERNATIVES

Based on the type and severity of the distress in the pavement within the travel lanes, the depth and salvageability of the existing pavement section, and the desire to achieve an extended service life, the following option has been identified as possible treatments for restoring and extending the useful life of the existing pavement. This alternative is appropriate when medium or high-severity level distresses are present with infrequent settlements, heaves or medium to high-severity cracking and in accordance with the City of Rochester's Heavy Duty Pavement Design Standard Detail.

- Option 1: Full Depth Reconstruction

  Included in this treatment are:
  - Complete excavation of existing roadway pavement structure
  - New Subbase Stone (11")
  - Asphalt base layer (8")
  - Asphalt binder course (2")
  - Asphalt top course (1 ½")

  Anticipated life expectancy 20+ years.

DISCUSSION / RECOMMENDATION

The full reconstruction alternative achieving the City of Rochester's Heavy Duty Pavement Section provides adequate pavement structure and exceeds the ESAL Calculation thicknesses. While the ESAL calculations indicates that 6 ½" of asphalt is adequate the City's Heavy Duty Pavement section provides a total of 11 ½" of asphalt. We recommend utilizing the City's standard section as it will reduce the need for future maintenance efforts and cost. Future maintenance efforts will be difficult to achieve along this relatively busy and important roadway within the City.

APPENDIX A
ESAL CALCULATIONS

APPENDIX B
Boring Report

APPENDIX A
ESAL CALCULATIONS

80 kN ESAL Calculation Sheet | Date: 6/10/2020

Version 3.2 Updated 11/1/2017 MPH

Prepared by: R. Bennett

This work sheet is used for the purpose of calculating the 80 kN ESAL using the "simple" method. These calculations were taken from Figure 4-1 of the NYS Comprehensive Pavement Design Manual (June 2000). Enter the parameters for items 0 through 8 below in the blue blocks. The 80 kN ESAL count is calculated based on a compound traffic growth rate

ENTER DATA IN ALL SHEETS BEFORE PRINTING

PIN #:	4CR0.06
Project:	State Street Reconstruction
Location:	City of Rochester
Date:	10-Jun-20

INPUT PARAMETERS:

0.	Construction Year	2022
1.	Design Life (use 50 years for determining pavement thickness)	50
2.	Projected Construction Year AADT	16059
3.	Percent Heavy Trucks Class 4 or greater	2%
4.	Percent Trucks in Design Direction	50%
5.	Percent Trucks in Design Lane	100%
6.	Truck Equivalency Factor (avg. ESAL per truck)	1.35
7.	Truck Volume Growth Rate	2.00%
8.	Annual Truck Weight Growth Rate	0.50%
9.	Modulus of Resilience Value	77

14	Enter the Functional Classification Code of the highway
NO	Does this road have full or partial access control?
NO	Is there a possibility of damaging homes, historic sites, etc., due to excessive vibration during compaction.
YES	Will there be less than 2000 MT of each course placed?
NO	Is the highway located in either Dutchess, Orange, Rockland, Putnam, Westchester, Nassau, Suffolk, Sullivan County or the City of New York?
YES	Are there are more than 3 lanes on this road?

RESULTS:

AADT for Design Year 2072 — 42,377

- Use 'F' series high friction asphalt.

Total 80 kN ESAL Count for the Design Life — 6,146,230

- The 'Estimated Traffic' level should be < 10.0 million 80 Kn ESALs.
- 64V-22

PAVEMENT THICKNESS TABLE

80 kN ESAL Calculation Sheet	Date:	6/10/2020
Version 3.2	Updated 11/1/2017 MPH	
Prepared by:	R. Bennett	

This work sheet is used for the purpose of calculating the 80 kN ESAL using the "simple" method.
These calculations were taken from Figure 4-1 of the NYS Comprehensive Pavement Design Manual (June 2000). Enter the parameters for items 0 through 8 below in the blue blocks.
The 80 kN ESAL count is calculated based on a compound traffic growth rate
Enter data also in pavt. thickness sheet. Print this sheet + item numbers

TOTAL ESAL VALUE	6,146,230	
Total HMA Thickness	10	inches

SELECT GRANULAR SUBGRADE	GRAVEL	BASE	BINDER	TOP
inches	inches	inches	inches	inches
0	12	6.5	2	1.5

ACTUAL PAVEMENT THICKNESSES TO USE

	THICKNESS	
SELECT GRANULAR SUBGRADE	0	in.
GRAVEL	11	in.
BASE	8	in.
BINDER	2	in.
TOP	1.5	in.

80 kN ESAL calculation Work Sheet
Version 3.2 Updated 11/1/2017 MPH
Prepared by: R. Bennett Date: 6/10/2020

This work sheet is used for the purpose of calculating the 80 kN ESAL using the "simple" method. These calculations were taken from Figure 4-1 of the NYS Comprehensive Pavement Design Manual (June 2000). The 80 kN ESAL count is calculated based on a compound traffic growth rate and should be used for SUPERPAVE.

Make Sure to Double Check All Data

P.IN. #:	4CR0.06
Project:	State Street Reconstruction
Date:	6/10/20

INPUT PARAMETERS:

		Double Check
0.	Construction Completion Year	2022
1.	Design Life (Use 20 years for determining mix)	20
2.	Initial AADT	16059
3.	Percent Heavy Trucks Class 5 or greater	2%
4.	Percent Trucks in Design Direction	50%
5.	Percent Trucks in Design Lane	100%
6.	Truck Equivalency Factor (avg. ESAL per truck)	1.35
7.	Truck Volume Growth Rate	2.00%
8.	Annual Truck Weight Growth Rate	0.50%

Notes:

12	The Functional Classification of the highway is 12 - Urban Principal Arterial - Expressway.
NO	This road does not have full or partial access control.
NO	There is no possibility of damaging homes, historic sites, etc., due to excessive vibration during compaction.
YES	There will be less than 2000 MT of each course placed.
	ESALS are less than 0.3 million.
NO	The highway is not located in either Dutchess, Orange, Rockland, Putnam, Westchester, Nassau, Suffolk, Sullivan County or the City of New York?
YES	There are 4 or more lanes on this road.

RESULTS:

AADT for Design Year 2042 23,395

- Use 'F' series high friction asphalt.

Total 80 kN ESAL Count for the Design Life 1,530,534

- The 'Estimated Traffic' level should be < 3.0 million 80 Kn ESALs.
- A traffic level of <0.3 can be selected if the RME concurs

Recommended SUPERPAVE Item number

- TOP: 402.09 Or: 402.12
- BINDER: 402.12
- Confirm with the Regional Materials Engineer
- Remember to add the appropriate Quality Payment Items
- Remember to Print Out the Applicable Special Note

Your Special Note Is for: 64V-22

APPENDIX B
Boring Report

ATLANTIC TESTING LABORATORIES

Canton
6431 U.S. Highway 11
P.O. Box 29
Canton, NY 13617
315-386-4578 (T)
315-386-1012 (F)

June 8, 2020

LaBella Associates, D.P.C.
300 State Street
Suite 201
Rochester, New York 14614

Attn: Mr. Richard Bennett, P.E.
Senior Transportation Engineer

Re: **Subsurface Investigation Services**
State Street Reconstruction – Basin Street to the Inner Loop
Rochester, Monroe County, New York
ATL No. CD4836D-01-06-20

Ladies and Gentleman:

At the request of Mr. Richard Bennett, PE, representing LaBella Associates, D.P.C. (LaBella), and in accordance with our proposal (ATL No. CD998-367-02-20, dated February 13, 2020), Atlantic Testing Laboratories, Limited (ATL) performed a subsurface investigation for the referenced project. The field investigation was performed on May 19, 2020.

The boring locations were selected and staked by representatives of LaBella. The boring elevations were not provided to ATL at the time of report issuance. A **Boring Location Plan**, prepared by LaBella, is included in **Attachment A**.

Five borings were advanced utilizing a thin-walled core bit through the asphalt pavement. A locations SB-3 and SB-5, a hand sample of the subbase was obtained, due to the inability to drive split spoons due to utility conflicts. At the remainder of the borings, the pavement core was followed by a 3-inch and 2-inch outside diameter split spoon sampler to a depth of 2 feet below bottom of asphalt, and a 2-inch by 2-inch outside diameter split spoon sampler thereafter to boring termination. Soil sampling and standard penetration testing was performed utilizing a 3-inch and 2-inch outside diameter split spoon sampler in accordance with ASTM D 1586. Soil sampling was generally performed continuously in each boring.

The 3-inch and 2-inch split spoon samplers do not recover material larger than 2⅜-inch and 1⅜-inch in nominal dimension, respectively. Therefore, the recovered samples may not be representative of the entire soil matrix. The visual soil classifications contained in the subsurface investigation logs were performed in the field by a Geotechnical Engineer and are presented on the **Subsurface Investigation Logs** included in **Attachment B**.

A **Pavement Core Photographic Log** is included in **Attachment C**.

Select soil samples were analyzed in the laboratory. Corrosivity testing per AWWA C105/A2.1 Appendix A was performed on one (1) soil sample. Volatile Organics per EPA Method 8260 was performed on one (1) soil sample. Chloride in Soils per EPA Method 9251 was performed on one (1) soil sample. The **Laboratory Test Results** are included in **Attachment D**.

The borings were backfilled with on-site soil and the surface was patched with non-shrink grout upon completion. It is important that the backfilled boreholes be monitored for settlement or subsidence. This will be the responsibility of LaBella and/or their Client. ATL assumes no liability for loss or damage resulting from borehole settlement.

The soil samples obtained during this investigation will be retained for a period of 6 months, unless directed otherwise.

Please contact our office should you have any questions; or if we may be of further service. We look forward to our continued association to obtain a successful completion of the project.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited

Aaron D. Woods, IE
Senior Project Manager

ADW/AJS/adw

Enclosures

ATTACHMENT A

BORING LOCATION PLAN

LEGEND

PC/SB-1	PAVEMENT CORE AND 6 FOOT DEEP BORING
RWB-1	SOILS SAMPLING AND TESTING

50 0 50 100 150 200'

1" = 100'

PROJECT MANAGER: W. DALEY

ENGINEER: R. BENNETT

DESIGNER: B. DEHAAN

NO.	REVISION	BY	DATE
1			
2			
3			
4			
5			

LaBella
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PROJECT/CLIENT

STATE STREET RECONSTRUCTION
BASIN STREET TO INNER LOOP

CITY OF ROCHESTER
DEPARTMENT OF ENVIRONMENTAL SERVICES

DRAWING TITLE

PROPOSED
SOIL BORING LOCATIONS

PROJECT NUMBER
2200377

DATE
FEBRUARY 2020

DRAWING NUMBER
SB-1

ATTACHMENT B

SUBSURFACE INVESTIGATION LOGS

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD4836D-01-06-20

Client: Labella Associates

Boring Location: See Boring Location Plan

Project: Subsurface Investigation
State Street Reconstruction
Rochester, New York

Start Date: 5/19/2020 Finish Date: 5/19/2020

Boring No.: SB-1 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude ____
Longitude ____

Sampler Hammer
Weight: ____ lbs.
Fall: ____ in.
Hammer Type: ____

Ground Elev.: ____

Boring Advance By: 6" Thin Wall Core/3" & 2" Split Spoon

Borehole caved at 2.8 feet.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Recovery (Inches)
			0.0	1.0		THIN WALL CORE	0.3	4" ASPHALT PAVEMENT	
							1.0	8" CONCRETE	
1	SPLIT	1	1.0 1.2	1.2 3.0	SS	HAND SAMPLE 10 15 16 13	1.2	Brown cmf SAND; little f GRAVEL; trace SILT (saturated, non-plastic)	16
2								Light Brown cmf SAND; trace mf GRAVEL; trace SILT (moist, non-plastic) COBBLE Fragments	
3	SPOON	2	3.0	4.0	SS	8 14	4.0	Light Brown cmf SAND; trace f GRAVEL; trace SILT (moist, non-plastic) COBBLE Fragments	8
4								Boring terminated at 4.0 feet due to the possible presence of underground utilities.	
5									
6								Notes: 1. Borehole backfilled with on-site soils and the surface was patched with non-shrink grout. 2. A 3" split spoon sampler was utilized to obtain sample S-1. A 2" split spoon sampler was utilized to obtain sample S-2.	
7									
8									
9									
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Collin Benton; Tony Jones

Inspector: ____

ATL-LOG1 LL CD4836 LABELLA ASSOCIATES -ROCHESTER.GPJ ATL4-08.GDT 6/1/20

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD4836D-01-06-20

Client: Labella Associates
Boring Location: See Boring Location Plan

Project: Subsurface Investigation
State Street Reconstruction
Rochester, New York

Start Date: 5/19/2020 Finish Date: 5/19/2020

Boring No.: SB-2 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
5/19/2020	PM	7.8'	CAVED

Coordinates
Latitude ____
Longitude ____

Sampler Hammer
Weight: ____ lbs.
Fall: ____ in.
Hammer Type: ____

Ground Elev.: ____

Boring Advance By: 6" Thin Wall Core/3" Split Spoon

Borehole caved at 7.0 feet.

CLASSIFICATION OF MATERIAL

f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
0			0.0	1.1		THIN WALL CORE	0.3	3" ASPHALT PAVEMENT	
							1.1	10" CONCRETE	
1	SPLIT SPOON	1	1.1	3.0	SS	8 7 8 10		Brown cmf SAND; some mf GRAVEL; trace SILT (moist, non-plastic) Encountered COBBLE fragments from 1.1 feet to boring termination.	13
3		2	3.0	5.0	SS	5 6 7 6		Brown cmf SAND; little cmf GRAVEL; trace SILT (moist, non-plastic)	12
5		3	5.0	7.0	SS	7 9 10 10		Brown cmf SAND; and cmf GRAVEL; trace SILT (moist, non-plastic)	15
7		4	7.0	9.0	SS	6 7 7 8	9.0	Brown cmf SAND; and cmf GRAVEL; trace SILT (moist, non-plastic)	10
9								Boring terminated at 9.0 feet.	

Notes:
1. Borehole backfilled with on-site soils and the surface was patched with non-shrink grout.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Collin Benton; Tony Jones

Inspector: ____

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD4836D-01-06-20**

Client: **Labella Associates**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
State Street Reconstruction
Rochester, New York

Start Date: **5/19/2020** Finish Date: **5/19/2020**

Boring No.: **SB-3** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: lbs.
Fall: in.
Hammer Type:

Ground Elev.:

Boring Advance By: **6" Thin Wall Core**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			0.0	1.4		THIN WALL CORE	0.4	4.5" ASPHALT PAVEMENT	
1							1.4	12" CONCRETE	
2		1	1.4	1.6		HAND SAMPLE	1.6	Encountered WEATHERED CONCRETE at 1.0 feet. Grey cmf GRAVEL; trace cmf SAND; trace SILT (moist, non-plastic)	
3									
4								Boring terminated at 1.6 feet due to the possible presence of underground utilities.	
5								Notes: 1. Borehole backfilled with non-shrink grout.	
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Collin Benton; Tony Jones**

Inspector:

ATL-LOG1 LL CD4836 LABELLA ASSOCIATES -ROCHESTER.GPJ ATL4-08.GDT 6/1/20

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD4836D-01-06-20**

Client: **Labella Associates**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
State Street Reconstruction
Rochester, New York

Start Date: **5/19/2020** Finish Date: **5/19/2020**

Boring No.: **SB-4** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
5/19/2020	PM	DRY	CAVED

Coordinates
Latitude ______
Longitude ______

Sampler Hammer
Weight: ______ lbs.
Fall: ______ in.
Hammer Type: ______

Ground Elev.: ______

Boring Advance By: **6" Thin Wall Core/3" Split Spoon**

Borehole caved at 3.8 feet.

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			0.0	1.7		THIN WALL CORE		20" ASPHALT PAVEMENT	
1							1.7		
2	SPLIT SPOON		1.7	2.0		HAND SAMPLE		Grey cmf GRAVEL; little cmf SAND; trace SILT (moist, non-plastic) SUBBASE	
		1	2.0	4.0	SS	20 19 18 15	2.4		18
3							3.0	Greyish-Brown cmf GRAVEL; and cmf SAND; trace SILT (moist, non-plastic) COBBLE Fragments	
4							4.0	Light Brown cmf SAND; little mf GRAVEL; trace SILT (moist, non-plastic) COBBLE Fragments	
5								Boring terminated at 4.0 feet.	
6								Notes: 1. Borehole backfilled with on-site soils and the surface was patched with non-shrink grout.	
7									
8									
9									
10									
11									
12									
13									
14									
15									

f - fine; m - medium; c - coarse

and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Collin Benton; Tony Jones**

Inspector: ______

ATL-LOG1 LL CD4836 LABELLA ASSOCIATES -ROCHESTER.GPJ ATL4-08.GDT 6/1/20

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD4836D-01-06-20

Client: Labella Associates

Boring Location: See Boring Location Plan

Project: Subsurface Investigation
State Street Reconstruction
Rochester, New York

Start Date: 5/19/2020 Finish Date: 5/19/2020

Boring No.: SB-5 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
5/19/2020	PM	DRY	OUT

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: lbs.
Fall: in.
Hammer Type:

Ground Elev.:

Boring Advance By: 6" Thin Wall Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
			0.0	1.1		THIN WALL CORE	1.1	13.25" ASPHALT PAVEMENT	
1		1	1.1	1.3		HAND SAMPLE	1.3	Grey mf GRAVEL; some c+mf SAND; trace SILT (moist, non-plastic) COBBLE Fragments	
2								Boring terminated at 1.3 feet due to the possible presence of underground utilities.	
3									
4								Notes: 1. Borehole backfilled with non-shrink grout.	
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Collin Benton; Tony Jones

Inspector:

ATTACHMENT C

PAVEMENT CORE PHOTOGRAPHIC LOG

ATLANTIC TESTING LABORATORIES, LIMITED
State Street Reconstruction
Rochester, New York
ATL Report No. CD4836D-01-06-20
LaBella Associates
PAVEMENT CORE PHOTOGRAPHIC LOG

Boring No.	Photograph
SB-1	
SB-2	

ATLANTIC TESTING LABORATORIES, LIMITED
State Street Reconstruction
Rochester, New York
ATL Report No. CD4836D-01-06-20
LaBella Associates

PAVEMENT CORE PHOTOGRAPHIC LOG

Boring No.	Photograph
SB-3	
SB-4	

ATLANTIC TESTING LABORATORIES, LIMITED
State Street Reconstruction
Rochester, New York
ATL Report No. CD4836D-01-06-20
LaBella Associates

PAVEMENT CORE PHOTOGRAPHIC LOG

Boring No.	Photograph
SB-5	

ATTACHMENT D

LABORATORY TEST RESULTS

ATLANTIC TESTING LABORATORIES

WBE certified company

CORROSIVITY ANALYSIS OF SOIL
AWWA Specification C105/A21.5-10 Appendix A

PROJECT INFORMATION

Client: LaBella
Project: State Street Reconstruction, Rochester, New York

ATL Report No.: CD4836SL-01-06-20
Report Date: June 4, 2020
Date Received: May 29, 2020

Tabulation of Corrosive Anaysis of Soil Results

Boring No.	Sample No.	Sample Depth (ft)	Resistivity (Ωcm)	Points*	pH	Points*	Redox Potential (mV)	Points*	Sulfides	Points*	Moisure Points	Total Points**
SB-2	S-3	5-7	39600	0	8.8	3	-80	5	Negative	0	1	9

REMARKS

1. Points are based on AWWA Specification C105/A21.5-10 Appendix A, Polyethylene Encasement for Ductile-Iron Pipe Systems, see attached table.

2. ** Ten points indicate that soil is corrosive to ductile-iron pipe and protection is recommended.

Reviewed By: Judy A. Ames

Date: 06/04/20

AWWA Specifications C105/A21.5-10 - Polyethylene Encasement for Ductile-Iron Pipe Systems

Table A.1 Soil-test Evaluation

Soil Characteristics Based on Samples Taken Down to Pipe Depth		Points*
Resistivity - ohm-cm (based on water saturated soil box)		
	< 1,500	10
	≥1,500 - 1,800	8
	>1,800 - 2,100	5
	>2,100 - 2,500	2
	>2,500 - 3,000	1
	>3,000	0
pH:	0 - 2	5
	2-4	3
	4 - 6.5	0
	6.5 - 7.5	0†
	7.5 to 8.5	0
	>8.5	3
Redox Potential:		
	> +100 mV	0
	+50 to +100 mV	3.5
	0 to +50 mV	4
	Negative	5
Sulfides:		
	Positive	3.5
	Trace	2
	Negative	0
Moisture:		
	Poor drainage, continuously wet	2
	Fair drainage, generally moist	1
	Good drainage, generally dry	0

* Ten points indicate that soil is corrosive to ductile-iron pipe and protection is recommended.

† If sulfides are present and low (<100mv) or negative redox-potential results are obtained, add three points for this range.

ANALYTICAL REPORT

Lab Number:	L2021552
Client:	Atlantic Testing Laboratories, Limited 6431 US Highway 11 PO Box 29 Canton, NY 13617
ATTN:	Aaron Woods
Phone:	(315) 386-4578
Project Name:	STATE ST. RECONSTRUCTION
Project Number:	CD4836
Report Date:	06/02/20

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: STATE ST. RECONSTRUCTION
Project Number: CD4836

Lab Number: L2021552
Report Date: 06/02/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2021552-01	SB-2,S-3	SOIL	ROCHESTER,NY	05/19/20 00:00	05/26/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

Any reported concentrations that are below 200 ug/kg may be biased low due to the sample not being collected according to 5035-L/5035A-L low-level specifications.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 06/02/20

ALPHA ANALYTICAL

ORGANICS

VOLATILES

Project Name: STATE ST. RECONSTRUCTION **Lab Number:** L2021552

Project Number: CD4836 **Report Date:** 06/02/20

SAMPLE RESULTS

Lab ID:	L2021552-01	Date Collected:	05/19/20 00:00
Client ID:	SB-2,S-3	Date Received:	05/26/20
Sample Location:	ROCHESTER,NY	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	05/30/20 20:39
Analyst:	AD
Percent Solids:	86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	2.2	1
1,1-Dichloroethane	ND		ug/kg	0.95	0.14	1
Chloroform	0.23	J	ug/kg	1.4	0.13	1
Carbon tetrachloride	ND		ug/kg	0.95	0.22	1
1,2-Dichloropropane	ND		ug/kg	0.95	0.12	1
Dibromochloromethane	ND		ug/kg	0.95	0.13	1
1,1,2-Trichloroethane	ND		ug/kg	0.95	0.25	1
Tetrachloroethene	0.25	J	ug/kg	0.48	0.19	1
Chlorobenzene	ND		ug/kg	0.48	0.12	1
Trichlorofluoromethane	ND		ug/kg	3.8	0.66	1
1,2-Dichloroethane	ND		ug/kg	0.95	0.24	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	0.16	1
Bromodichloromethane	ND		ug/kg	0.48	0.10	1
trans-1,3-Dichloropropene	ND		ug/kg	0.95	0.26	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	0.15	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	0.15	1
1,1-Dichloropropene	ND		ug/kg	0.48	0.15	1
Bromoform	ND		ug/kg	3.8	0.23	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	0.16	1
Benzene	ND		ug/kg	0.48	0.16	1
Toluene	ND		ug/kg	0.95	0.52	1
Ethylbenzene	ND		ug/kg	0.95	0.13	1
Chloromethane	ND		ug/kg	3.8	0.89	1
Bromomethane	ND		ug/kg	1.9	0.55	1
Vinyl chloride	ND		ug/kg	0.95	0.32	1
Chloroethane	ND		ug/kg	1.9	0.43	1
1,1-Dichloroethene	ND		ug/kg	0.95	0.23	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	0.13	1

Project Name: STATE ST. RECONSTRUCTION **Lab Number:** L2021552

Project Number: CD4836 **Report Date:** 06/02/20

SAMPLE RESULTS

Lab ID: L2021552-01 Date Collected: 05/19/20 00:00
Client ID: SB-2,S-3 Date Received: 05/26/20
Sample Location: ROCHESTER,NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/kg	0.48	0.13	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	0.14	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	0.16	1
Methyl tert butyl ether	ND		ug/kg	1.9	0.19	1
p/m-Xylene	ND		ug/kg	1.9	0.53	1
o-Xylene	ND		ug/kg	0.95	0.28	1
Xylenes, Total	ND		ug/kg	0.95	0.28	1
cis-1,2-Dichloroethene	ND		ug/kg	0.95	0.17	1
1,2-Dichloroethene, Total	ND		ug/kg	0.95	0.13	1
Dibromomethane	ND		ug/kg	1.9	0.23	1
Styrene	ND		ug/kg	0.95	0.19	1
Dichlorodifluoromethane	ND		ug/kg	9.5	0.87	1
Acetone	10		ug/kg	9.5	4.6	1
Carbon disulfide	ND		ug/kg	9.5	4.3	1
2-Butanone	ND		ug/kg	9.5	2.1	1
Vinyl acetate	ND		ug/kg	9.5	2.0	1
4-Methyl-2-pentanone	ND		ug/kg	9.5	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	0.12	1
2-Hexanone	ND		ug/kg	9.5	1.1	1
Bromochloromethane	ND		ug/kg	1.9	0.20	1
2,2-Dichloropropane	ND		ug/kg	1.9	0.19	1
1,2-Dibromoethane	ND		ug/kg	0.95	0.27	1
1,3-Dichloropropane	ND		ug/kg	1.9	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	0.13	1
Bromobenzene	ND		ug/kg	1.9	0.14	1
n-Butylbenzene	ND		ug/kg	0.95	0.16	1
sec-Butylbenzene	ND		ug/kg	0.95	0.14	1
tert-Butylbenzene	ND		ug/kg	1.9	0.11	1
o-Chlorotoluene	ND		ug/kg	1.9	0.18	1
p-Chlorotoluene	ND		ug/kg	1.9	0.10	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.9	0.95	1
Hexachlorobutadiene	ND		ug/kg	3.8	0.16	1
Isopropylbenzene	ND		ug/kg	0.95	0.10	1
p-Isopropyltoluene	ND		ug/kg	0.95	0.10	1
Naphthalene	ND		ug/kg	3.8	0.62	1
Acrylonitrile	ND		ug/kg	3.8	1.1	1

Project Name: STATE ST. RECONSTRUCTION **Lab Number:** L2021552
Project Number: CD4836 **Report Date:** 06/02/20

SAMPLE RESULTS

Lab ID: L2021552-01
Client ID: SB-2,S-3
Sample Location: ROCHESTER,NY
Date Collected: 05/19/20 00:00
Date Received: 05/26/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/kg	0.95	0.16	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	0.31	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	0.26	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	0.18	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	0.32	1
1,4-Dioxane	ND		ug/kg	76	34.	1
p-Diethylbenzene	ND		ug/kg	1.9	0.17	1
p-Ethyltoluene	ND		ug/kg	1.9	0.37	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	1.9	0.18	1
Ethyl ether	ND		ug/kg	1.9	0.32	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	4.8	1.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name:	STATE ST. RECONSTRUCTION	**Lab Number:**	L2021552
Project Number:	CD4836	**Report Date:**	06/02/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/30/20 11:58
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1376292-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	0.20	J	ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	ND		ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name:	STATE ST. RECONSTRUCTION	**Lab Number:**	L2021552
Project Number:	CD4836	**Report Date:**	06/02/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/30/20 11:58
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1376292-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name:	STATE ST. RECONSTRUCTION	**Lab Number:**	L2021552
Project Number:	CD4836	**Report Date:**	06/02/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/30/20 11:58
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1376292-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
Acrylonitrile	ND		ug/kg	4.0	1.2
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.
p-Diethylbenzene	ND		ug/kg	2.0	0.18
p-Ethyltoluene	ND		ug/kg	2.0	0.38
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.0	0.19
Ethyl ether	ND		ug/kg	2.0	0.34
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	1.4

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION
Project Number: CD4836

Lab Number: L2021552
Report Date: 06/02/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1376292-3 WG1376292-4								
Methylene chloride	84		81		70-130	4		30
1,1-Dichloroethane	93		82		70-130	13		30
Chloroform	81		81		70-130	0		30
Carbon tetrachloride	79		85		70-130	7		30
1,2-Dichloropropane	100		83		70-130	19		30
Dibromochloromethane	84		89		70-130	6		30
1,1,2-Trichloroethane	91		83		70-130	9		30
Tetrachloroethene	76		80		70-130	5		30
Chlorobenzene	86		85		70-130	1		30
Trichlorofluoromethane	80		83		70-139	4		30
1,2-Dichloroethane	84		81		70-130	4		30
1,1,1-Trichloroethane	82		85		70-130	4		30
Bromodichloromethane	85		86		70-130	1		30
trans-1,3-Dichloropropene	87		79		70-130	10		30
cis-1,3-Dichloropropene	89		86		70-130	3		30
1,1-Dichloropropene	90		86		70-130	5		30
Bromoform	76		82		70-130	8		30
1,1,2,2-Tetrachloroethane	95		84		70-130	12		30
Benzene	92		85		70-130	8		30
Toluene	87		81		70-130	7		30
Ethylbenzene	87		81		70-130	7		30
Chloromethane	**43**	Q	**150**	Q	52-130	**111**	Q	30
Bromomethane	**43**	Q	81		57-147	**61**	Q	30

Lab Control Sample Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION **Lab Number:** L2021552
Project Number: CD4836 **Report Date:** 06/02/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1376292-3 WG1376292-4								
Vinyl chloride	**49**	Q	87		67-130	**56**	Q	30
Chloroethane	53		83		50-151	**44**	Q	30
1,1-Dichloroethene	87		89		65-135	2		30
trans-1,2-Dichloroethene	87		88		70-130	1		30
Trichloroethene	86		89		70-130	3		30
1,2-Dichlorobenzene	82		83		70-130	1		30
1,3-Dichlorobenzene	81		82		70-130	1		30
1,4-Dichlorobenzene	82		82		70-130	0		30
Methyl tert butyl ether	89		88		66-130	1		30
p/m-Xylene	87		84		70-130	4		30
o-Xylene	88		86		70-130	2		30
cis-1,2-Dichloroethene	86		89		70-130	3		30
Dibromomethane	86		87		70-130	1		30
Styrene	90		86		70-130	5		30
Dichlorodifluoromethane	68		113		30-146	**50**	Q	30
Acetone	82		62		54-140	28		30
Carbon disulfide	89		83		59-130	7		30
2-Butanone	112		88		70-130	24		30
Vinyl acetate	94		79		70-130	17		30
4-Methyl-2-pentanone	108		84		70-130	25		30
1,2,3-Trichloropropane	89		79		68-130	12		30
2-Hexanone	107		81		70-130	28		30
Bromochloromethane	85		95		70-130	11		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION
Lab Number: L2021552
Project Number: CD4836
Report Date: 06/02/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1376292-3 WG1376292-4								
2,2-Dichloropropane	82		82		70-130	0		30
1,2-Dibromoethane	86		88		70-130	2		30
1,3-Dichloropropane	92		81		69-130	13		30
1,1,1,2-Tetrachloroethane	84		86		70-130	2		30
Bromobenzene	81		82		70-130	1		30
n-Butylbenzene	86		78		70-130	10		30
sec-Butylbenzene	87		81		70-130	7		30
tert-Butylbenzene	85		83		70-130	2		30
o-Chlorotoluene	86		78		70-130	10		30
p-Chlorotoluene	88		80		70-130	10		30
1,2-Dibromo-3-chloropropane	85		91		68-130	7		30
Hexachlorobutadiene	**58**	Q	72		67-130	22		30
Isopropylbenzene	85		81		70-130	5		30
p-Isopropyltoluene	85		83		70-130	2		30
Naphthalene	**63**	Q	85		70-130	30		30
Acrylonitrile	107		88		70-130	19		30
n-Propylbenzene	88		79		70-130	11		30
1,2,3-Trichlorobenzene	**55**	Q	81		70-130	**38**	Q	30
1,2,4-Trichlorobenzene	77		81		70-130	5		30
1,3,5-Trimethylbenzene	85		81		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
1,4-Dioxane	99		95		65-136	4		30
p-Diethylbenzene	85		83		70-130	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION
Project Number: CD4836

Lab Number: L2021552
Report Date: 06/02/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1376292-3 WG1376292-4								
p-Ethyltoluene	86		82		70-130	5		30
1,2,4,5-Tetramethylbenzene	84		83		70-130	1		30
Ethyl ether	98		89		67-130	10		30
trans-1,4-Dichloro-2-butene	91		78		70-130	15		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		92		70-130
Toluene-d8	102		96		70-130
4-Bromofluorobenzene	105		97		70-130
Dibromofluoromethane	97		105		70-130

INORGANICS
&
MISCELLANEOUS

Project Name:	STATE ST. RECONSTRUCTION	**Lab Number:**	L2021552
Project Number:	CD4836	**Report Date:**	06/02/20

SAMPLE RESULTS

Lab ID:	L2021552-01	Date Collected:	05/19/20 00:00
Client ID:	SB-2,S-3	Date Received:	05/26/20
Sample Location:	ROCHESTER,NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	05/27/20 10:18	121,2540G	RI
Chloride	720		mg/kg	11	4.1	1	-	05/30/20 08:45	1,9251	MR

Project Name: STATE ST. RECONSTRUCTION **Lab Number:** L2021552
Project Number: CD4836 **Report Date:** 06/02/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1376035-1										
Chloride	4.1	J	mg/kg	10	0.37	1	-	05/30/20 08:44	1,9251	MR

Lab Control Sample Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION
Lab Number: L2021552
Project Number: CD4836
Report Date: 06/02/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1376035-2								
Chloride	102		-		89-109	-		35

Matrix Spike Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION
Project Number: CD4836

Lab Number: L2021552
Report Date: 06/02/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1376035-4 QC Sample: L2021552-01 Client ID: SB-2,S-3												
Chloride	720	435	1100	92		-	-		62-129	-		35

Lab Duplicate Analysis
Batch Quality Control

Project Name: STATE ST. RECONSTRUCTION
Project Number: CD4836

Lab Number: L2021552
Report Date: 06/02/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1374638-1 QC Sample: L2021566-01 Client ID: DUP Sample						
Solids, Total	94.5	93.8	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1376035-3 QC Sample: L2021552-01 Client ID: SB-2,S-3						
Chloride	720	690	mg/kg	4		35

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2021552-01A	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L2021552-01B	Glass 120ml/4oz unpreserved	A	NA		3.6	Y	Absent		CL-9251(28),TS(7)
L2021552-01X	Vial MeOH preserved split	A	NA		3.6	Y	Absent		NYTCL-8260(14)
L2021552-01Y	Vial Water preserved split	A	NA		3.6	Y	Absent	**29-MAY-20 02:32**	NYTCL-8260(14)
L2021552-01Z	Vial Water preserved split	A	NA		3.6	Y	Absent	**29-MAY-20 02:32**	NYTCL-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:06022012:42

C2021552

No: 13557

ATLANTIC TESTING LABORATORIES

Environmental Chain-Of-Custody Record

Albany	Binghamton	Canton	Elmira	Plattsburgh	Poughkeepsie	Rochester	Syracuse	Utica	Watertown
22 Corporate Drive	126 Park Avenue	6431 U.S. Highway 11	2330 Route 352	130 Arizona Ave	251 Upper North Road	3495 Winton Place	6085 Court Street Road	301 St. Anthony Street	26581 NYS Route 283
Clifton Park, NY 12065	Binghamton, NY 13903	Canton, NY 13617	Elmira, NY 14903	Plattsburgh, NY 12903	Highland, NY 12528	Rochester, NY 14623	Syracuse, NY 13206	Utica, NY 13501	Watertown, NY 13601
518/383-9144 (T)	607/773-1812 (T)	315/386-4578 (T)	607/737-0700 (T)	518/563-5878 (T)	845/691-6098 (T)	585/427-9020 (T)	315/699-5281 (T)	315/735-3309 (T)	315/786-7867 (T)
518/383-9166 (F)	607/773-1835 (F)	315/386-1012 (F)	607/737-0714 (F)	518/562-1321 (F)	845/691-6099 (F)	585/427-9021 (F)	315/699-3374 (F)	315/735-0742 (F)	315/786-2022 (F)
labsAT@atlantictesting.com	labsET@atlantictesting.com	labsCT@atlantictesting.com	labsHT@atlantictesting.com	labsPL@atlantictesting.com	labsPT@atlantictesting.com	labsRT@atlantictesting.com	labsST@atlantictesting.com	labsUT@atlantictesting.com	labsWT@atlantictesting.com

Project No.	Client Name	QA/QC Code	Parameters	Report Distribution
CD4836 Page 1 of 1	LaBella Associates	☐ NYSDEC ☐ SW-846 ☐ NYSDOH ☐ CLP ☐ Other	Chloride EPA meth. 9252 or 9056; Volatile EPA meth. 8260	TAT Required: ☐ 6hr ☐ 12hr ☐ 24hr ☐ 48hr ☐ 72hr ☒ 5day ☐ 10day ☐ Other
ATL Project Contact:	Aaron Woods	Project Location		E-mail Results: awoods@atlantictesting.com
Project Name:	State St. Reconstruction	Rochester, NY		

Custody Seal: X= intact

Date	Time	Field Sample No.	Sample Location	Sample Type	No. of Containers	Chloride EPA meth. 9252 or 9056	Volatile EPA meth. 8260					Notes	Laboratory Sample ID No.
5/19/20	pm	SB-2, S-3	SB-2 (5.0-7.0')	G/S	2	X	X						

Samplers Name:	Collin Benton	Date:	~~PM~~ 5/19/20	Received for Name:		Date:	Shipment Rec'd Intact?
Samplers Signature:	Collin Benton	Time:	pm	Laboratory Signature:		Time:	☐ YES ☐ NO

Samples Relinquished By:				Samples Received By: AAL				Sample Type Code Key:	Laboratory Remarks
Name:	Collin Benton	Date:	5/26/20	Name:	Tom Hunter	Date:	5/26/20	Description: C Composite, Q QA/QC, G Grab, O Other	
Signature:	Collin Benton	Time:	0900	Signature:	Thomas A. Hunter	Time:	0900	Matrix: DW Drinking Water, S Soil	
Name:	Tom Hunter	Date:	5/26/20	Name:	Eric Whalen	Date:	5/26/20	GW Groundwater, SL Sludge, WW Wastewater, WS Solid Waste, SM Stormwater, B Bulk	
Signature:	Thomas A. Hunter	Time:	1045	Signature:	[illegible]	Time:	1400	O Oil, WP Wipe, L Liquid, A Air	

5/27/20 08:20

Distribution: White with Samples
Pink to ATL Files

ENV-001B

pdrive:Forms\Environmental\OfficeForms\Environmental Chain-Of-Custody Record rev 6: 02/22/19

<u>APPENDIX G</u>

Public Involvement

Public Involvement Plan

Roadway Rehabilitation Project
PIN: 4CR0.06
State Street Reconstruction
Monroe County
City of Rochester

Name of Preparer: Richard Bennett, Project Manager **Date Prepared**: 06/18/2020
Preparer's Functional Area: Consultant

Current Phase (check one): Scoping ☐Phase I-IV ☒Phase V-VI ☐Construction ☐Other

Project Schedule as of Date Prepared

IPP Approved --August 21, 2018
Design Approval --November, 2020
PS&E ---August 2021
Construction Begins --Spring 2022
Construction Completion --Fall 2023

1. IPP update – None, this is being submitted as part of the IPP/FDR Appendix.

List changes that have occurred since IPP: N/A

2. Project Data

Funding. . . . . X Fed-Aid NHS ___Fed-Aid Non-NHS ___100% State

Check Project Type (s). ____NEPA Class I __X__NEPA Class II ____NEPA Class III
_____SEQR Non-Type II _____ SEQR Type II

Brief Description of Project Work Reconstruction of roadway, sidewalks and streetscape.

City of Rochester person designated as community contact Donna Clements

Public Involvement prior to IPP (y/n) No
If yes, describe
Attach relevant correspondence and/or meeting minutes.

3. Project Scoping

PI Objectives in Scoping:

1. Identify Stakeholders
2. Inform stakeholders of project and proposed project scope/needs.
3. Gather information on the project context.

3.1 Identify Stakeholders

List Internal Stakeholders: City of Rochester, Monroe County

List External Stakeholders: NYSDEC, NYSDOT Regional Planning; Regional Design Group; Regional Structures Group; Regional Landscape/Environmental Group; Regional Traffic and Safety Group; Regional Construction Group; Regional Maintenance Group, RDDC, C4 community group, High Falls Business Association

3.2 Potential community concerns:

3.3 Communication Methods to be used to inform Stakeholders:

Meetings with public officials: Meetings will be held to introduce the project to the municipalities involved and receive feedback from them. In addition, we will be discussing the opportunity for additional work to be included in the project as a betterment.

Public information meetings:
One will be held during preliminary design and one will be held during final design.

Is a citizen's advisory committee necessary? No
If yes, attach description of how it will be organized, list committee make-up and affiliation, and committee objectives.

Other public involvement techniques:

3.4 Schedule for Public Involvement Activities: The first public information meeting will be held during scoping. Meetings will be held to introduce the project to the municipalities involved and receive feedback from them.

4. Design

PI Objectives during Design:

Preliminary Design: Identify Stakeholders and inform them of the project and proposed project scope and needs. Gather information on the project context. Seek consensus on preferred alternative**.**

Detailed Design: Update stakeholders on progress, discuss any changes.

4.1 Information

List Internal Stakeholders: City of Rochester

List External Stakeholders:

4.2 Communication Methods to be Used:

Meetings with public officials: Meetings will be held as needed to keep the municipalities involved.

Public information meetings:

Meeting formats: Open house forum with an opportunity for questions and comments.
Brochure: A brochure will be provided with project information.
Visualizations: Displays will be available for public viewing and comments.

Other public involvement techniques:

Direct mailings, news releases, website, and email

4.3 Schedule for Public Involvement Activities: The first public information meeting will be held during preliminary design, date TBD. Direct mailings and news releases will be used to notify the public of the meetings. Public Surveys and brochures will be used to gather public opinion.

5. Construction Phase

PI Objective During Construction:

Inform and maintain contact with affected residents/businesses/other stakeholders concerning construction activity schedule and impacts.

5.1 Issues requiring continued public outreach:

Maintenance and protection of traffic (MPT): To be determined
Public education for operational features (e. g., roundabout): To be determined
Minimizing community economic impacts during construction: Work closely with local businesses.
Post-construction community feedback
Other issues

5.2 Communication Methods to be Used:

Pre-construction public meeting
Media advertising
Highway message signs
Website

5.3 Schedule for Public Involvement Activities: Pre-construction public meeting to notify the public of the proposed construction schedule and impacts. Keep the public informed through the media, use of highway message signs, and project website.

STATE STREET RECONSTRUCTION
BASIN STREET TO THE INNER LOOP
PIN 4CR006, D#036027
PUBLIC INFORMATION MEETING MINUTES

Location:	Zoom Video Conference
Date:	September 23, 2020
Time:	5:30 pm
Attendees:	Donna Clements (City of Rochester), Dominic Fekete (City of Rochester), Rick Bennett (LaBella), Wade Daley (LaBella), Frank DiCostanzo (NYSDOT), Jim Pond (MCDOT). Virtual sign in sheet attached

AGENDA ITEMS

1. Administrative Items

   - Donna Clements provided the video conference platform methodologies and capabilities.
   - Participants and attendees were asked to provide their names via chat function for record keeping.
   - Rick Bennett proceeded with a PowerPoint presentation introducing the project and discussed the existing conditions, findings and enhancements associated with the preferred alternative.
   - A copy of the presentation and typical section renderings are available through the City of Rochester's project website located at https://www.cityofrochester.gov/statestreet/

2. Presentation and Discussion of the project

   - Projects limits are along Exchange Boulevard and State Street from Basin Street to the Inner Loop.

3. General Discussion Items and Verbal Comments (comment in black text and response from the design team is in red text)

   - John Schull comment regarding the importance of the connection to High Falls and south to the U of R. Suggested that the stretch from Andrews Street to High Falls needs to have a protected bike lane.
     - Comment received and bike facilities and connectivity will be refined during detailed design.

- Bill Collins commented that he appreciated the attention to various users. He questioned if there are included amenities for transit users such as shelters. Also interested in bike lanes, was a three lane section considered for a connection to the Genesee Riverway Trail. Consider the child care center drop off at the Federal Building. Commented that wayfinding should be part of the streetscape design. Commented on pavement condition and manhole covers being problematic for bicyclists. Would encourage the inclusion of tables within the amenities, Look at using permeable pavement

  - Shelters and amenities for transit will be investigated during final design. A three lane section has been evaluated and fails to provide adequate operational capacity. Coordination with the federal building is ongoing. All utility castings will be detailed to accommodate bicycles in accordance with the City's standard details. All streetscape amenities, including permeable pavement and wayfinding, will be investigated during final design.

- Suzanne Mayer commented on snow removal and referenced the Union Street area. Her concern was about where does snow get placed during the winter. She commented liking the design for where the bicycles are. Consider coordination with the Inner Loop and recommendations from the Inner Loop study. It is dark under the Inner Loop is there a way to fix it so it is brighter and more inviting. Consider bus shelters so that transit accommodations have been designed for everyone. She stated that there should be a 3 year guarantee period for new tree plantings.

  - Snow removal, coordination with concurrent projects and studies, bus stops, lighting and landscaping are all elements that will be evaluated throughout final design and construction phases.

- John L commented on the placement of the sharrow bicycle marking at the edge of the lane or in the center of the lane. Bike lane and the slight bend along State Street near the Pizza Stop has a difficult sight distance. Sister Cities Bridge over the river and the pedestrian pathway crosswalk receive type LS crosswalks.

  - All pavement markings, including bicycle lane and sharrow markings will be installed per current Federal MUTCD and NYSDOT guidance. The bike lane and geometry will be evaluated during final design to be refined. Crosswalks will be designed in accordance with statewide guidance.

- Bill asked for the city and county to consider more creative sidewalk treatments including murals to make crossing standout more. These could enhance the vibrancy of the area and also serve as traffic calming.

  - Comment received.

4. General Discussion Items and Comments sent via "Chat" (comment in black text and response from the design team is in red text)

   - Carmen Coleman asked will wiring for internet access be included in the project? Improving fiber optics and building access? Will there be additional parking spaces?

     - The City will be installing city owned conduit for future fiber optic installation, however the development of internet access is not a part of the current project. In addition the project design team will coordinate with commercial utility providers to ensure their facilities are incorporated within the project area. MCDOT conduit will be separated from RG&E conduit for future municipal use. Parking is being maintained with approximately the same number of spaces, this will be finalized during detailed design. Building access will be investigated and coordinated during in detailed design.

- Dina Beaudette asked how will the project affect the parking lot on State Street.
    - All adjacent parking lots will have their access to the roadway maintained and incorporated into the project design.
- Jesse walks through the area stated that the traffic moves too fast and he is excited to see traffic calming measures included in the project. The area around City Hall should be less intimidating.
    - Comment received
- Bill is State Street considered a state highway?
    - Comment received
- Suzanne can there be parking protected bike lanes?
    - Placement of bike lanes have been developed based on connectivity to adjacent facilities. Further refinements will be investigated during final design.

If there are any errors or significant omissions, please contact me at (585) 402-7088 or rbennett@labellapc.com. Please reply with comments within one week at which point these minutes will be considered final.

Respectfully Submitted by:

LaBella Associates, D.P.C.

Richard C. Bennett

Richard C. Bennett, PE
Project Manager

\\Projects2\ProjectsNZ-2\Rochester, City\2200377 - State St Reconstruction\Meetings\Public Information Meeting\2020-09-23 Public Information Meeting Minutes.docx

Virtual Sign In Sheet
Public Information Meeting State Street Reconstruction
September 23, 2020

Bill Collins
Jesse Peers
Dina Beaudette
Jon Schull
John L
Doris
Carmen Coleman

Comments Received via email:

Adam Smith – September 23, 2020
Jesse Peers – September 29. 2020
David LaVine - September 29. 2020
Alexander A. Parsons – September 29, 2020
Holly Turner - September 29, 2020
Elliot Vos – Spetember 29, 2020
Kathy Connor – September 29, 2020
Bill Brower – September 29, 2020
Steve Shon – September 29, 2020
Robert Hoffmann – September 29, 2020
Lindsay Phillips – September 29, 2020
Karen Lankeshofer – September 29, 2020
Michael L. Scott – September 30, 2020
Kevin Marks – September 20, 2020
Susan Levin – September 30, 2020
Matthew Ehlers – October 1, 2020
Jackie Marchand – October 1, 2020
Tim Raymond – October 1, 2020
Tom Morgan – October 2, 2020
Elaine Meadows – October 2, 2020
Don Burns – October 2, 2020
Meredith Smith – October 2, 2020
Renee J. Stetzer – October 2, 2020
Chris Ley – October 2, 2020
Evan Lowenstein – October 2, 2020
Jason Geller – October 2, 2020
Scott MacRae – October 2, 2020
Gary Bogue – October 2, 2020
Douglas Kelley – October 4, 2020
John Josepth – October 7, 2020

All 30 of the comments pertain to the inclusion of bicycle lanes within the project area. The City has reviewed all of the comments and reviewed the design. The City has prepared the following response.

Response letter from City of Rochester:

Thank you for your interest in the City of Rochester's State Street Reconstruction Project and sharing your thoughts and comments. Your comment(s) has been received and will be reviewed and included in the project evaluation and design.

The design of a roadway within an urban downtown context requires balancing many competing needs and requirements. This design is informed through the application of design standards for all modes of transportation (pedestrians, bicycles, transit, vehicles, etc.) established by the New York State Department of Transportation (NYSDOT), American Association of State Highway Transportation Officials (AASHTO), and National Association of City Transportation Officials (NACTO), as well as guidance documents including the Federal Manual on Uniform Traffic Control Devices (MUTCD). In addition, the design must be compliant with State and local laws. Specifically, the State Street Reconstruction Project strives to apply the tenets of the Complete Streets policy, the *Rochester 2034* Plan, and NYSDOT Highway Design Manual as required by the project's federal funding source.

Project designers and City staff have evaluated various street and sidewalk configurations within the State Street project area and specifically the portion between Main Street and Church Street. These evaluations included "Road Diet" and vehicular travel and/or parking lane reductions as well as pavement widening and sidewalk width reductions to include full 5 foot wide dedicated bike lanes to determine what accommodations for all roadway users could be achieved. Each configuration/alternative included various benefits and constraints to the project. Some of these included potential negative effects to the historic Powers Building, project cost and funding implications associated with significant utility impacts, effects to highly utilized parking availability, impacts to pedestrian space on busy downtown sidewalks, and various levels of safety improvements. The safe and efficient accommodation of RTS buses is a critical component of the alternative evaluation given the high frequency of bus trips within the corridor. A "Road Diet" reducing the number of travel lanes in each direction failed to deliver the minimum operational capacity and level of service for vehicular traffic, including transit, through the corridor.

It is important to keep in mind that the City of Rochester is advancing a project adjacent to State Street along Charles Carroll Plaza, between Main Street and Andrews Street, which will provide a parallel route for bicycles that is completely separated from vehicular traffic. Through ROC the Riverway, that connection will eventually be interconnected with the rest of the Genesee Riverway Trail, providing a high quality, continuous north-south bike route through Downtown Rochester. While we understand your concerns with regard to the use of shared use travel lanes with "Sharrow" markings, this treatment is considered an acceptable lane use configuration that provides improved accommodations to bicyclists within the roadway. The proposed additional travel lane width provides more space for traffic (both vehicles and bicycles) to travel the corridor. The outcome of the investigations is that the preferred alternative is the "best fit" for all users between Main Street and Church Street.

Received from Adam Smith – September 23, 2020:

Hi Donna,

I have a comment on the State Street project and the proposed design. It seems like most of the buildings on the east side of the street have their own parking. With that in mind I think it makes sense to remove the parking lane on the east side on the section that currently has shared use lanes (Main to Church). With that extra space you can add bikes lanes and more trees.

Thank you,
Adam

Received from Jesse Peers – September 29. 2020:
Hi Richard,

Jesse Peers here. I'm a city resident in North Winton Village. My primary means of getting around is by bike. More than any other reason, it's because Rochester's size allows biking in a reasonable amount of time. I loved learning a couple years ago that the average city resident has a 4.1-mile commute to work - less than 25 minutes on a bike at a casual pace. This is so great! Not just in terms of attracting and retaining millennials, who want choice when it comes to transportation. But because it results in a more equitable, safe, healthy, vibrant community.

I'm very intrigued by Rochester's 2034 Plan. I hope we have the will to stick to that guide for decision making. I imagine my kids and I will stick around if we resemble anything like that in 2034. I agree with the mayor we can be the best mid-sized city in the country.

I'm also excited about the State Street construction project. I bike with our kids around downtown - to various musuems, the central library, Red Wings games, etc. State Street is well due for better design. I gotta say though, last week's presented design was lackluster, disappointing and downright unacceptable. Though the section north of city hall is decent (I think there's space for protected or buffered bike lanes), the section south of city hall is incongruent with city values, goals & plans.

I realize there is competing space here and this is an important route for RTS, but 6 lanes devoted to motor vehicles (travel & parking) and none for cyclists and those on scooters is unacceptable. There's a way to stick to our complete streets policy here. Sharrows and bike lanes that end abruptly aren't the way forward. Let's send this back to the drawing board.

Thanks for all you do.

Received from David LaVine – September 29, 2020

Hi Mr Bennett,

Regarding the State St project https://www.cityofrochester.gov/statestreet/?mc_cid=570d1e3c10&mc_eid=fae3d04d3d

I want to voice my concerns from a bikeability standpoint. Namely that the current design doesn't seem to include contiguous protected bike lanes.

If we really want to encourage balanced modes of transportation (as suggested by complete streets), protected/buffered bike lanes are very important for the average cyclist.

I do understand that there are many factors in play when it comes to street design, so you'll rarely completely satisfy all constituents. The current design seems a bit too heavily weighted toward the motor vehicle mode of transportation.

From what I understand, our wonderful little city was actually built for a much larger population, leaving room to accommodate quality of life improvements that will help make the ROC a wonderful place to live in the coming years.

Thanks for listening!

Respectfully,

David LaVine

Received from Alexander A. Parsons – September 29, 2020

Designers + City Officials,

As a bike commuter and fellow designer (Architect) in the city of Rochester, I'm very excited about the potential street improvements on State Street.

As we move towards a more sustainable future, we need to prioritize transportation as a way to combat climate change. I believe in human motion over automation, and clean air over pollution. Electric cars will not come fast enough to prioritize cars as the sustainable method of travel so we need to focus on the best solution that we already have right now: bicycles and their required infrastructure.

As sea levels rise, we will see an influx of people from New York City into Rochester, which means we will have less space. Designing for cars will not help this problem but designing for bikes will.

Your current proposal for 6 lanes devoted to cars on State Street, South of Church Street, does not abide by the "2034 Plan" and the "Complete Streets Policy." Buffered bike lanes are a better sustainable solutions that provide safer and more enjoyable access for bikes. If people see that have a safer and more enjoyable way to travel than they will choose biking over cars, EVEN IN WINTER!

Please revise the design for this portion of your proposal. Speaking as someone who has been in your shoes and has designed street scapes for urban environments: We need to provide a better experience for cyclists than what is currently proposed.

-- Thanks for listening

Alexander A. Parsons

Received from Holly Turner – September 29, 2020

I'm very excited about the proposed improvements to State Street downtown. It's absolutely a vital corridor through the city for business and tourism.

I'm a downtown resident, about a mile away and pass through it many times a week as a runner, cyclist, and driver. I've run and ridden with multiple groups, Carlson Metro Center YMCA, Rochester Bicycling Club, Rochester Running Store, Medved, Fleet Feet, Trails Roc, Monroe Milers, Rochester Speedskating Team, and others. I've lived in the city since 2006, but remember how intimidating it was to drive downtown when I was new to the area and lived in the suburbs. Even now, as I explore the Genesee River Trailway with friends and visitors, it's a dead-end when the groups from the east and southside get downtown. Making safe corridors for cyclists and runners is key to bringing more people downtown to enjoy events, museums, and entertainment.

The current green painted dedicated bike lanes are working. They are making a huge difference in encouraging locals and visitors to venture downtown to enjoy the sights and shop/dine at downtown merchants. My cycling and running groups are particularly enjoying the bike path along Union Street across from Roc City Brewing. Monroe Avenue near downtown is a wonderful realization of an urban corridor with cars, runners, and cyclists.

It's terrific that the project plans are thinking about pedestrians and bicycles. I've been active in the Rochester Cycling Alliance and planning with city and county government to keep everything moving in good directions for all users. (2034 Plan Complete Streets policy)

I've got a thought on the current plans pre as presented on September 23.

The section of State Street between Church Street and West Main does not incorporate bike lanes. As a driver, this is very confusing because signage and lane markings don't help much in understanding that bikes have not simply disappeared, but now are going to share this section of road. It seems abrupt for both driver and cyclist? As a downtown cyclist, I usually take to the sidewalk for my own safety. As a driver, it's not intuitive to 'move over' and myself and other drivers typically drive right over street markings for shared road/cyclists. This is a huge problem for me today, when cycling and driving on University Avenue. Culver Road has the same challenges of bike lanes disappearing. It's just awful to bike on these roads and as a driver it's not much better. Sharing is not as good a solution as a dedicated roadway. Constant switching between shared and dedicated on the same roadway is confusing for everyone, but dangerous/deadly for cyclists. For many of my cycling friends, they avoid coming downtown because of the inconsistency of the dedicated bike lanes. It's also not much fun for pedestrians and walkers when bikes move to sidewalks just to stay alive.

Here's an idea.

Have you considered eliminating on-street parking on State Street between Church Street and West Main?

When I looked at that section of the proposed roadway, I estimated only a dozen parking spaces, maybe less given handicapped set asides and fire hydrants. Eliminating the parking would support traffic flow as two car travel lanes in each direction with bike lanes on either side. There seems to be sufficient parking throughout this section of State Street to accomodate a dozen additional cars. The public Sister Cities Garage is just steps away.

For a driver, particularly a visitor from the suburbs or outside the region, removing on street parking reduces confusion and distractions. For cyclists, there's no need to move to the sidewalk to stay out of danger. For pedestrians and runners, fewer distractions or worries about cars pulling out unexpectedly or taking a long time to parallel park. Just seeing the green bike lanes seems to help slow traffic in congested areas - good for everyone.

Please consider a change to the plan to remove on street parking on State Street between Church Street and West Main.

A dozen parking spaces vs. more visitors/less accidents?

This seems like a workable solution.

Thank you for your consideration,

Holly Turner

Received from Elliot Vos

After reviewing the proposal for the State Street Reconstruction Project, I'm very disappointed by the proposed Bicyclist Accommodations. They do not seem in line with the 2034 Plan nor the Complete Streets policy. Portions of State between Main and Church feature six lanes for cars (traffic & parking) and zero lanes for bicycles. When it comes to bicycle infrastructure, dedicated bike lanes like those that are in the plan for State between Church & Inner Loop are really the bare minimum. At least one study found that bike "sharrows" are more dangerous for cyclists than no bicycle infrastructure at all. For one, a 13-foot "shared use" travel lane will encourage automobiles to drive faster, not slower.

Please honor the commitments made in the 2034 Plan and the Complete Streets policy and find a way to dedicate lanes to bicycles (and protect them if possible)!

Elliot Vos

Received from Kathy Connor September 29, 2020

Dear Mr.Bennett:

I respectfully request that you revisit your plan for this area of downtown Rochester. The design is not safe for cyclists of any age and does not take into account the 2034 Plan or the Complete Streets policy set up by the City of Rochester in 2011.

Streets are for more than buses and cars. They should be safe for cyclists and pedestrians taking a walk. I Know that buses need to make right turns in this area but other cities have been very successful in working with their public transportation companies and finding a way to accommodate buses turning right and a lane for cyclists. I suggest you check out cities like-Cambridge, Massachusetts or Savannah, Georgia to name just a few.

Many visitors to our region like to use the Bike Share sytsem we have in Rochester. Many prefer that to using Uber or other rideshare options especially with Covid 19. They can wipe down a bike easily and get themselves around the city pretty easily.

Given our involvement in the tourism industry it would be a real shame to not include a safe way for cyclist to get around with this new improvement project.

I would appreciate you relooking at your design and finding a way to accommodate cyclists safely in your plan. Thank you.

--

Kathy Connor

Received from Bill Brower – September 29, 2020

Hello all. I recently reviewed your plans for State Street between Basin Street and the Inner Loop. While the bicycle facilities for some portions of the project look good, I'm concerned about the section south of Church Street. Devoting six lanes to cars and not providing safe options for cycling isn't in line with the 2034 plan or the Complete Streets policy.

I hope you will reconsider this design. Having some bike lanes is nice, but what will really get people using these facilities en masse is when they are part of an integrated, connected system. That will require some difficult decisions in some areas such as this one, but if Rochester is serious about building infrastructure to support revitalization of the city, some political leadership and courage will need to be shown.

Best,

Bill Brower

Received from Steve Shon September 29, 2020

Greetings, Salutations, and Hello!

I'm excited to learn of improvements to State Street. One of my major forms of transit within the city is bicycle, and I look forward to being able to more easily navigate to vital services in the Church Street area and to businesses like The Spirit Room and Pizza Stop. The proposed bike lanes will make travel much easier, and I appreciate them.

Would it be possible to include bike lines in places where the plan currently includes sharrows or requires bikes to share full lanes with cars? My experience throughout the city is that many car drivers are unfamiliar with sharrows, and when I'm on my bike in sharrow territories I've often been honked at or run into the curb by motor vehicles. Bike lanes, while sometimes ignored, offer at least some measure of safety.

Thank you for your time.

Sincerely,

Steve Shon

Received from Robert Hoffmann – September 29, 2020

I offer some comments on the proposed reconstruction of State St., Rochester NY.from the inner loop to Basin St. I'm an adult cyclist, I live in North Gates, just off of Lyell Ave; that's my perspective here. I'm delighted to find the City of Rochester working to be a very bike friendly town, a place I would want to go to. The redo of Lyell Ave with bike lanes? Love it!

So I was delighted to see bike lanes planned for the reconstructed portion of State St.

And dismayed to see them left out around the most critical section in the plan, from Church to Main. All that's provided for there is sharrows. In normal times that area and intersection is crowded with cars, and trucks, and buses, and jay walkers, and cars coming out of an underground garage. Treacherous! A motorist has a lot to do, let alone keep an eye on a cyclist in the same lane.

This too: sharing a sharrow is kinda workable when the car and cyclist are moving along at speed with little other traffic - think residential street. But in that Church to Basin St. stretch they are not. There are three stop lights where a cyclist might have to come to a dead stop. And starting from a dead stop is when a cyclist is at his/her most wobbly and the speed differential between bike and car is greatest. A high risk situation. It really benefits everyone for a cyclist to have a dedicated bike lane to accelerate in.

Just North of the proposed reconstruction area we have Monroe Community College. The experience at all the colleges in this area says that more college students means more bikes means more bike traffic. This project area needs to take that into account. You're planning not for just a few months for the the next 100 years. So why not get it right now?

When it comes to downtown city traffic, sharrows are nothing but a "feel good" illusion of safety, a false economy measure. Not bike friendly.

Received from Lindsay Phillips – September 29, 2020

I've been so pleased to see the changes coming to downtown Rochester. In particular as it gets safer to ride my bike, I often take a tour around to stop at my favorite coffee place (Ugly Duck) near the new bike path. I enjoy riding up the river path too. I have found the section in midtown with just the sh arrows tricky. As a cyclist, I know they mean it should be a good shared road. Practically, drivers don't respect the cyclists. We should strive to have all bike lanes truly dedicated to cyclists and be connected so those on bikes feel and are safer. The current design gets partway there but does not really make our inner city bike friendly. I would encourage you to go back and rework this.

Bike friendly also becomes more pedestrian friendly and so would be a win for many Rochester Area residents beyond just the current and future cyclists.
Sincerely,
Lindsay Phillips

Received from Karen Lankeshofer – September 29, 2020

Dear Planners:

While I applaud the City's desire to make Rochester's streets safer for all traffic participants, the design proposal for renovated infrastructure on State Street south of Church Street is not a safe design for cyclists and does not conform to the City's commitment to its Complete Streets program.

Especially in this time of the pandemic when more and more residents are choosing cycling as a means of transportation, we should be planning with the safety of cyclists and pedestrians utmost in our minds. It is not a truism that streets have to be dominated by automobiles.

Please consult with local cyclists (for example Reconnect Rochester's Rochester Cycling Alliance) to correctly and adequately plan the State Street renovations for equitable and safe use by all traffic participants.

Thank you.

Karen S. Lankeshofer

Received from Michael Scott – September 20, 2020

Dear city planners,

As a long-time resident and active bicyclist, I have been following with enthusiasm the gradual improvements to cycling infrastructure in Rochester. I was delighted when the City adopted its Complete Streets policy in 2011, with its emphasis on active transportation. I was similarly happy to see this commitment affirmed in the Rochester 2034 plan.

In this context, I was hopeful when I first looked at the plans for rebuilding State Street between West Main and the Inner Loop -- and indeed the section from Church Street to the Loop looks reasonable. The southern section, however, leaves me very disappointed and concerned. Sharrows are a viable approach in residential neighborhoods, but they really don't work on a busy street with commercial traffic, buses, and curbside parking.

I am writing to _strongly_ urge you to pursue a second draft of this proposal that includes dedicated bike lanes throughout, that connects those lanes to nearby bicycle routes, and that avoids the use of sharrows in areas of high congestion.

Yours sincerely,

Michael L. Scott

Received from Kevin Marks – September 30, 2020

To whom it may concern,

I reviewed the documents from the Public Meeting on Sep 23, 2020. Here are my comments for the record.

As a cyclist who rides over 1,500 miles per year, I experience first hand the impact of street design on cyclist safety and overall rideability. I usually find that where NYS Complete Streets policies are followed, both aspects are noticeably better.

I'm always encouraged when I read about upcoming reconstructions and renovations to our existing streets. They usually present an opportunity to improve the conditions for non-motorized traffic. These improvements make our region more livable and enjoyable. Protected or buffered bike lanes in urban environments are certainly the gold standard.

The accommodations for bikes in the proposed improvements on State St. between Church St. and the Inner Loop seem reasonable. But, the design for State St south of Church St. has six lanes for cars and none for bikes. Just sharrows and bike lanes that end abruptly. This does not seem to follow the 2034 Plan and the Complete Streets Policy.

At first glance the layout of the roadway section appears workable. But, if you add in the normally occurring traffic profiles, it becomes clearly dangerous to bikes. See the two illustrations below. I'm sure that a better design can be developed for this stretch of State St.

Thanks for your work on this project and for considering my comments.

Sincerely,

Kevin Marks

Received from Susan Levin – September 30, 2020

Greetings;

Thank you for the virtual presentation of the State Street Redesign proposal, which I attended last Wednesday evening. I am dismayed at the proposal's focus on motor vehicles--allocating 6! lanes of pavement--at the expense of safety for those of us who commute by bicycle.

The plan highlights shared marked lanes. In reality, a shared marked lane (aka "sharrow") is barely marked, and almost never shared. Drivers will nearly always try to squeeze by me in the same lane. Drivers just do not wait to pass until they can safely move left; instead they assume that we can both fit in the same lane safely, which is not true. The plan also features green-painted bike lanes, at grade and separated from motor traffic by 4" of white paint. This lane on the northern end of the stretch will just invite parking, standing or stopping; making those bike lanes useless for safety, since people on bikes will be forced into the motor vehicle lane anyway. Furthermore, the differences in bike infrastructure style along this stretch create more hazards as drivers and bike commuters both would need to negotiate the changes, leading to confusion and frustration.

The best solution is a fully connected separate infrastructure. Parking-separated bike lanes for example, or, even better, curb-separated.

As part of the City's Complete Streets program, all new construction must include accommodations for all road users. Furthermore, the Rochester 2034 Plan's goal is to increase bicycling in the city. These designs will make it too dangerous for most residents to consider using a bike in this stretch.

As a full-time, car-free, year-round bike commuter, I am tired of being the one who is squeezed out and forced to give up space on our public right of way. Please, please design State Street to make it safe, convenient and comfortable for a person on a bicycle. Your current design misses all three.

Pedal on,

Susan Levin

Good morning,

I just wanted to express some of my thoughts for the E. Main St. project.

I look forward to the project's completion as I work and live in this area. My main concern is bike lanes. I'm wondering why the dedicated bike lane seems to stop at Church Street. I'm an avid biker and live in a one-car family. I'm always hoping the city favors bikes over cars. It certainly would encourage me to frequent this area more, which I currently avoid on my bike because of car traffic and safety concerns.

I feel the project could be more closely aligned with the City's 2034 Plan and the Complete Streets Policy.

Thank you,

Matthew Ehlers

Received from Jackie Marchand- October 1, 2020

I wanted to comment on the State Street project between Basin Street and the Inner Loop. I am so excited about all of the improvements happening downtown. Once this pandemic is over, I know we'll regain our momentum to get more people in the city enjoying our downtown!

I do have some concerns about the design, especially the accommodations being made for bicycles. As I travel a lot for my company, I'm able to see what other cities are doing around the country and the world. I know that the better the infrastructure for cycling, the more that cyclists will use it. The more people that we can get moving actively (on bike or foot) through an area, the safer it becomes for everyone.

We don't get to do projects like this very often. It will be decades before Main Street is upgraded again. I'm afraid that the project as it's currently designed isn't forward thinking enough. The bike lanes need to be continuous from one end to the other end. They can't stop and start, as it makes bikes look like an afterthought. More and more people have taken up cycling during this pandemic. Bikes can't share lanes with vehicles or families with children will never use them. Ideally, the bike lanes should be protected and separated entirely from vehicles. Minimally, they should have their own lane.

Have you considered putting a bike lane in a center median? Widening the road to accommodate a separate bike lane? Narrowing the auto lanes?

I cycle through downtown often. I try to cycle year-round everywhere I go. I live 3 miles from downtown. I grew up in Rochester and want to see our city revitalized where everyone can feel safe living, working, recreating and traveling through it. Please reconsider changing the design to accommodate bicycles the entire way through. Thank you!

—Jackie

Received from Tim Raymond – October 1, 2020

All,

I recently received an action alert from the Rochester Cycling Alliance about this project. After viewing the drawings I found myself sharing their concerns. Please read the attached letter outlining my thoughts on the project. You might also want to read this article,

https://medium.com/@billfulton00/my-favorite-street-is-closed-to-cars-but-not-to-people-7800a8bc5fb8 written by Bill Fulton, the former mayor of Ventura, CA, a well known urban planner & a native of Rochester. Although the article is about a street that has been closed to cars because of COVID-19, it includes many pertinent points for this project, especially about the purpose of streets.

Thanks very much,

Tim Raymond

Received from Tom Morgan – October 2, 2020

Dear Mr. Fekete, Ms. Clements, Councilman Gruber, and Mr. Bennett:

I am writing to you about the lack of proposed alternate transportation infrastructure (pedestrian, BICYCLE) in the current plans for the State Street renovation between Andrews and the Inner Loop, but also the whole street in general.

Attached is a copy of the letter I sent to Commissioner Jones, Mayor Warren, and Councilman Malik in January, 2019 regarding the East Main Street renovation between Culver and Goodman.

It speaks to optimal solutions for maximum safety for all.

Please read it carefully and reconsider the lack of forward looking planning on the State Street renovation.

The Rochester 2034 plan calls for actively improving our pedestrian and bicycle infrastructure.

Where curb reconstruction is anticipated, elevated cycle tracks on both sides of the road are optimal; where curb reconstrucion is not anticipated, protected street level bicycle lanes is preferable to the hodge podge of sharrows and ignored safety for bicyclists.

We need these improvements - COVID-19 has accelerated the increase in use of bicycles as transportation - year round - that has been underway by the young professionals who are choosing to make Rochester their homes. They are the future of our city - we need them.

They are not the only ones relying on safer bicycle infrastructure, however. If I remember correctly approximately 30% of the residents of the City of Rochester do not own cars. Some by choice, many by economic reality.

Organizations like R Community Bikes works hard year round to make bicycles available to this sector of our population to help them be able to get to work - either directly on bike or by riding bikes to a bus and putting the bike on the bike rack on the bus to continue their journey out of the desert of jobs that they live in to somewhere they can get work.

Please, take a look at the designs outlined in the East Main Street project as detailed in my letter and rethink what has and has not been done in the State Street proposal.

Why do we keep having to fight this battle?

Didn't the response of the community to the after the final decision had been made back door dealing by a couple developers to change what the community wanted not sent a clear message to the City government?

They fought back long and loud and clear - just as they have in more recent unfortunate events.

Please, look at what the citizens want. I used to frequent El Sauza on State Street with a friend frequently, until some undesirable people threatened them and damaged their restaurant and they threw in the towel. I know those buildings are undergoing renovation and that's a good thing.

Don't conflate those improvements with a "need" for more car mobility and parking. (I drive a car - I'm a suburbanite.)

Keep the eye on the prize of the future - the young people of today demand better non-car transportation infrastructure. That was recognized and called out early and often in the Rochester 2034 plan.

Please honor that plan by drafting a State Street renovation that fulfills that need.

Thank you,

Thomas M. Morgan

Received from Elaine Meadows – October 2, 2020

Dear Mr. Bennett,

I am really excited about the opportunity we have to revitalize and improve the city of Rochester with the State Street project. The inclusion of dedicated bicycle lanes between Church Street and the Inner Loop will greatly enhance mobility in Rochester, allowing a more equitable distribution of transportation options in Rochester, permitting a more diverse population of Rochesterians to experience this historic area of the city.

However, I do not see how the plans for the area of State Street south of Church Street are consistent with Rochester's Complete Streets policy. In particular, using "sharrows" for cyclists in lieu of dedicated lanes epitomizes "afterthought" when it comes to putting active transportation at the forefront of city street planning and design. Six lanes for cars and none for cyclists does not appear to comply with either the Complete Streets policy or the 2034 Plan.

I have ridden to businesses on University Ave in Rochester numerous times - in particular, a bicycle shop! Riding along University with sharrows is the least safe part of the journey. A cyclist must keep one eye on the inside of every single parked vehicle to avoid being "doored" by exiting motorists simultaneously watching behind for overtaking traffic. Delivery trucks and similar large vehicles are harrowing, if not deadly, on a highly trafficked street. Drivers simply do not wait behind a cyclist for a safe passing opportunity.

As the State Street project plan describes, State Street is an historic area of Rochester. Creating a roadway that is safe for cyclists can only bring more cyclists to the area, increasing business and increasing the desirability of the area. Not everyone who lives in the city has a car. City thoroughfare design which includes the needs of cyclists upfront is paramount to increasing transportation equity in a city which badly needs it.

It may be another 120 years before the design of State Street is considered again. I urge you to redesign State Street to include safe dedicated lanes for cyclists, even at the expense of traffic. If city planners desire people to experience and revitalize Rochester, we must stop planning for people to race through it via car. Routes 490, 390 and 590 exist for that purpose.

Sincerely yours,

Elaine Meadows

Received from Don Burns – October 2, 2020

Greetings

I would like to comment on the current proposal for the reconstruction of State Street in downtown Rochester. My perspective is from a cyclist and I hope that you will give this input due consideration.

1) Given that Rochester has adopted the Complete Streets Policy, the current plan only partially accommodates a bike lane. So once again, we have these segmented bike lanes that abruptly stop with no connecting benefit for cycling. It adds to the confusion of cyclists and vehicle drivers with the knock on effect of increasing danger for each.

Please try to design a bike lane for both State Street sections. Not just one.

2) The intersection bump outs are very much appreciated and pedestrians will benefit with the shorter crossing zones. However, these bump outs can be a hindrance for cyclists and creating an identifiable bicycle crossing lane through the same intersection. (Continuous Bike lanes as above)

Furthermore, my understanding is that RTS always objects to any encumbrance that might impede the turning radius required for busses. This argument never seems to be backed up with quantitative data. I find it hard to believe that busses cannot maneuver at any proposed corner modifications.

Please investigate, with data, the reasonable turning radius necessary for RTS busses and create a compromise corner plan that accommodates busses, cyclists and pedestrians. Such a plan would have future design benefits.

3) Given the numerous parking lots already available in this area, and the time limits for street parking, is it really necessary to have on street parking? Has a study been conducted that again quantifies the number of parked cars per hour and whether these drivers actually use a retail establishment in this section of State Street? There is plenty of alternative parking and I question the objections of local business being negatively impacted by the removal of on street parking.

Secondly, while Trees are indeed beautiful, can we design another type of green space decoration instead of trees? Perhaps by using planter boxes or bullards or artwork. All could be incorporated into a rest area for bus stops along this corridor. The result of both suggestions would be an opportunity to create space for a PROTECTED bike lane.

Is it possible to create a *protected* bike lane by modifying the parking and decorative elements of this plan?

Thanks you for accepting my input and I hope it will be taken into due considerations.

--

Don Burns

Received from Meredith Smith – October 2, 2020

I am very much looking forward to the improvements that are planned for State Street and I have a comment on the proposed design. I am reaching out to express my concern because the shared-use lane between Main and Church does not truly meet the definition of a complete street and doesn't seem to be in line with the City's 2034 comprehensive plan.

It seems as though most of the buildings on the east side of the street have their own parking. With that in mind I think it makes sense to remove the parking lane on the east side on the section that currently has shared use lanes (Main to Church). With that extra space you can add bike lanes and more trees. I would also love to see the plan include protected or buffered bike lanes.

Thank you for your consideration of this feedback. I look forward to seeing improved bike infrastructure in the next iteration of this plan.

Best wishes,
Meredith Smith

Received from Renee Stetzer – October 2, 2020

Good Afternoon, Donna and Richard.

Thank you for the opportunity to provide input on the State Street Reconstruction Project.

Please see the attached input from our team at Reconnect Rochester to be included in the design report for the State Street Reconstruction project. It is attached as a .pdf and also included in the text below.

October 2, 2020

Re: State Street Reconstruction Project

Dear City Officials and Planners:

Reconnect Rochester looks forward to the upcoming State Street reconstruction project. Safe north-south routes for those without cars are lacking downtown. A continuous river trail through the central business district is more than a decade away and State Street is a vital corridor linking the High Falls area, MCC and Frontier Field with the south. Its design should be safe and inviting for people walking, biking, taking public transportation and driving through the area.

The preliminary design unveiled on September 23rd improves the pedestrian experience with bump-outs and on-street enhancements. The introduction of bike lanes north of City Hall will help reduce conflicts and provide a safer route for cyclists on that segment of the corridor, yet the lack of bike lanes in the south segment puts cyclists at risk. We submit the following for your consideration that would make the design of this corridor more equitable and consistent with both the Complete Streets Policy and vision provided in Rochester's 2034 Plan:

Bike lanes extended through the entire length of the corridor. Bicycles are a vital transportation option for historically disadvantaged people and extending the lanes would make access via State Street much more equitable. This is a crucial corridor for the local economy, providing access to educational opportunities and recreation.

A 4:3 lane conversion for this segment of State Street. Based on usage data and FHWA guidelines, a 4:3 lane conversion would allow efficient and safe vehicle traffic flow, sufficient space for emergency vehicles and turning RTS bus movement, and possible protected bike infrastructure such as cycletracks. Additionally, retaining a 10 foot travel lane width would offer all users, regardless of mode, safer passage through this corridor.

Enhanced crosswalks. Crosswalks should be zebra striped, or otherwise defined or creatively enhanced to alert drivers of the pedestrian zones and help calm traffic. This area receives heavy pedestrian traffic between the Transit Center and City Hall.

Striping or some other attention given in front of the day care center at the Federal Building. Child pick up and drop off times have many families crossing the street and waiting at bus stops.

Provisions for public transit users, such as bus shelters on both sides of the street.

Wayfinding signage for pedestrians, cyclists and drivers to highlight the many great destinations in this area.

Additional public input session before the design is finalized. Given the short timeframe of the current comment period, many stakeholders have not yet had an opportunity to provide valuable input.

Thank you for the opportunity to provide input and for your consideration.

Sincerely,

Renée J. Stetzer

Renee Stetzer

President, Reconnect Rochester

Received from Chris Ley – October 2, 2020

Dear Mr. Bennett,
The State St redesign project between Basin St and Inner Loop looks like a good step in a good direction. I'm excited that the city is taking modernization seriously. I do have a concern that the proposed plan does not quite meet Complete Streets guidance or the 2034 plan. The use of sharrows is something that as a regular commuter cyclist is not adequate. I would love to see protected bike lanes in the plan. However, I understand that these are a big commitment and potentially too tough a sell. However a dedicated cycle lane for both directions would be a good compromise. Haven ridden in this area, the amount of parked cars and 4 lanes for traffic leave no safe room for cyclists and doesn't help Rochester reach 2034. Please consider revising the plan to accomidate the Complete Streets recommendations.

Thank you for your time.

Regards,
Chris Ley

Received from Evan Lowenstein – October 2, 2020

Greetings from Rochester People's Climate Coalition!

Please see attached letter from RPCC Executive Director Abby McHugh-Grifa, regarding the proposed redesign of the State Street corridor in downtown Rochester. Thanks for your time, and have a good weekend!

Evan Lowenstein

Received from Jason Geller – October 2, 2020

Hi,

I am writing with concern about the State Street rehab project. It is definitely super car-centric and as such does not fall in line at all with the ratified Rochester- and really does not satisfy Complete Streets. The proposed design is dangerous to bike on, and dangerous to cross as a pedestrian, and is not a major improvement over what is there. 11 and 13 foot wide lanes for cars? NACTO design standards say no more than 10 feet wide should ever be used because of the danger it presents to both drivers and other road users. Also, there is barely even a bike lane on half of it, and none on the rest. It is 2020, every major street should have bike lanes at least, ideally protected bike lanes. The street has a daily traffic of 17,000 (and that's before COvid-19, which will reduce this number as more people who work downtown work from home permanently), which is well under the 20,000 cars that makes the limit for when a road diet is possible. I have a friend who is a professional transportation engineer in Buffalo and he confirmed to me that this could easily be done on State Street, and it would both make the street safer for car drivers and pedestrians, and make it easier for RTS bus drivers.. as well as leave plenty of room to do full protected bike lanes outside of the parking lanes, just like the East Main street design has. It seems crazy and irresponsible to move forward with such a dated design when there are clearly better alternatives.

Best,

Jason Geller

Received from Scott MacRae – October 2, 2020

October 2nd, 2020

Dear Trusted City Officials and Planners:

Thank you very much for the opportunity to observe your Sept. 30th Virtual State St. Reconstruction Proposal. It was well presented. I was encouraged that it was a good step in the right direction but felt it could be improved considerably for bicyclists. This is a critical North - South route for access to High Falls, MCC and Frontier Field as well as downtown. By now you have probably gotten a slew of emails voicing concerns for bicyclist safety and access. There are many more who have voiced dismay and concern after reviewing the current proposal. Unfortunately, it fails to meet the Rochester 2034 Plan and Complete Streets. As an experienced bike commuter to Strong Hospital and a separate surgical center, I am acutely aware of the dangers of being forced to ride on a sharrow and getting pinched by moving cars or getting doored by parked cars. This proposal does exactly that. Here are some other options others have proposed to me.

Possible Option 1

Convert the 4 lanes to 3 lanes (a “4- to 3- lane conversion”). The Federal Highway Administration (FHWA) recommends 4- to 3- land conversions for Average Daily Traffic (ADT) of 20,000 vehicles or less. The Average Daily Traffic (ADT) on State Street is 17,000 so it meets that criteria. These conversions reduce crash rates, speeds and traffic calm areas making it safer for pedestrians, bikers and motorists. This would allow for three 11 foot lanes, if this is a priority.

Possible Option 2

Maintain the four 10 foot lanes and reduce the (expanded) pedestrian walkways by 1 foot on each side of the street. (similar to old design Slide #8)

Possible Option 3

Remove a parking lane which also provides additional space.

All three possible options would allow for a 5 foot bike lane or better yet 5’ sidewalk Level cyclo track on both sides of State Street for the entire length of the project. This would also improve pedestrian safety and comfort by encouraging bicyclists to ride on a bike lane or cyclo track rather than the sidewalk.

It would serve the community to consider a redesign and an additional presentation of the State Street Plans which better accommodates bicyclist, keeps cyclists off of pedestrian sidewalks and separates them from motorists moving at much higher speeds.

I wish to thank you for your hard work on this project and your kind consideration.

Sincerely,

Scott MacRae MD

Received from Gary Bogue – October 2, 2020

I want to register my thoughts about the State Street Project during the comment period for the Design Report.

As a bicyclist who sometimes finds myself using State Street, I have concerns about the proposed redesign, notably the bicycle infrastructure. As an older bicyclist, I have found the State Street corridor one of the more daunting areas of the city for cyclists. While I do, in fact, ride on State Street, doing so sometimes puts me in fear for my life. Some of the more aggressive traffic in the city uses this area and the current street design puts me at risk among that traffic. The proposed improvements are a step in the right direction but do not go far enough.

Most importantly, I want dedicated bike lanes to be extended the full length of the project. Rochester is already notorious in the cycling community for the city’s "disappearing bike lanes." This project presents an opportunity to make that better and yet full-length lanes are not in the proposal. They need to be. Sharrows simply aren’t adequate on busy streets. Please extend the bicycle lanes the full length of the project. Ideally I would like to see actual protected bike infrastructure, such as cycletracks, but for me extending the proposed bike lanes fully to Main Street is a minimal requirement.

I would also like to support some of the suggestions from Reconnect Rochester to make the project more equitable and support all users, not just those driving automobiles. Specifically, I support moving to a 3-lane design with a central turn lane, which would be safer than the current 4-lane layout without any significant downside. Doing so would also free up additional space that would allow for better sidewalks, street trees and bicycle infrastructure. Also improving the visibility of crosswalks and providing better transit facilities, such as bus shelters, would make State Street into a place where pedestrians want to be rather than an area to be avoided when possible, which is its current status.

Gary Bogue
Rochester

Received from Douglas Kelley – October 4, 2020

Dear Mr. Fekete—
My name is Doug Kelley, and I'm writing with comments on the draft design for the State Street Reconstruction Project that was released on 23 September.

A stated objective of the project is to "implement the City's 'Complete Streets' policy to accommodate all users (vehicles, pedestrians, and bicyclists)." That's fantastic. Unfortunately, this draft design falls short of the objective. Specifically, it doesn't do enough to meet the needs of cyclists.

As a City resident who commutes by bike every day and runs most errands by bike (both year-round), I appreciate the work the City of Rochester is doing to keep Complete Streets in mind. A lot of bike lanes have been painted in recent years. But the really effective routes for cyclists — the kind that will sustain the pandemic-caused spike in cycling, draw residents to the City, and rejuvenate downtown businesses — are separated from motor traffic by more than paint, and make connections among the places people need to go. This draft design does neither.

Including painted bike lanes from Church Street to the Inner Loop is a start, and I appreciate that designers took action to connect Andrews and Church Streets. Those lanes should be upgraded to physically separate cyclists from motor traffic by a curb or barrier. Most cyclists aren't comfortable jockeying with motor traffic on a four-lane road, especially one that has been widened, increasing typical speeds of motor traffic. Those lanes should also be extended the full length of the reconstruction. Just a few blocks south are the heavily-used bike lanes on Exchange Boulevard, which are the primary north-south corridor for cyclists downtown and west of the river. It's essential to connect that corridor to the east-west Andrews-Church corridor. This project could get close.

A design with protected bike lanes spanning the full length of the reconstruction would much better fulfill the Complete Streets objective than the current design ever could.

Thanks for your time and work on this project.

—Doug

Received from John Joseph – October 7, 2020

Sorry, I know this is late, but I only just saw that there was to be reconstruction.

I travel State St frequently, while I appreciate the bike lanes for part of the project area, not including bike lanes for the entire project is unwise and unsafe. Sharrows have been shown to actually increase danger to cyclists. https://www.bloomberg.com/news/articles/2016-02-05/study-sharrows-might-be-more-dangerous-to-cyclists-than-having-no-bike-infrastructure

Sharrows are not bike infrastructure. I'm sure you all have the traffic and speed data to tell you sharrows are not fit for State St. If you think they're enough, I'll gladly meet you for a ride down State during rush hour. I'm sure your opinion will change.

I would also suggest reconfiguring the project so that the parking buffers the bike lanes from the street and the bike lanes and parking buffer the sidewalk from traffic. This will make a much more enjoyable environment for everyone. Bike lanes have been shown to be a positive for businesses, so not only will protected bike lanes fit in with the 2034 plan, it is good for businesses. Without some measure of protection, I am fearful the bike lanes will become double parking/loading areas.

John Joseph

APPENDIX H

Miscellaneous

GPR Inspection of State Street

City of Rochester, New York

May 12, 2020

Prepared for:

Richard Bennett, PE
LaBella Associates |Senior Transportation Engineer
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Prepared by:

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PENETRADAR

Summary

A GPR inspection was conducted on State Street in Rochester, NY on April 2, 2020. The focus of the survey included the detection of possible locations of subsurface, covered areaways adjacent to buildings on State Street. The survey scope also included the detection of abandoned sewer lines in the State Street right of way and to locate sinkholes or subsurface voids in the State Street and Corinthian Street intersection. A 300MHz IRIS Man-portable GPR was used for the survey, with a depth range greater than 10 feet.

The survey detected what appeared to be possible areaways in several locations. These locations were identified and reported later in this report. Possible sewer lines were also identified within State Street pavement which were provided and plotted onto plans. No voids or sinkholes or evidence suggesting the past presence of sinkholes were detected in the State Street and Corinthian Street intersection.

General GPR Theory

High resolution, ground penetrating radar, see Figure (1), operates in a manner that is analogous to acoustic sounding. A short pulse, high resolution, ground penetrating radar emits precisely timed, very short radio frequency (RF) pulses of low power, repeated at a very high rate. The transmitted pulse is radiated downward by the radar antenna into the ground. A portion of the RF energy is reflected wherever there exists a change or discontinuity in the propagation medium, while the remaining energy is coupled through the boundary. The amplitude of the reflected signal and its complement which passes through a boundary depend on the difference between the relative dielectric constants of the materials at the boundary. RF reflections or radar target echoes are picked up by the antenna, coupled into the receiver and processed for display, recording and detection.

GPR determines thickness or depth of materials by measuring the time required for the radar wave to travel through the material (transit time) along with the velocity at which it travels, (propagation velocity). The time of occurrence of echoes from the top and bottom surfaces of a material layer provide a measure of the signal transit time through the material, while the dielectric constant of the material, which is based on reflected signal amplitude measurement, determines the wave velocity. In air or free-space the velocity is essentially equal to the speed of light but in solid, non-metallic materials, the velocity is reduced based on the square root of the dielectric constant.

GPR detection of subsurface objects utilizes waveform signature analysis. In contrast to the measurement of layer depth, where the echo from the layer interface appears to the GPR as a time-stationary reflector at fixed range, a subsurface object is identified by a unique phase independent, time variant signature that can be identified either visually or by automated algorithms. While the scattering properties of the subsurface object may depend upon several factors, including size and shape of the object, angle of incidence and bandwidth of the illuminating wave, the primary feature that is exploited in this case is the time-variant nature of the reflection. When observed in a radar depth profile, the subsurface objects appear as a “hyperbolic” shaped image in the radar subsurface profile resulting from the variable distance to the object as the radar antenna is transversely scanned over it. This method can be used to identify discrete subsurface objects as well buried pipes including sewer lines.

Figure (1). 300MHz IRIS GPR used for State Street Inspection

State Street Sewer Location

For detection of subsurface pipes and sewer lines it is necessary to scan transverse to the direction of the pipe or sewer line. Generally, a deep sewer line can be detected – provided that it is within the depth range of the GPR - as the GPR antenna is scanned across it and can be observed in the radar depth profile by a characteristic "parabolic" return. While the objective of this inspection was to detect abandoned sewer lines that were believed to exist along the length of State Street, no other information regarding the depth, size or location was known at the time of the survey. Detection of sewer lines is possible with GPR but is often made difficult due to past ground disturbances or excavations and other competing buried utilities.

For this survey, sixteen GPR scans, labelled S0 through S15, were made across State Street pavement in a transverse direction from west to east. Each transverse pass was approximately 50 feet in length and spaced 100 feet apart. The first transverse pass was made 33 feet south of the Basin Street center-line and the last pass was approximately 1400 feet north. Penetradar's color profile software was used to identify potential targets as shown in Figure (2). From the color profile software, the location and approximate depth can be determined.

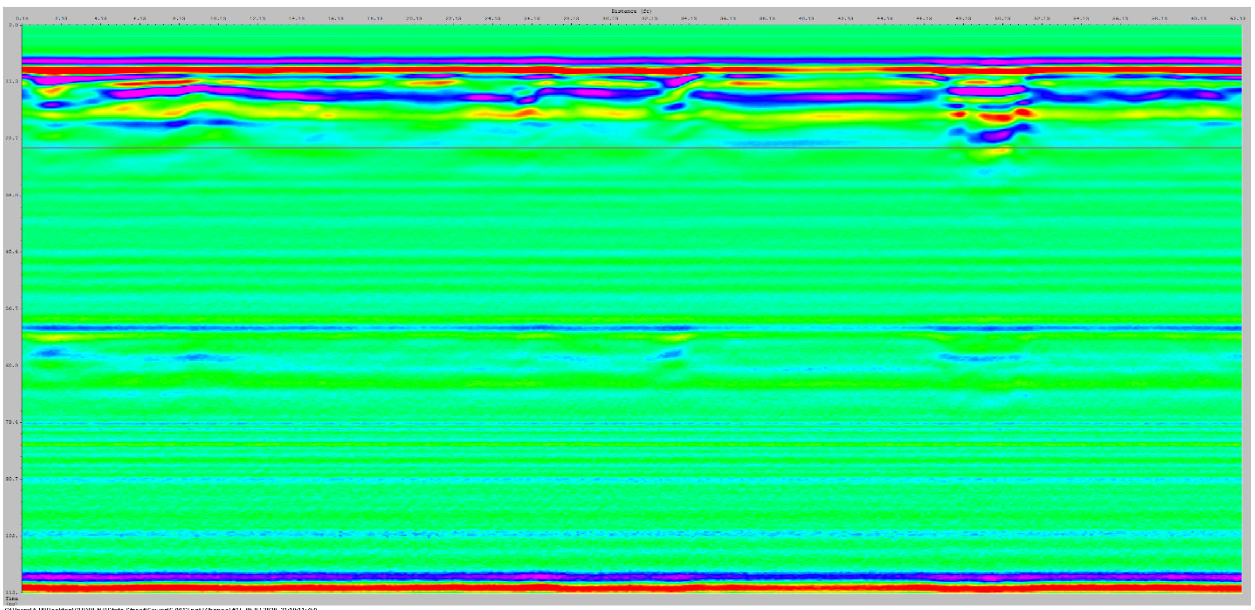

Figure (2). Radar profile plot of pass S13 (1300 feet north of Basin Street centerline). Detections are shown at 33 feet and 50 feet.

The detections are listed in Figure (3), showing each GPR pass (S0 – S15), the transverse location of the detection and approximate depth in inches. From this information, possible sewer track location and direction was determined by connecting the detections, as shown in Figure (4). Solid lines show the linear (point to point) track between two measured detections while dashed lines show a possible track. It should be stated that we cannot assure that these detections represent the location of the abandoned sewer lines, or those currently in service or some other disturbance. It is recommended that additional verification be performed based on this information.

	R A D A R D E T E C T I O N S (Depth In Inches)															
Distance (ft)	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
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1																
2																
3												60				
4																
5						57										
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Figure (3). Radar detections of possible sewer line locations. Each pass, S0-S15, are made from west to east across State Street. Distance from west curb and approximate depths are shown

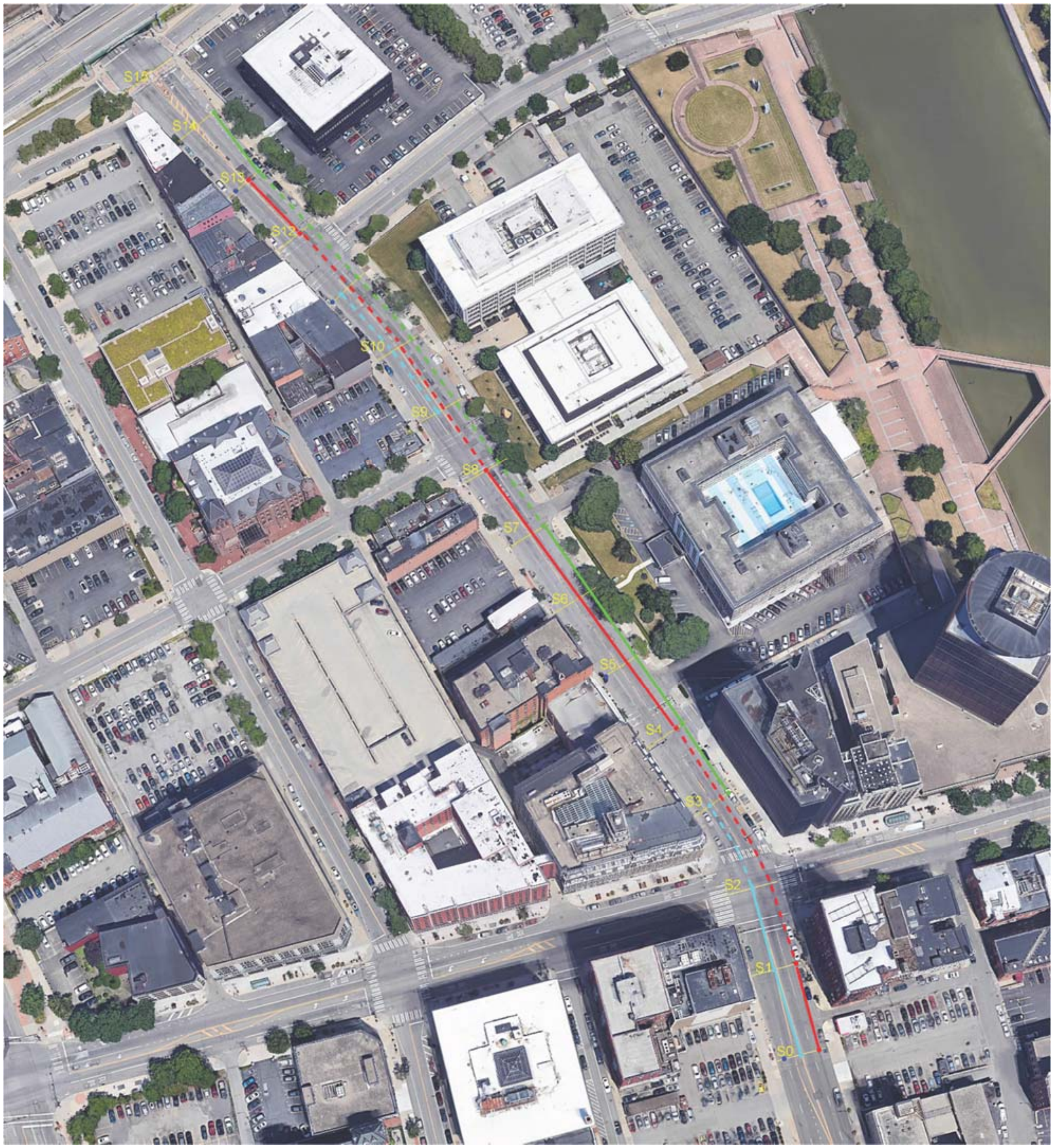


Figure (4). Radar detections of possible sewer line locations. Each pass, S0-S15, are made from west to east across State Street. Possible locations of sewer lines are shown.

Sinkhole Location (Corinthian and State Street)

A detailed inspection was conducted at the intersection of State Street and Corinthian Street to locate underground voids and sinkholes. Voids can occur under pavements, and often result from settlement of materials, washouts due to water flow or slab pumping. With rigid concrete pavements voids often appear directly under the slab, however, with asphalt pavements, they may not persist for any length of time due to the flexible nature of asphalt pavement and the non-rigid characteristics of the underlying gravel and soil layers. In these cases, subsurface voids can "translate" to the surface and often appear as a depression in the surface layer. While the problem may appear at the surface, the cause of the problem is sometimes further down.

To address this, our inspection of the State and Corinthian Street intersection examined several depths under the pavement. The inspection included an area of approximately 125 feet x 55 feet at the intersection of Corinthian and State Streets as shown in Figure (5). Twenty-five GPR scans were made spaced five feet apart, across the pavement lanes (in the transverse direction) from west to east. Analysis of the data were performed at seven depths to identify voids or other anomalies such as saturated layers. Mappings were produced at each depth corresponding to approximately 7 inch, 12 inch, 20 inch, 33 inch, 52 inch, 90 inch, 165 inch shown in Figures (6a) – (6g).

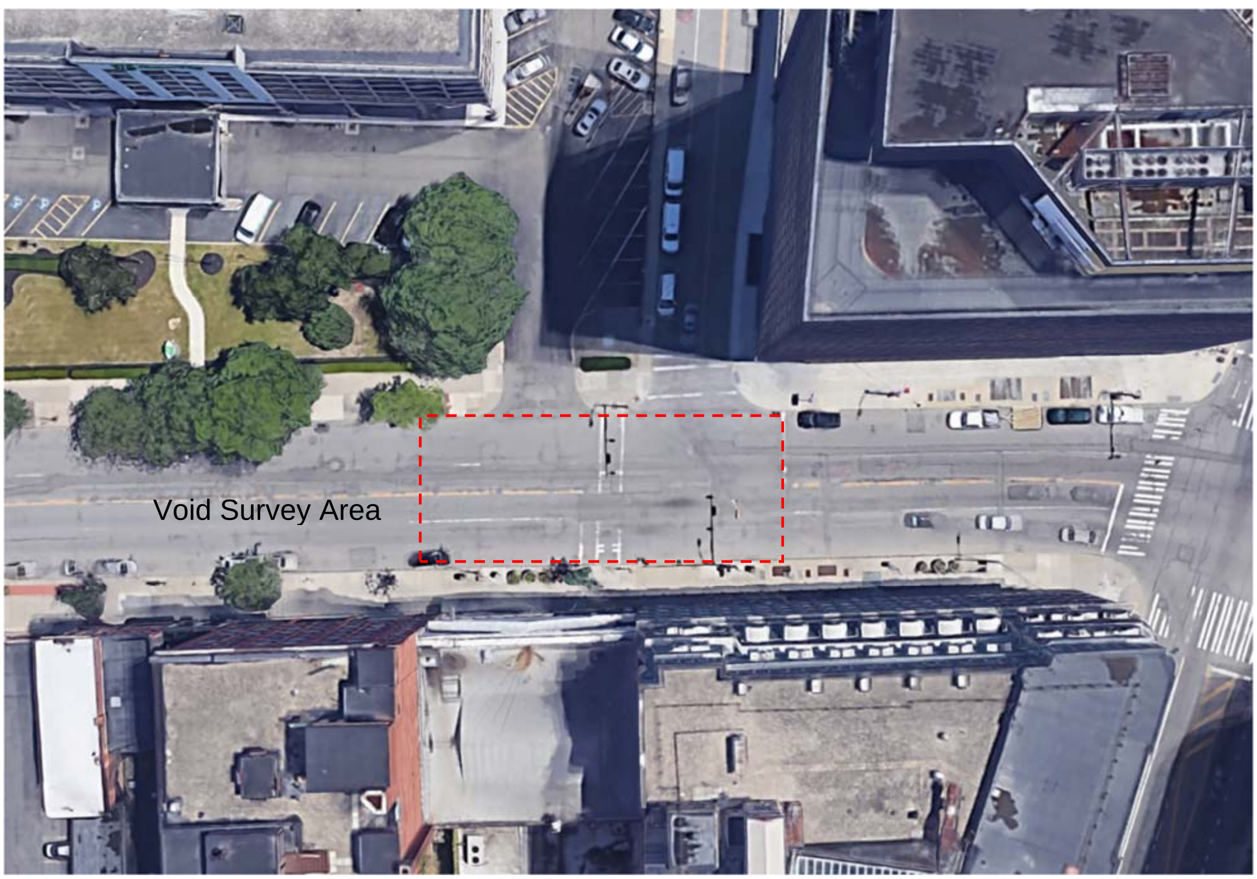


Figure (5). Location of sinkhole inspection at intersection of Corinthian and State Street

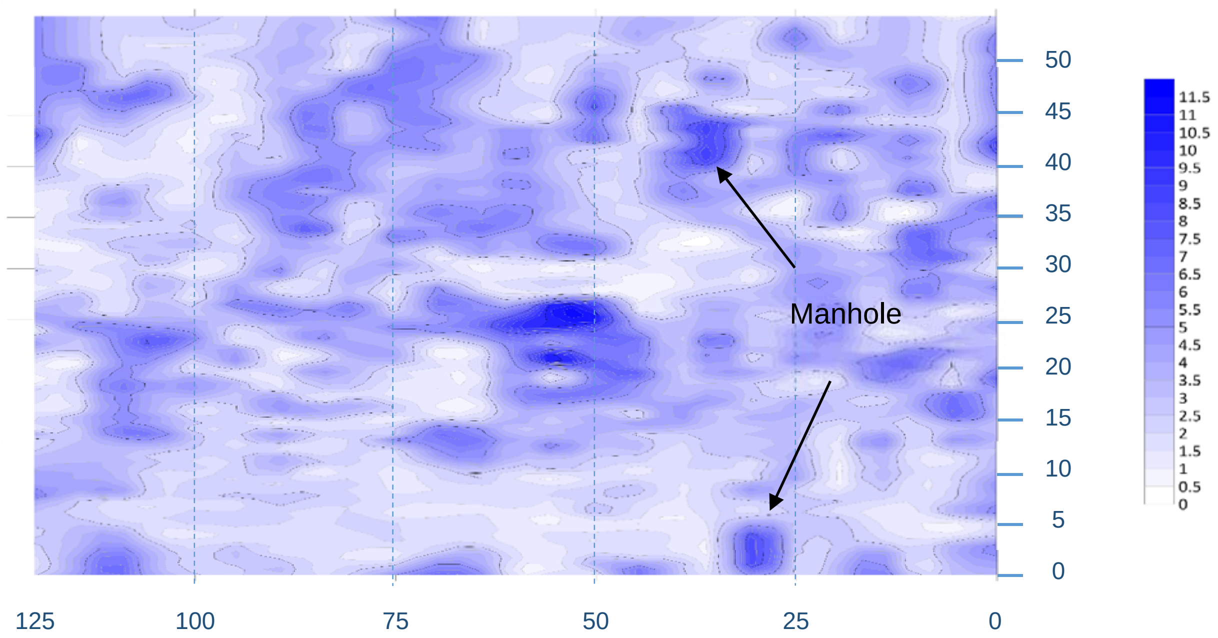


Figure (6a) Void Survey – State & Corinthian St (Pt144 – 2.5ns layer) 7 inch depth

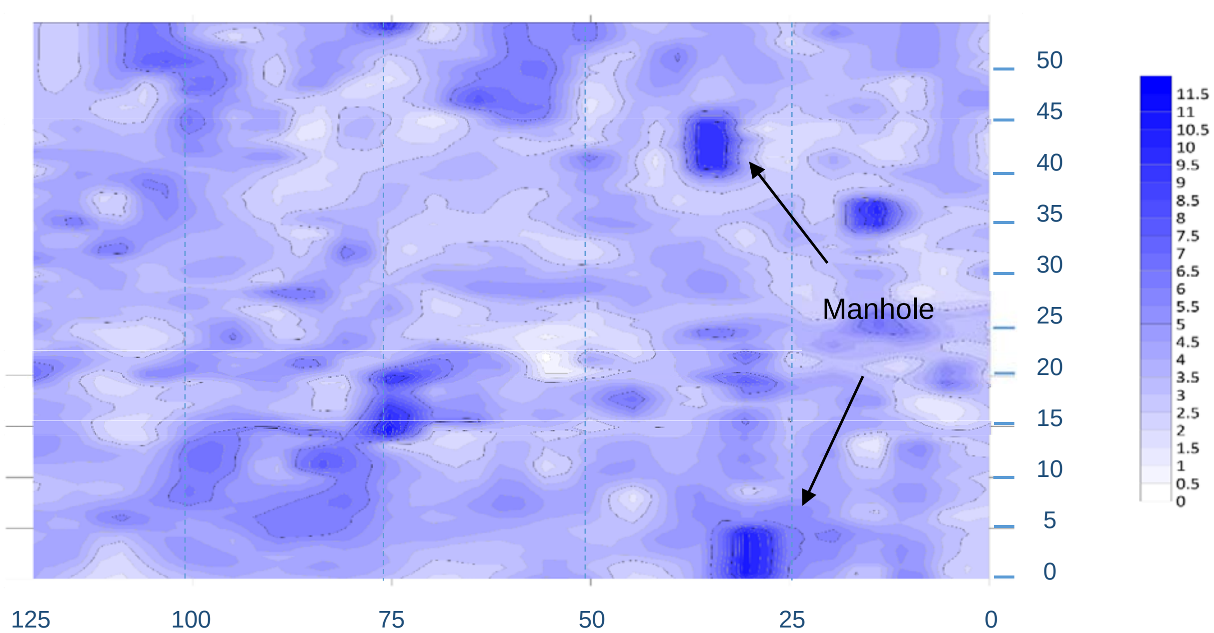


Figure (6b) Void Survey – State & Corinthian St (Pt176 – 5.6ns layer) 12 inch depth

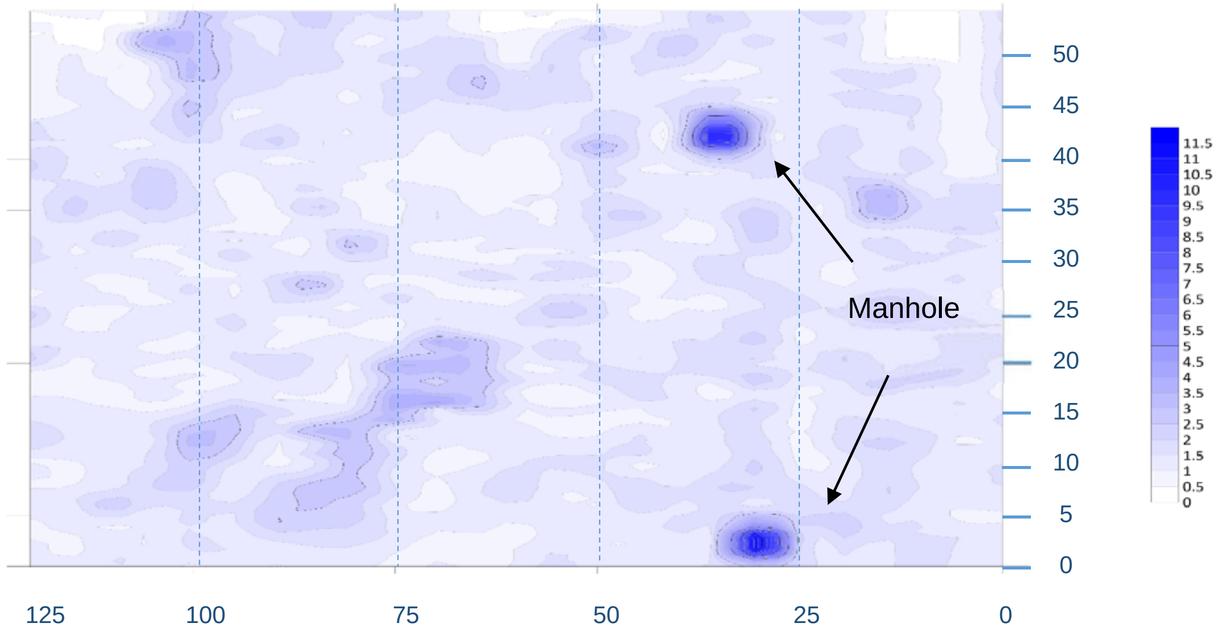


Figure (6c) Void Survey – State & Corinthian St (Pt224 – 10.0ns) 20 inch depth

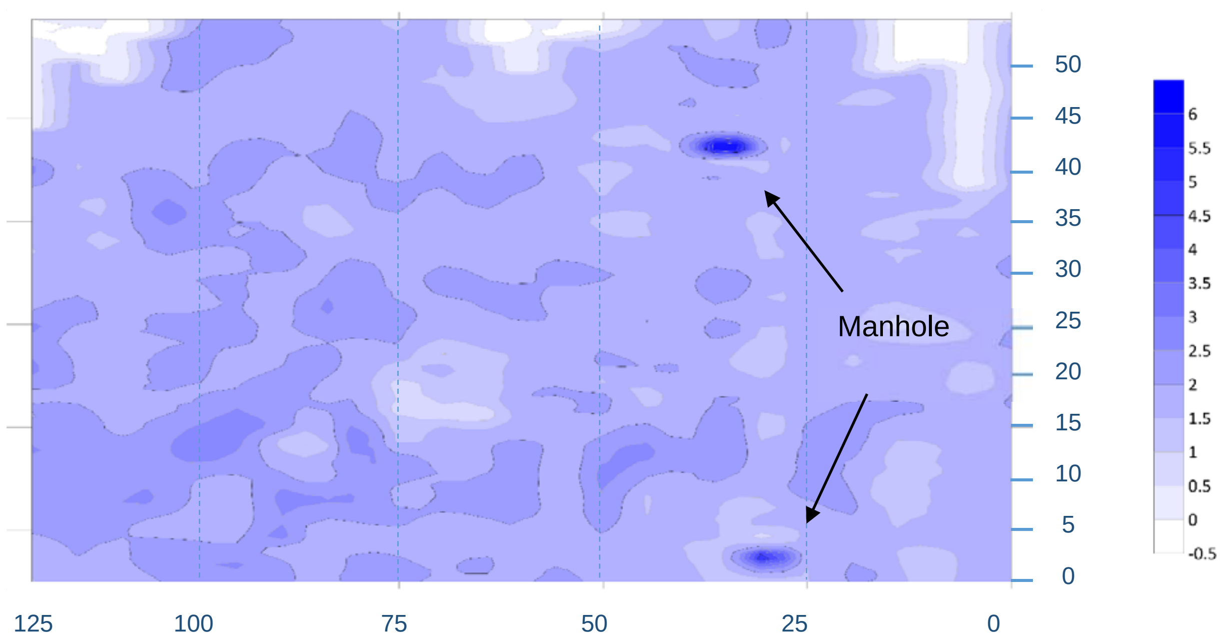


Figure (6d) Void Survey – State & Corinthian St (Pt288 – 16.0ns) 33 inch depth

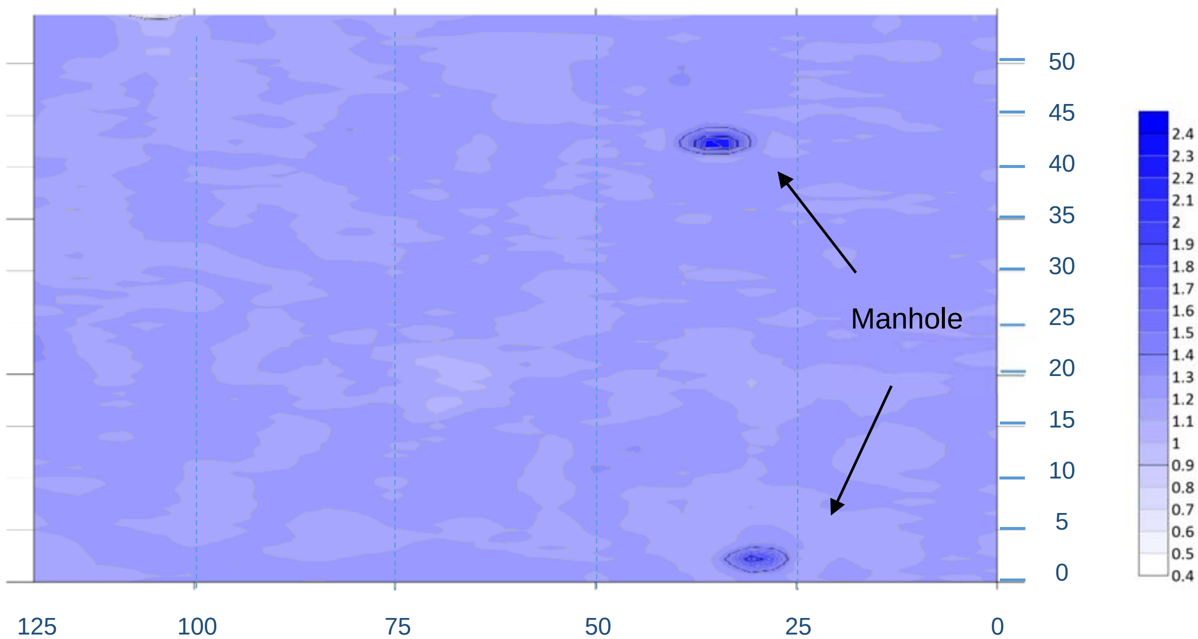


Figure (6e) Void Survey – State & Corinthian St (Pt384 – 25.2ns) 52 inch depth

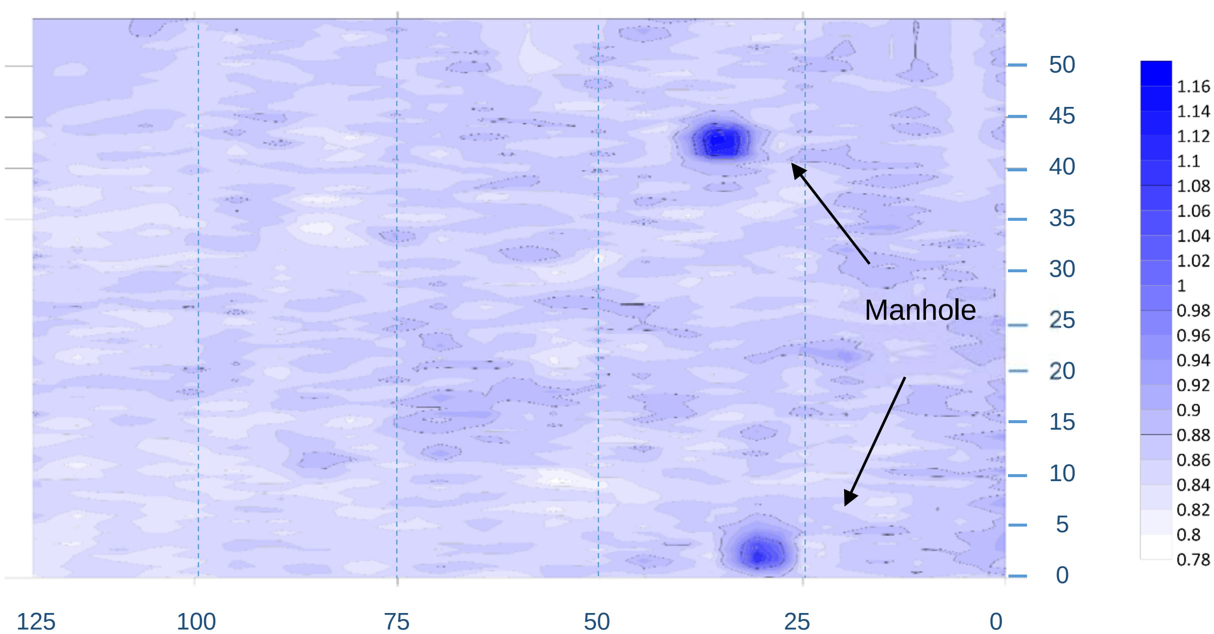


Figure (6f) Void Survey – State & Corinthian St (Pt576 – 43.5ns) 90 inch depth

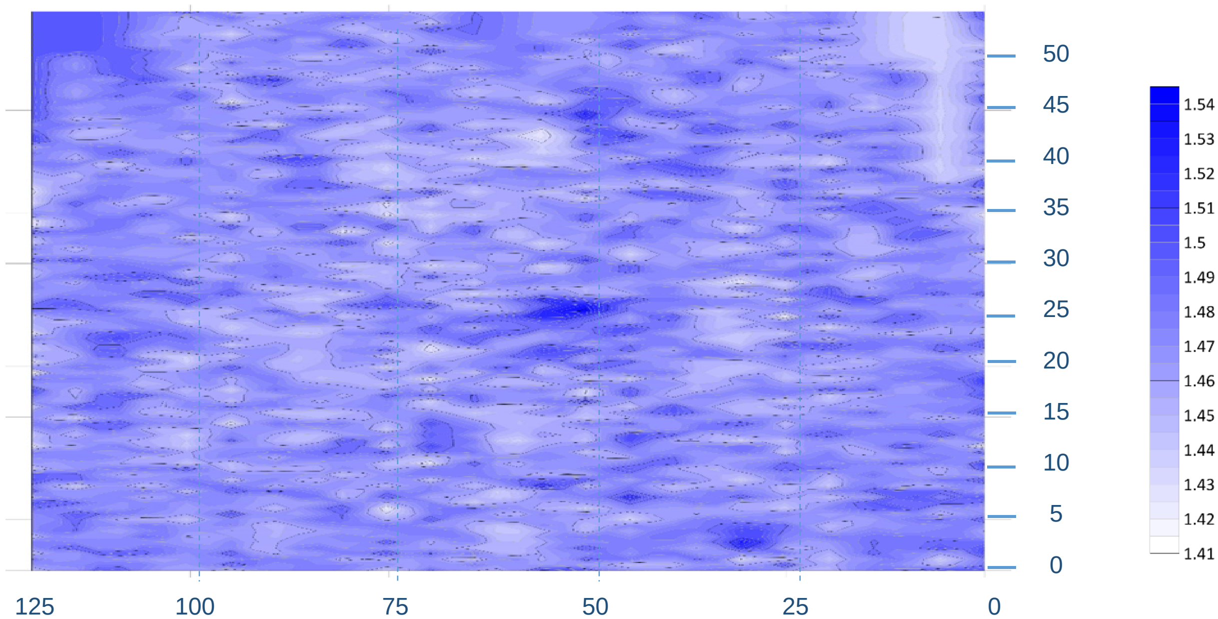


Figure (6g) Void Survey – State & Corinthian St (Pt960 – 80ns) 165 inch depth

Minor anomalies were observed in the mappings, such as metal man-holes in several of the mappings. Based on the results of this inspection we can conclude that there were no voids or sinkholes present at depths down to approximately 13 feet and no evidence suggesting the presence of sinkholes or voids, or an occurrence that could cause those effects.

State Street Areaways

GPR scans were made on sidewalk areas along State Street in Rochester, NY to locate abandoned areaways, as shown in Figure (7). A 300 MHz portable GPR was used which has a depth range greater than 10 feet. Six GPR scans (passes) were made in close proximity to the buildings, as follows:

Pass 1 - From Allen St to Parking Lot before Church
Pass 2 - From Dunkin to Church St
Pass 3 - From Church St to W. Main St
Pass 4 - From W. Main St to Parking Lot before W. Broad
Pass 5 - From Basin St to E. Main St
Pass 6 - From E. Main St to Corinthian St

Areaways are subsurface service entrances to buildings, primarily used for access to building basements for delivery of goods or historically to deliver coal. While areaways are generally no longer in use and have largely been abandoned, for this project it was assumed that the areaways, if present, were in close proximity to the building and under the sidewalk area. If the areaway had not been filled in, it was also assumed that a hollow chamber existed under the sidewalk with the opening covered by the concrete sidewalk slab.

From the standpoint of GPR data analysis, the areaway could be observed as a voided area at some depth below the surface. An air-void or chamber that results can be detected by GPR based on identification of the radar return signal that results from the physical interface to the void, provided that it is within the depth range of the radar.

Since there are many unknowns, such as the structure and extent of the areaway, whether it was fully filled or voided, and the material used to span the areaway – metal, wood, etc., our analysis identified all instances of voids beneath the surface regardless of size, extent and depth, and also identified locations were strong subsurface metallic reflections were observed in the event that metal plating was used to span the opening. Because of these unknowns it is recommended that all possible areaway locations presented here are verified by an alternate means prior to construction.

The location and extent of the possible areaways or voids are shown in the Table (1). Start and end locations are provided along with length of the detection and the approximate depth. A photo is also provided showing the approximate location of the detection in-situ. For accurate location it is recommended that independent distance measurements are made. All data were collected starting at the edge walls of buildings and within five feet of the face of the building where possible.

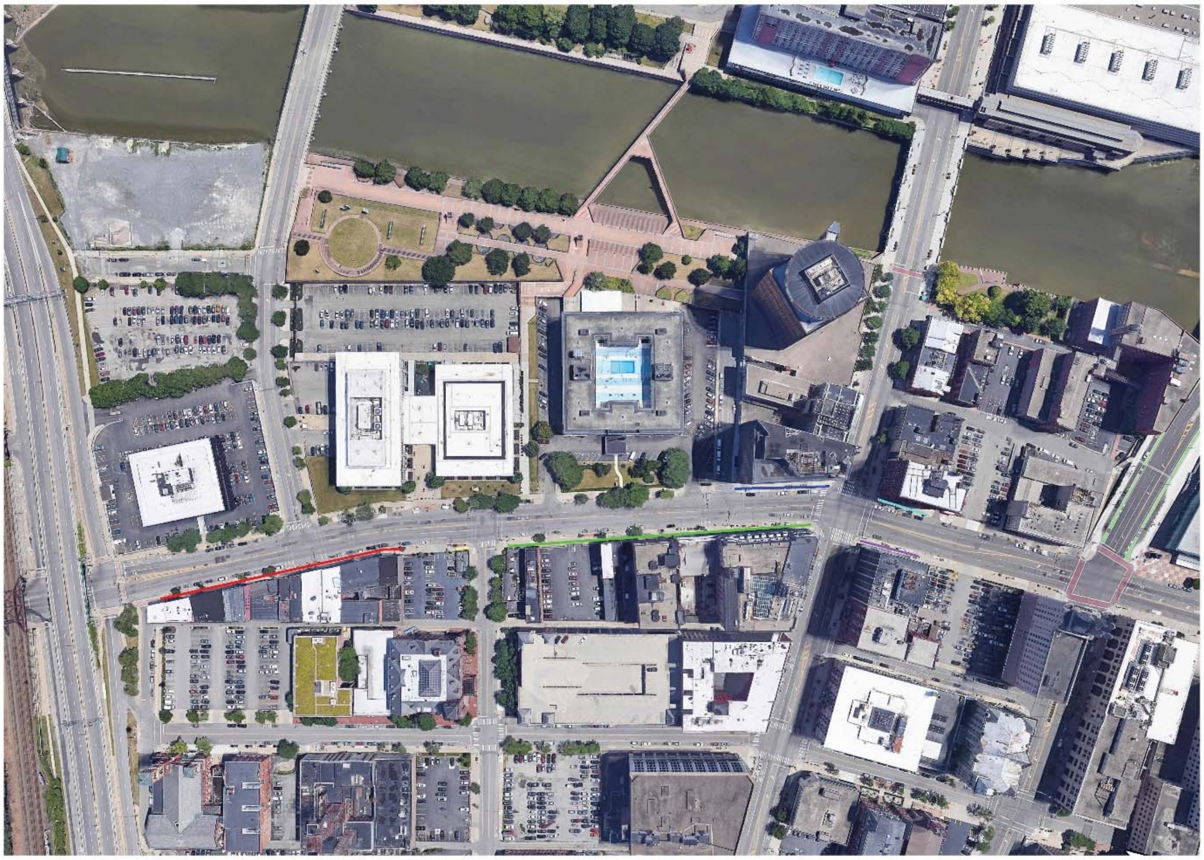


Figure (7). Areaway Survey Locations

Areaway Passes

Pass	From	To
1	Allen St	Parking Lot before Church
2	Dunkin	Church St
3	Church St	W. Main St
4	W. Main St	Parking Lot before W. Broad
5	Basin St	E. Main St
6	E. Main St	Corinthian St

State Street Areaways

Pass	From	To	Length (ft)
1	Allen St	Parking Lot before Church	443-0
2	Dunkin	Church St	20-5
3	Church St	W. Main St	539-8
4	W. Main St	Parking Lot before W. Broad	112-7
5	Basin St	E. Main St	106-5
6	E. Main St	Corinthian St	155-3

Pass	Start (ft)	End (ft)	Length (ft)	Depth (in) approx	Photo	Comments
Southbound						
1	82.9	90.8	7.9	27	1	Deep void or chamber
1	168.8	177.4	8.6	16	2	Void or low dielectric material
1	195	197	2	15.5	2	Void or low dielectric material
1	214.9	219.8	4.9	15	3	Void or low dielectric material
1	226	228.9	2.9	20		
1	238.8	243.7	4.9	16	3	Deep void or chamber
1	245	249	4	15	3	Deep void or chamber
1	250.3	257.9	7.6	17	3	Deep void or chamber
1	261.5	267.5	6	16	4	Deep void or chamber
1	273	277	4	16	4	void or metal
1	278	281	3	16	4	void or metal
1	288	289	1	15		Void or low dielectric material
1	290.5	292	1.5	28	4	Void or low dielectric material
1	295	299	4	28	4	Void or low dielectric material
1	346	352	6	16	5	Deep void or chamber
1	374.5	379.5	5	15	5	Metallic reflector
1	382	383.5	1.5	13	5	Void or low dielectric material
1	429.5	441	11.5	14		Void or low dielectric material
2	0	4	4	16	6	Deep void or chamber
3	305	319	14		7	Metallic reflector
3	408	467	59		8	Metallic reflector
3	476.5	479	2.5		8	Metallic reflector, Reinforced PCC 475 ft to end
4	2	6	4		9	Metallic reflector
4	8	23	15		9	Metallic reflector
4	27	29	2		9	Metallic reflector
4	32.5	34.5	2		9	Metallic reflector
4	43	52	9		9	Metallic reflector
4	54	84	30		9	Metallic reflector
4	86	90	4		9	Metallic reflector
Northbound						
5	50	62	12		12	Metallic reflector
5	95	104	9	16	13	Void or low dielectric material
6	30	42	12	23	10	Void or low dielectric material
6	78.5	85	6.5	27	11	Void or low dielectric material
						Reinforced PCC throughout Pass 6

Areaway Photos

Possible Areaway locations and detections are shown by red markings on pavement.

Photo 1 150 State St

Photo 2

142 State St

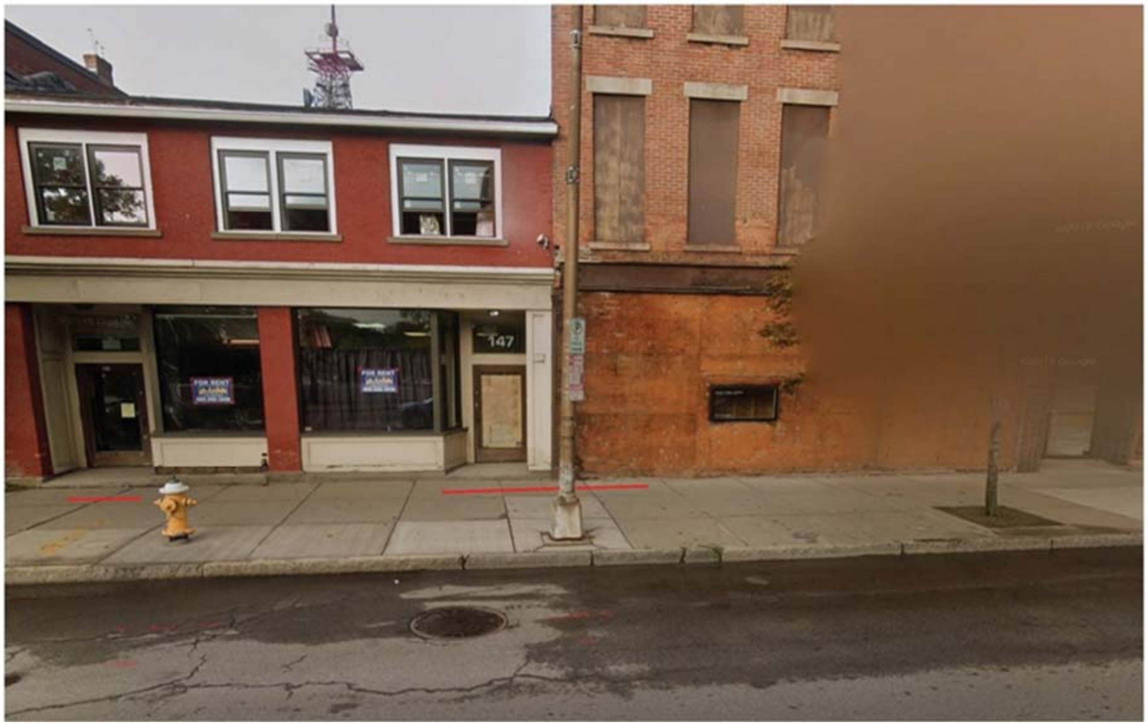


Photo 3

141 State St

Photo 4

133 State St

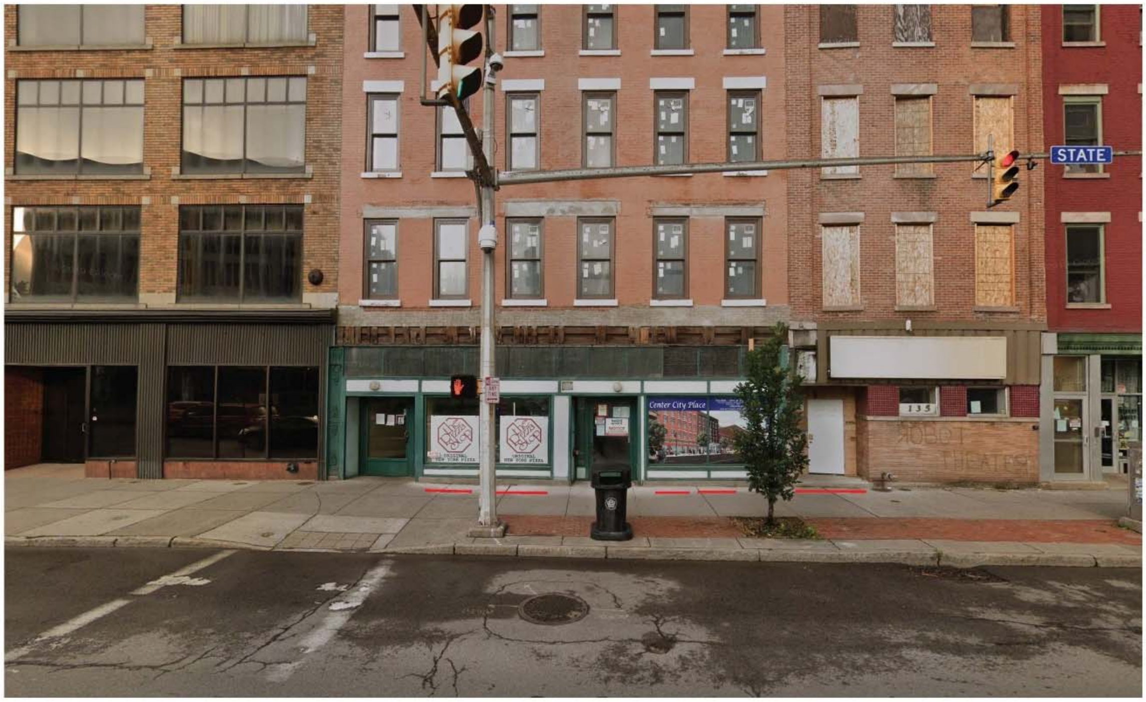


Photo 5

119 State St

Photo 6

89 State St

Photo 7

37 State St

Photo 8

30 State St

Photo 9

8 Exchange Blvd

Photo 10

2 E Main St

Photo 11

30 State St

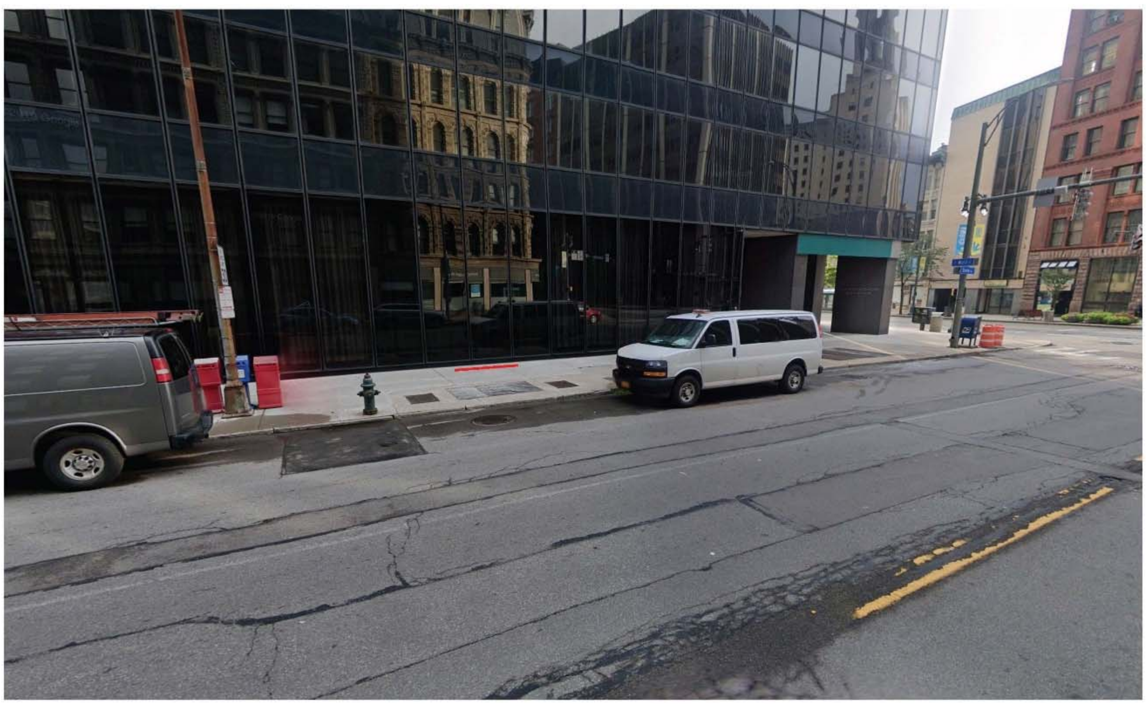
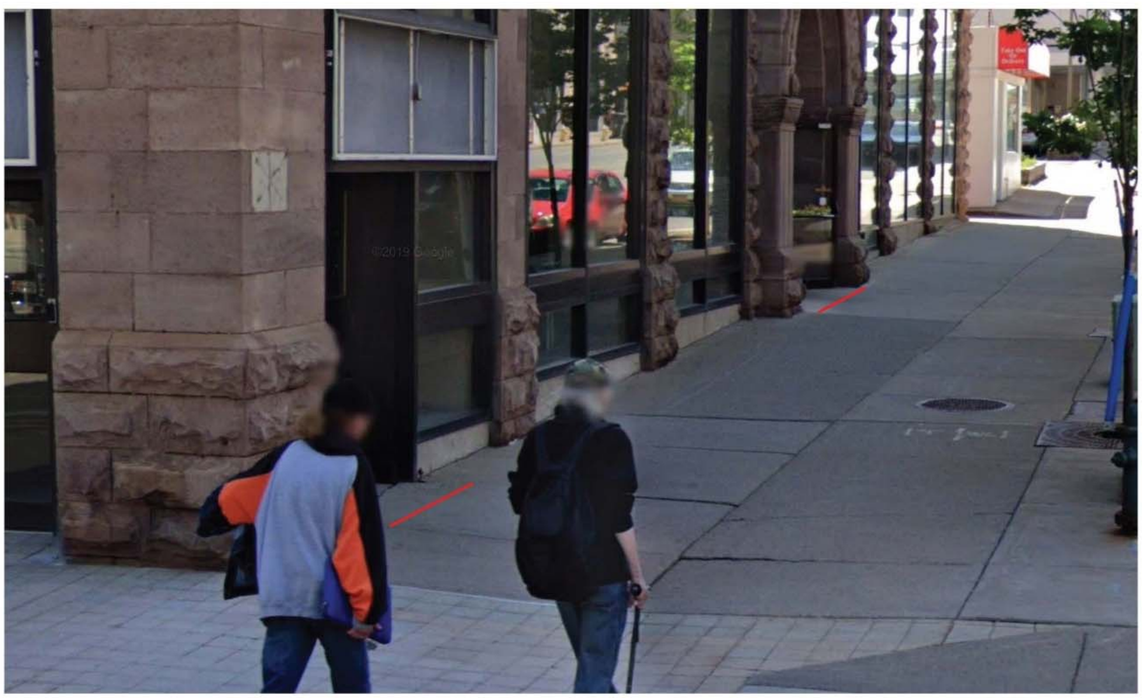


Photo 12

8 Exchange Blvd

Photo 13

E Main St



APPENDIX I

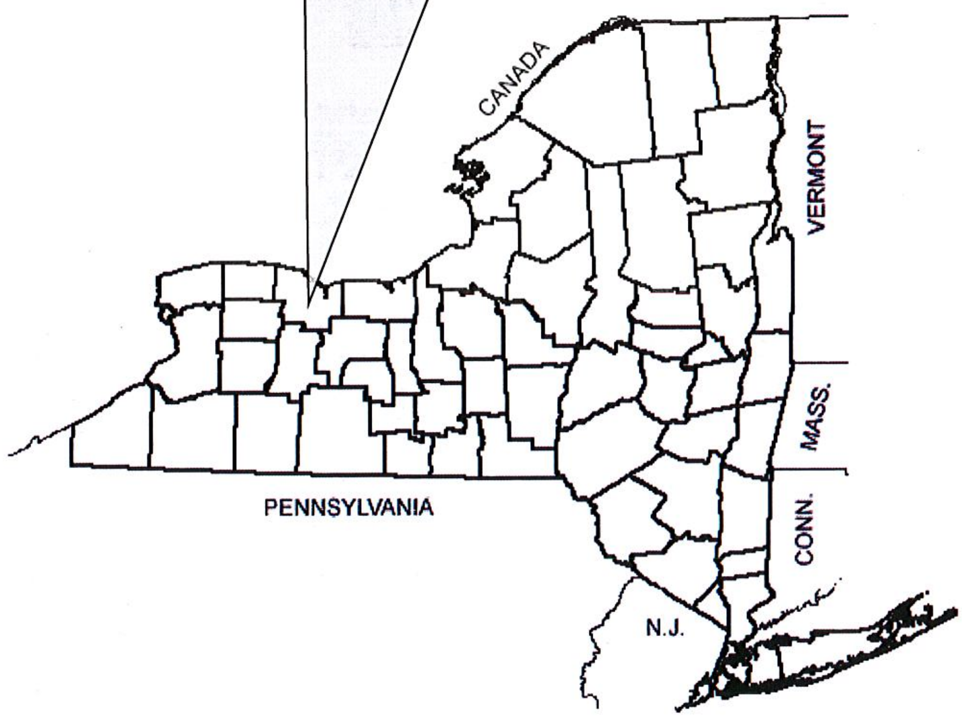
Project IPP

TRANSPORTATION PROJECT REPORT

INITIAL PROJECT PROPOSAL

August 2018

State Street Reconstruction
(Basin Street to Inner Loop)
PIN 4CR0.06
City of Rochester
Monroe County



NEW YORK STATE OF OPPORTUNITY. | Department of Transportation

ANDREW M. CUOMO
Governor

PAUL A. KARAS
Acting Commissioner

U.S. Department of Transportation
Federal Highway Administration

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PROJECT APPROVAL SHEET

Milestones	Signatures	Dates
A. Recommendation for IPP Approval:	The project cost and schedule are consistent with the Regional Capital Program. Regional Program Manager	8/20/18
B. IPP Approval:	The project is ready to be added to the Regional Capital Program and project scoping or preliminary design can begin. Regional Director	8/21/18

PIN: 4CR0.06

PROJECT NAME: State Street Reconstruction (Basin Street to Inner Loop)

MUNICIPALITY: City of Rochester

COUNTY: Monroe

ROUTE/SH #: N/A

BIN(s): N/A

LIMITS: State Street from Basin Street to the Inner Loop
Mile Points: 147746011 0.00 to 0.26 & 146797011 0.95 to 0.95

PROJECT LENGTH: 0.29 Miles

FEDERAL AID SYSTEM: NHS **FUNCTIONAL CLASS:** Principal Arterial -Other (14)

EXISTING AADT: 17,629 (2013)

EXISTING CHARACTERISTICS OF CONCERN: State Street is one of the oldest streets in the city. According to City records, the street has not been fully reconstructed in over 120 years. The existing asphalt pavement is largely laid over an 1894 concrete base. Water main breaks and a collapsed sewer pipe are further contributing to pavement failure. Full depth reconstruction is need to address these issues on a more permanent basis. The corridor is also host to a PIL likely resulting from the constrained width and heavy usage of the street. Lastly, the outdated streetscape is not appropriate for this primary, historic downtown street. The condition of the sidewalks, streetlights, and landscaping contributes to disinvestment.

Table A – Existing Characteristics of Concern	
Element	**Measure / Indicator**
Surface Rating	Condition Rating = 6 (in 2015)

PROJECT OBJECTIVE(S): Full depth reconstruction of the roadway will improve the ride quality and reduce ongoing maintenance costs. The proposed minor widening will give additional room for traffic to maneuver within this constrained downtown corridor. The planned streetscape enhancements will help generate investment in adjacent properties, resulting in new businesses and higher tenancy within the corridor.

PROJECT ELEMENT(S) TO BE ADDRESSED:

- ☒ Highway Element-Specific
- ☐ Bridge Element-Specific
- ☐ Other:
- ☐ Operational Maintenance
- ☐ Where & When

DESCRIPTION OF PROPOSED WORK: Reconstruct the segment of State Street from Basin Street (just south of West Main Street) to the Inner Loop in Downtown Rochester. The proposed project consists of full depth pavement reconstruction, a minor widening to enhance traffic safety and efficiency, curb modifications including bump outs at intersections, new enhanced sidewalks, improved drainage, and context sensitive street lighting and landscaping.

PRIORITY RESULTS: ☒ Mobility & Reliability ☐ Safety ☐ Security
☐ Economic Competitiveness ☐ Environmental Stewardship

FUNDING SOURCE: ☐ 100% State ☒ Federal

PROJECTED ENVIRONMENTAL PROCESS:

SEQRA Type:
☐ Exempt
☒ Type II
☐ Non-Type II ☐ EA or ☐ EIS

NEPA Class:
☒ Class II – Categorical Exclusion (CE)
☐ Class III – EA
☐ Class I – EIS
☐ N/A – Project is 100% State funded

ATTACHMENTS:

The following Checklist(s) will be completed during preliminary design:
☒ Federal Environmental Approvals Worksheet (FEAW)
☒ Regional Environmental Scoping Checklist

MPO INVOLVEMENT: ☐ No ☒ Yes

TIP Name: State Street Reconstruction (Basin Street to Inner Loop)

TIP No.: H17-78-MN1

TIP AMENDMENT REQUIRED: ☒ No ☐ Yes; Needed by:

STIP STATUS: ☒ On STIP ☐ Not on STIP

NOTES ON SPECIAL CIRCUMSTANCES:
Scoping, design, and construction are to be administered by the City of Rochester. The sponsor's project manager is Kamal Crues, City Engineer, 585-428-6828.

SPECIAL TECHNICAL ACTIVITES REQUIRED:
A State-Local agreement will be required to allow for reimbursement of sponsor expenditures consistent with the applicable Federal Aid Program. A safety screening will be conducted during preliminary engineering.

PLANNED PUBLIC INVOLVEMENT: A Public Involvement Plan will be developed during the preliminary design phase and will be implemented throughout final design and construction.

WORKZONE SAFETY & MOBILITY:

The Region has determined that this project not significant per 23 CFR 630.1010.

A Transportation Management Plan (TMP) will be prepared for the project consistent with 23 CFR 630.1012. The TMP will consist of a Temporary Traffic Control (TTC) plan. Transportation Operations (TO) and Public Information (PI) components of a TMP will be considered during final design.

PROBABLE SCHEDULE AND COST: Scoping/Preliminary engineering will begin in the fall of 2018. The schedule is tentative based on funding availability; it is possible to accelerate or delay, although ROW acquisition will dictate the extent of a possible acceleration. The current schedule is to have Final Design begin in July of 2020. The PS&E would be in October 2021 for a bid opening in January 2022. The contract award would be in February 2022 with construction completed in the fall of 2022.

DESIRED LETTING: 1/2022

DESIRED CONSTRUCTION COMPLETION: 10/2022

SCHEDULE ISSUES:

- ☒ Public Meeting
- ☐ Permits
- ☒ Other – ROW Acquisition
- ☐ 4(f)/106 FHWA sign-off
- ☐ Consultant(s) for:

Table B – Schedule and Cost

Project Phase	Activity Duration	Estimated Cost	Fund Source	Obligation Date
Scoping	1 month	$25,000	NHPP	9/2018
Design I-IV	9 Months	$173,000	NHPP	9/2018
ROWI	4 Months	$56,000	NHPP	9/2018
ROWA	*	$182,000	*	*
Design V-VI	*	$412,000	*	*
Construction	*	$5,564,000	*	*
Construction Inspection	*	$945,000	*	*
TOTAL ESTIMATED COST		**$7,357,000**		

* "Seed Project" funded for Engineering phases and ROWI only. Project anticipated to be included in the 2020-2023 TIP Development process with GTC.

BASIS OF ESTIMATE: Sponsor's TIP Application

PROGRAM DISPOSITION: Scheduled for letting in SFY 2022

PROJECT CATEGORY: ☒ Simple ☐ Moderate ☐ Complex

STATEWIDE SIGNIFICANCE: ☒ No ☐ Yes

PUBLIC FRIENDLY DESCRIPTION OF PROJECT: The project involves the reconstruction of the segment of State Street from Basin Street to the Inner Loop in the City of Rochester, Monroe County. The proposed project consists of full depth pavement reconstruction, a minor widening to enhance traffic safety and efficiency, curb modifications, new sidewalks, improved drainage, and context sensitive street lighting and landscaping.

PROJECT MANAGER/JOB MANAGER: Rick Papaj

FUNCTIONAL AREA(S): Local Projects Unit

PHONE(S): 585-272-3410

IPP PREPARED BY: Lora Leon (for the City of Rochester) **DATE:** 8/20/18

CITY OF ROCHESTER
2017-2020 Transportation Improvement Program (TIP)
Project Application - State St