TRANSPORTATION PROJECT REPORT

FINAL DESIGN REPORT

PIN 4753.77

WESTFALL ROAD IMPROVEMENTS
PHASE III

MONROE COUNTY

July 2009

MONROE COUNTY DEPARTMENT OF TRANSPORTATION
CITY PLACE, SUITE 6100
50 WEST MAIN STREET
ROCHESTER, NEW YORK 14614

UNITED STATES
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
DAVID A. PATERSON, Governor **STANLEY GEE Acting Commissioner**

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I. INTRODUCTION

Westfall Road, CR 239, from East Henrietta Road to Lac-de-Ville Boulevard, is classified as an Urban Minor Arterial located in the City of Rochester and the Town of Brighton. Its primary function is to serve commuting east-west traffic and local residents, businesses, and one church.

Figure I-1 Westfall Road Looking East

The project is 1.2 miles long. There are seven intersecting streets, including East Henrietta Road, Green Knolls Drive (West and East), Metropolitan Drive, Sawgrass Drive, Haudenosaunee Trail, South Clinton Avenue, and Lac-de-Ville Boulevard.

This report will assess existing conditions, identify the overall project objectives, analyze potential alternative solutions, and discuss the social, economic, and environmental effects on the community resulting from the implementation of the preferred alternative.

This project would be funded through the Transportation Improvement Program (TIP) with Federal, State, and local funds which, in total, would be administrated by Monroe County, New York.

This project will be progressed as a ***Class II action*** under the United States Department of Transportation (USDOT) National Environmental Policy Act (NEPA) Regulations (CFR) Part 771, Title 23 (23CFR, Part 771). A NEPA checklist was prepared for this project and is included in Appendix H.

This project is classified as an ***Unlisted Action*** in accordance with 6NYCRR part 617, State Environmental Quality Review (SEQR) act. Monroe County Department of Transportation (MCDOT) would act as the lead agency.

This report will be circulated to Federal, State and local agencies as well as officials and other groups and individuals who have special interests, concerns, or expertise, for review and comment. The information contained in this report, along with comments received as a result of the review process, will be evaluated prior to making a final design recommendation.

Inquiries and comments regarding this project should be directed to:

Monroe County Department of Transportation
City Place, Suite 6100
50 West Main Street
Rochester, New York 14614

Attn: Scott A. Leathersich
Sr. Physical Services Planner

or

Timothy P. Frelier, P.E.
Associate Engineer

This project should be identified in all correspondence requiring additional information as:

Westfall Road Improvements – Phase III
East Henrietta Road to Lac-de-Ville Boulevard.
PIN 4753.77

II. PROJECT IDENTIFICATION, EVOLUTION, CONDITIONS AND NEEDS, AND OBJECTIVES

A. Project Identification

1. Project Type

The proposed project consists of highway improvements for 1.2 miles of Westfall Road to correct pavement deficiencies, widening, drainage improvements and profile changes. Intersection improvements at East Henrietta Road, South Clinton Avenue, and Sawgrass Drive are anticipated.

2. Project Location/Description

a. Project Description

(1)	Road Number:	CR 239
(2)	Road Name:	Westfall Road
(3)	SH Number:	Not Applicable
(4)	BIN Number:	Not Applicable
(5)	Municipalities:	Town of Brighton City of Rochester
(6)	County:	Monroe
(7)	Project Length:	1.2 miles
(8)	Project Termini:	West – East Henrietta Road East – Lac-de-Ville Boulevard
(9)	Reference Markers:	Not Applicable
(10)	PIN Number:	4753.77

b. State Location Map (See Figure II-1)

c. Monroe County Map (See Figure II-2)

d. Project Location Map (See Figure II-3)

B. Project Evolution

The Central Brighton Transportation Study was completed in March 1993 that identified the need for roadway improvements on Westfall Road. The primary purpose of the study was to address the overall existing and future transportation needs in this corridor that included Westfall Road. As a result of the Transportation Study, Westfall Road was identified as having some deficiencies, and improvements to those deficiencies were recommended. Two sections of Westfall Road have been previously reconstructed as a result of this study; the last section completed was from Lac-de-Ville Boulevard to Winton Road in 1999.

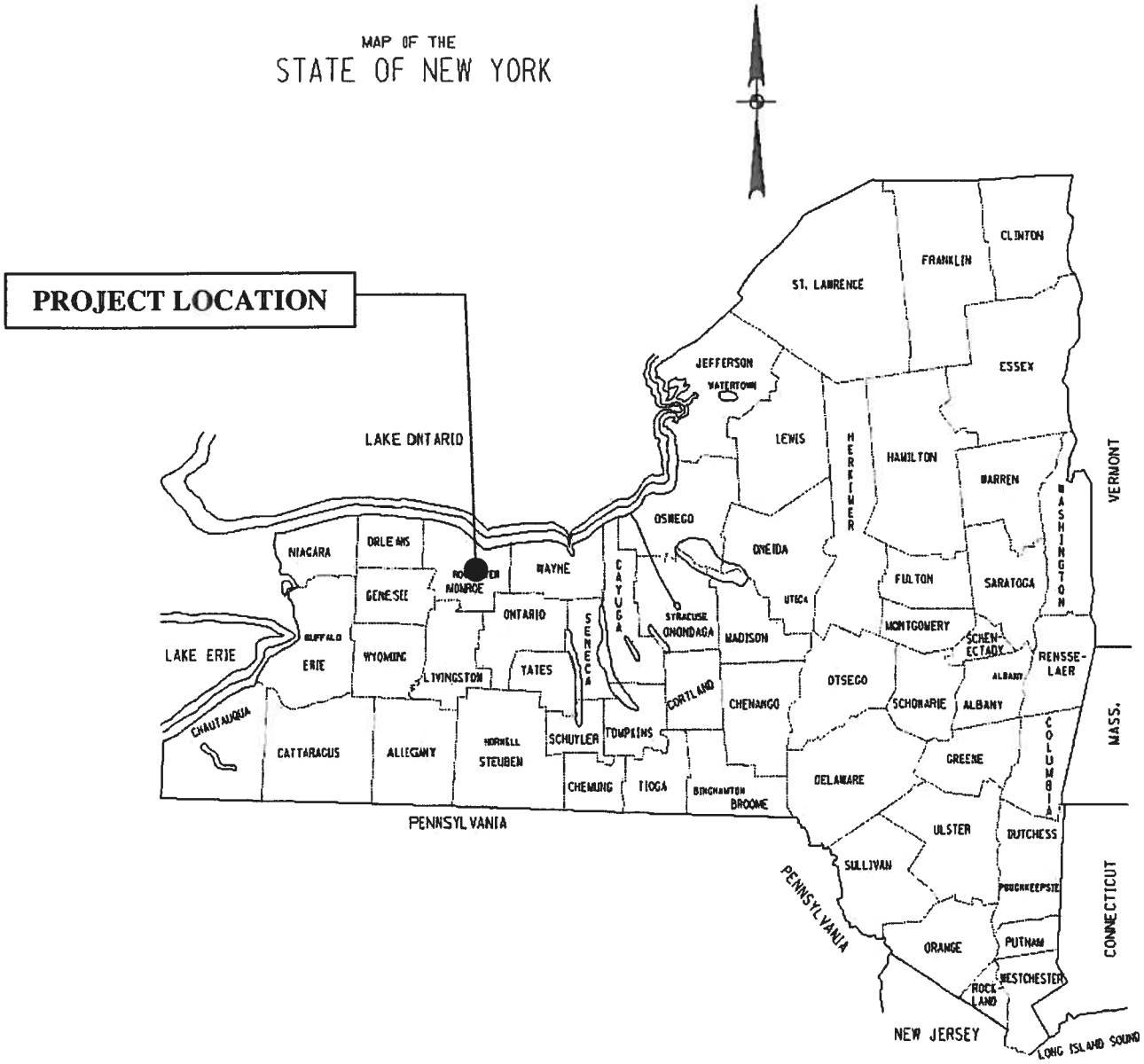
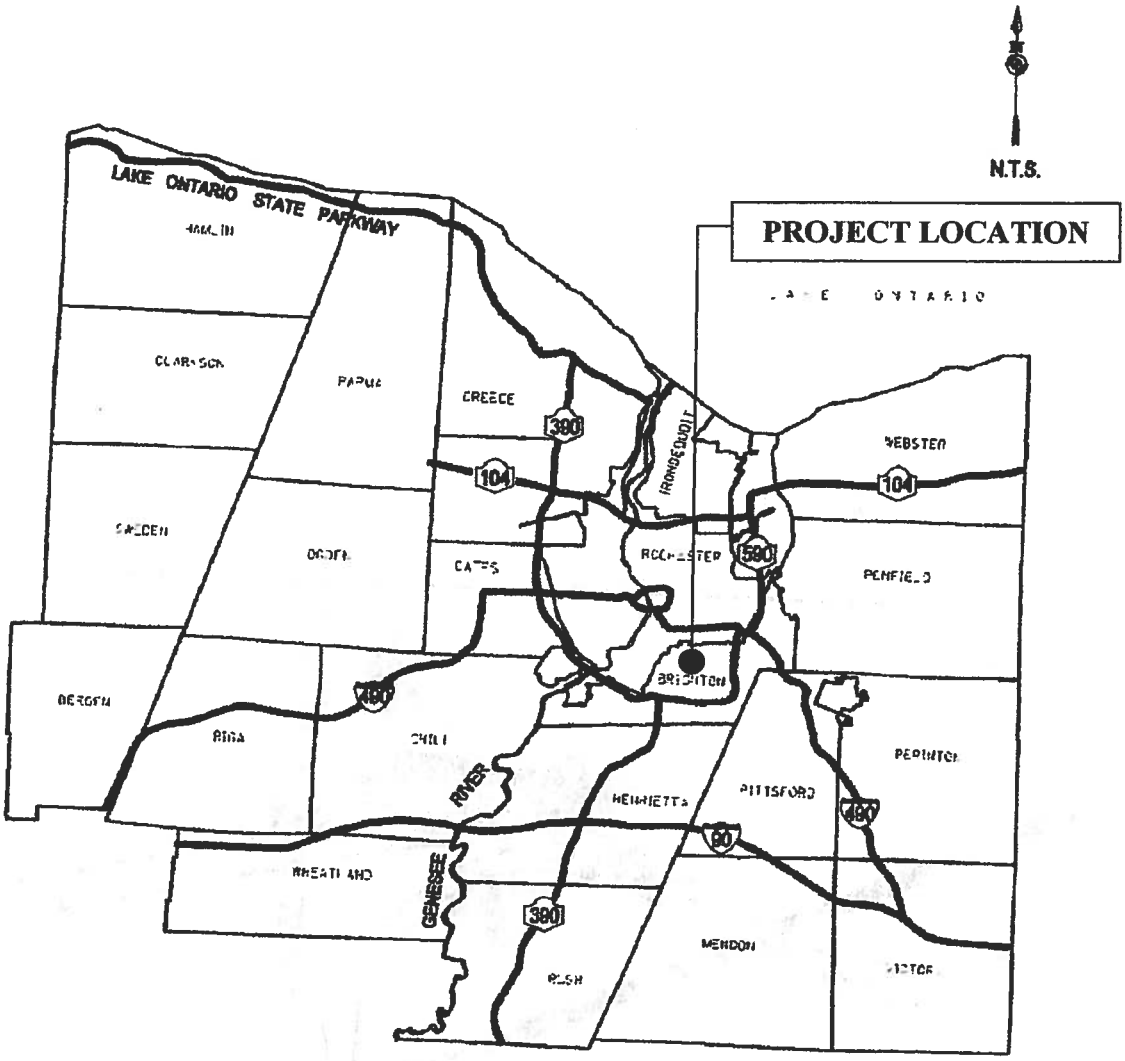


Figure II-1
State Location Map



MAP OF
MONROE COUNTY

Figure II-2
Monroe County Location Map

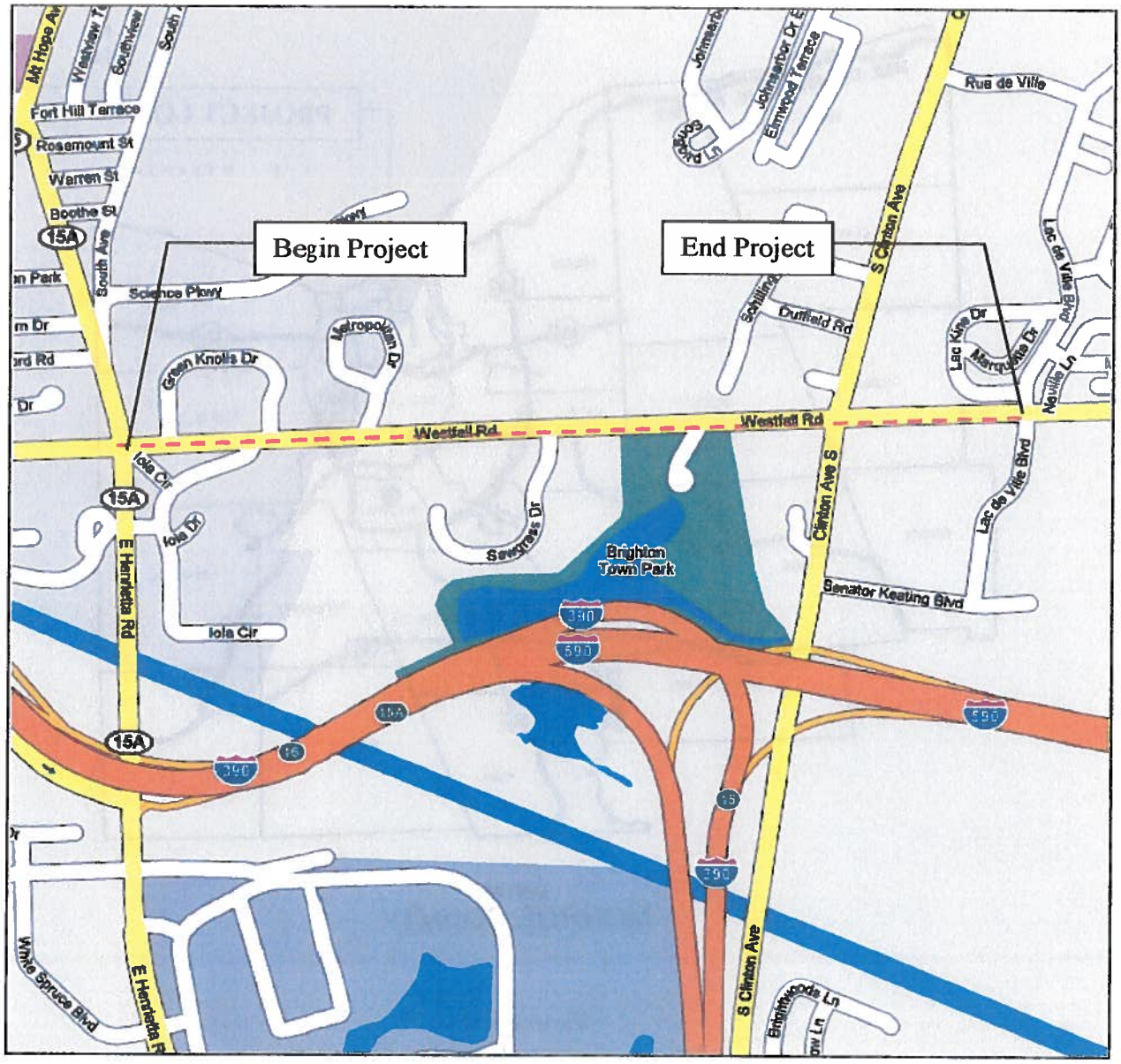


Figure II-3
Project Location Map

Monroe County submitted a 2005-2010 Transportation Improvement Program (TIP) Project application to the Genesee Transportation Council (GTC) documenting the various transportation needs on Westfall Road from East Henrietta Road to Lac-de-Ville Boulevard. It identified this segment as having a distressed pavement section and a need for drainage and intersection improvements.

Westfall Road was included in the TIP prepared by the GTC, (TIP number H05-02-MN1).

C. Conditions and Needs

1. Transportation Conditions and Engineering Considerations

a. Functional Classification and National Highway System

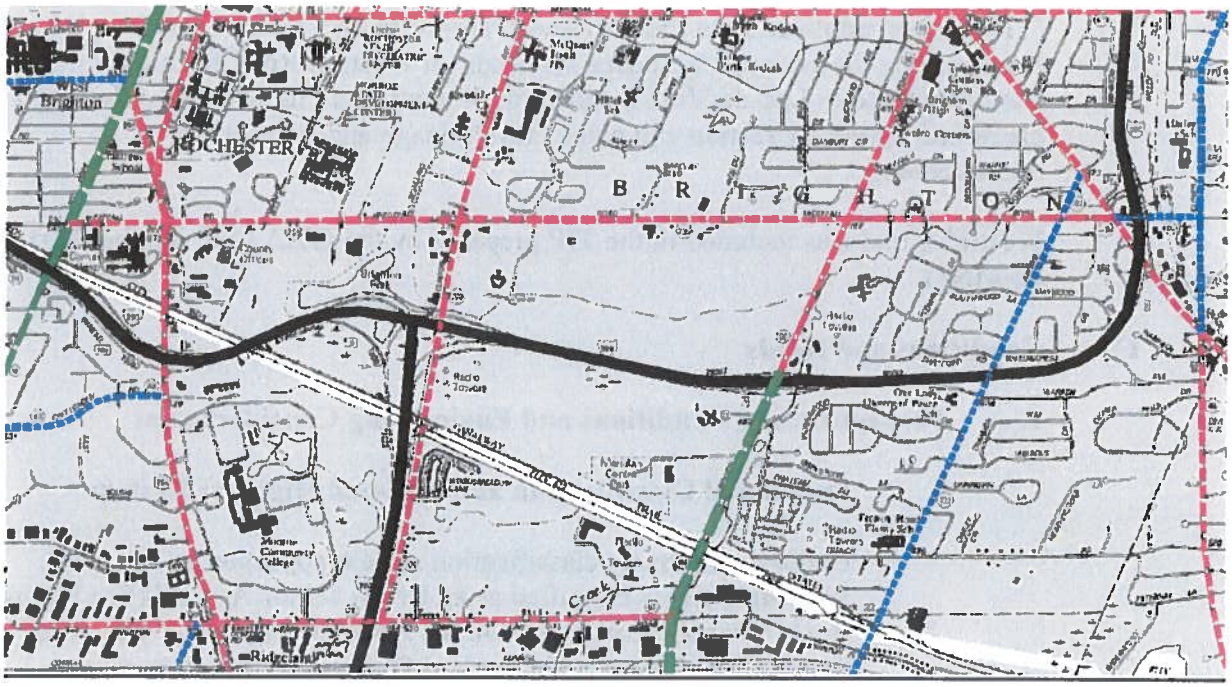
Under the highway classification system approved by the GTC, Westfall Road is classified as an Urban Minor Arterial (See Figure II-4). Westfall Road is not on the National Highway System nor is it part of the National Network of Designated Truck Access Highways. It is located within 2,400 feet of an access point of I-390 at NY Route 15A.

b. Ownership and Maintenance Jurisdiction

The existing ownership and maintenance jurisdiction for the various features along the project length are described in Table II-1.

Table II-1 – Ownership and Maintenance Jurisdiction – Westfall Road

Feature	Within City of Rochester	Within Town of Brighton
Pavement	City of Rochester	Monroe County
Traffic Signal System	Monroe County	Monroe County
Signs/Pavement Markings	Monroe County	Monroe County
Sidewalks	City of Rochester	Town of Brighton
Storm Sewers	Monroe County Pure Waters	Monroe County
Sanitary Sewers	Monroe County Pure Waters	Town of Brighton
Interceptor Sewer	Monroe County Pure Waters	Monroe County Pure Waters
Water Main	City of Rochester Water Bureau	Monroe County Water Authority
Telephone System	Frontier Telephone of Rochester	Frontier Telephone of Rochester
Gas Distribution System	Rochester Gas and Electric	Rochester Gas and Electric
Electric Distribution System	Rochester Gas and Electric	Rochester Gas and Electric
Cable Telephone System	Time Warner Communications	Time Warner Communications
Fiber Optic System	Fibertech of Rochester	Fibertech of Rochester



Functional Classification System				
Urban		Functional Classification	National Highway System	**Rural**
Interstate	11			01 Interstate
Principal Arterial (Expressway)	12			
Principal Arterial (Other Street)	14			02 Principal Arterial
Minor Arterial	16			06 Minor Arterial
Collector	17			07 Major Collector
				08 Minor Collector
Local	19			09 Local
Urban Area				

Figure II-4
Functional Classification of Urbanized Area Roads

c. Culture, Terrain, and Climatic Conditions

Westfall Road between Lac-de-Ville Boulevard and East Henrietta Road generally serves professional businesses, medical centers, university facilities, and residential complexes. See Figure II-5 for Land Use/ Zoning Maps.

The terrain along Westfall Road throughout the project is considered rolling.

d. Control of Access

Westfall Road has uncontrolled access throughout the project length. There are seven intersecting streets as well as several parking lot driveways.

e. Existing Highway Section

(1) *Right-of-Way (ROW):* Reported permanent easements and ROW widths are seen in Tables II-2 and II-3, respectively.

Table II-2 - Westfall Road Easements

Owner	Type	Width	Location	Side
Rochester Pure Waters District	Permanent	30'	Sta. 28+70 to Sta. 32+55	RT
Town of Brighton	Sidewalk	10'	Sta. 28+80 to Sta. 34+50	RT
RG&E	Sidewalk	10'	Sta. 28+70 to Sta. 34+50	RT
Town of Brighton	Conservation	100'	Sta. 28+70 to Sta. 34+50	RT
MCWA	Water Main	30'	Sta. 34+50 to Sta. 41+60	RT
Town of Brighton	Conservation	100'	Sta. 34+50 to Sta. 41+60	RT
Monroe County	Reservation	7'	Sta. 34+50 to Sta. 35+50	RT
MCDOT	Permanent	0-12'	Sta. 38+00 to Sta. 42+50	LT
MCWA	Permanent	20'	Sta. 42+45 to Sta. 50+65	RT
Town of Brighton	Sidewalk	10'	Sta. 47+10 to Sta. 48+85	RT
Town of Brighton	Sanitary Sewer	27'	Sta. 45+50 to Sta. 48+90	LT
MCDOT	Drainage	30'	Sta. 53+65 to Sta. 54+80	LT
Town of Brighton	Sidewalk	5'	Sta. 63+20 to Sta. 67+60	RT
Town of Brighton	Sidewalk	10'	Sta. 66+10 to Sta. 70+10	LT
MCDOT	Highway	2'	Sta. 67+60 to Sta. 69+25	RT
MCDOT	Storm Sewer	10'	Sta. 70+10 to Sta. 76+05	LT
MCDOT	Permanent	2'	Sta. 70+10 to Sta. 76+05	LT
RG&E	Permanent	10'	Sta. 74+10 to Sta. 75+85	LT

Barton & Loguidice, P.C.

Town of Brighton

Westfall Road Project: Land Use

Monroe County 8/8/08 New York

Figure II-5

Project No. 1066.006

Table II-3 - Westfall Road ROW Widths	
Locations	**ROW Width**
East Henrietta Road to Metropolitan Drive	49.5 ft
Metropolitan Drive to Sawgrass Drive	57.5 ft and 66 ft
Sawgrass Drive to South Clinton Avenue	66 ft to 121 ft
South Clinton Avenue to Lac-de-Ville Boulevard	93.5 ft and 66 ft

(2) *Roadway Dimensions:* Existing roadway dimensions are summarized in Table II-4.

Table II-4 - Westfall Road Existing Roadway Dimensions					
Location	EB Lanes	WB Lanes	Turn Lanes	Shoulder	Treatment
Sta. 11+75 - Sta. 14+75	2 - 10' Travel	2 - 10' Travel	1 - 10' WB Left	-	Curb
Sta. 14+75 - Sta. 29+00	1 - 13.5' Curb	1 - 13.5' Curb	-	-	Curb
Sta. 29+00 - Sta. 34+50	1 - 11' Travel	1 - 11' Travel	-	1.5'	Con. Gutter
Sta. 34+50 - Sta. 38+50	1 - 11.5' Travel	1 - 11.5' Travel	-	2'	Ditch
Sta. 38+50 - Sta. 42+00	1 - 11.5' Travel	1 - 11' Travel	1 - 11' EB Left 1 - 10.5' EB Right	3'	Ditch
Sta. 42+00 - Sta. 47+75	1 - 11' Travel	1 - 11' Travel	1 - 11' Two-way Center Left	4'	Ditch
Sta. 47+75 - Sta. 76+00	1 - 14' Curb	1 - 14' Curb	1 - 11' Two-way Center Left	-	Curb

(3) *Curbing:* The 1350 ft section between South Clinton Avenue and Lac-de-Ville Boulevard is a curbed highway section on both sides of the road.

Granite curbing extends from South Clinton Avenue to the west for 1475 feet on both side of the road. Existing curbing extends from East Henrietta Road to the east for 1725 feet to Metropolitan Drive.

(4) *Medians:* There are no medians within the project limits.

(5) *Grades and Curves:* The horizontal alignment is comprised of five tangents, ranging in length from 280 ft to 1575 ft. Horizontal deflection angles at tangent intersections range from 0.003° to 0.503°. There are no horizontal curves.

The best-fit vertical alignment is comprised of eight tangents and seven vertical curves. There are three crest curves and four sag curves. Profile grades generally range from 0.5% to 5.0% however there is one 8.0% grade,

maintained for less than 200 ft, between Metropolitan Drive and Sawgrass Drive.

(6) *Intersection Geometry:* There are three unsignalized intersections and four signalized intersections within the project limits.

i. Unsignalized intersections: Table II-9 summarizes geometry, location, and type of unsignalized intersections within the project limits.

Table II-5 - Unsignalized Intersection Summary

Road Name	Intersection Station	Skew Angle*	Type	Traffic Control
Green Knolls Drive (W)	Sta. 14+75	0°	T	Stop Sign
Green Knolls Drive (E)	Sta. 22+00	0°	T	Stop Sign
Metropolitan Drive	Sta. 28+75	30°	T	Stop Sign

*Skew angle is measured from a line perpendicular to the mainline roadway

ii. Signalized intersections:

East Henrietta Road:

East Henrietta Road intersects Westfall Road at Sta. 11+50, forming a four-way intersection controlled by a traffic signal. Each leg of the intersection has five lanes with the center lane designated as left-turn only. The southern leg of East Henrietta Road intersects perpendicular to Westfall while the northern leg intersects at approximately 9° west of perpendicular. The lane configuration and corresponding dimensions are seen in Figure II-6.

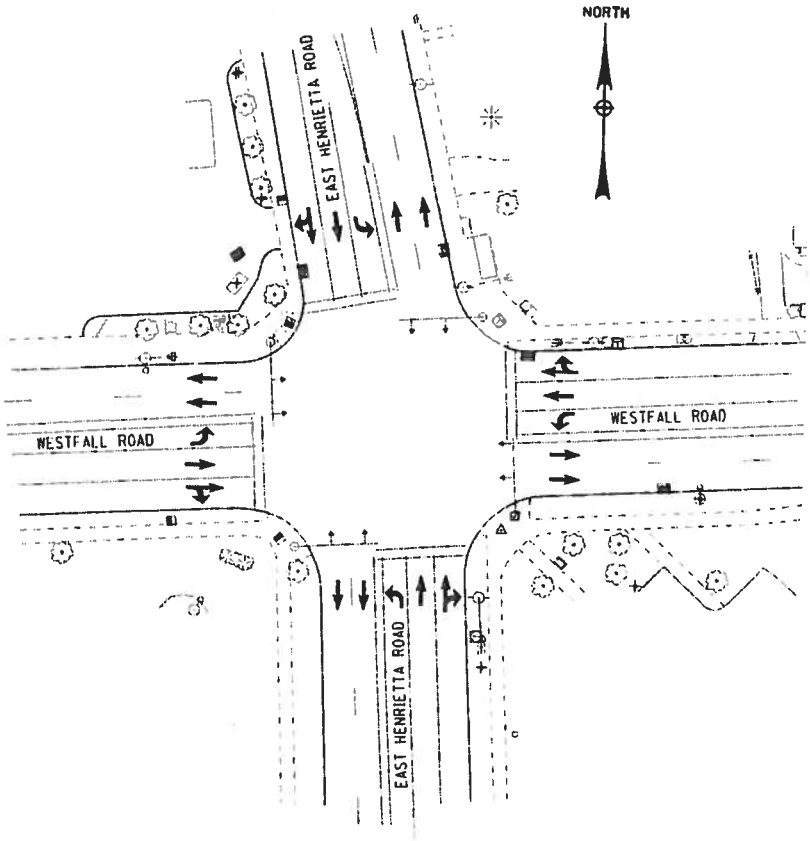


Figure II-6
East Henrietta Road Lane Configuration

Table II-6 – East Henrietta Road Lane Dimensions

Approach	Lanes	Lane Width (ft)	Lane Length (ft)
Northbound	Thru/Right	11	-
	Thru	10	-
	Left	10	185
Southbound	Thru/Right	11	-
	Thru	10	-
	Left	10	70
Eastbound	Thru/Right	11	-
	Thru	10	-
	Left	10	150
Westbound	Thru/Right	11	-
	Thru	10	170
	Left	10	155

Sawgrass Drive:

Sawgrass Drive intersects on the south side of Westfall Road at Sta. 42+00. The entrance to Finger Lakes DDSO on the north side of Westfall forms the fourth leg of the intersection. The eastbound approach to the intersection has a left-turn only lane, a through lane, and a right-turn only lane. The westbound approach has a left-turn only lane, and a through/right-turn lane. The northbound approach has a right-turn only lane, and a through/left-turn lane. This intersection is controlled by a traffic signal. The lane configuration and corresponding dimensions are seen below.

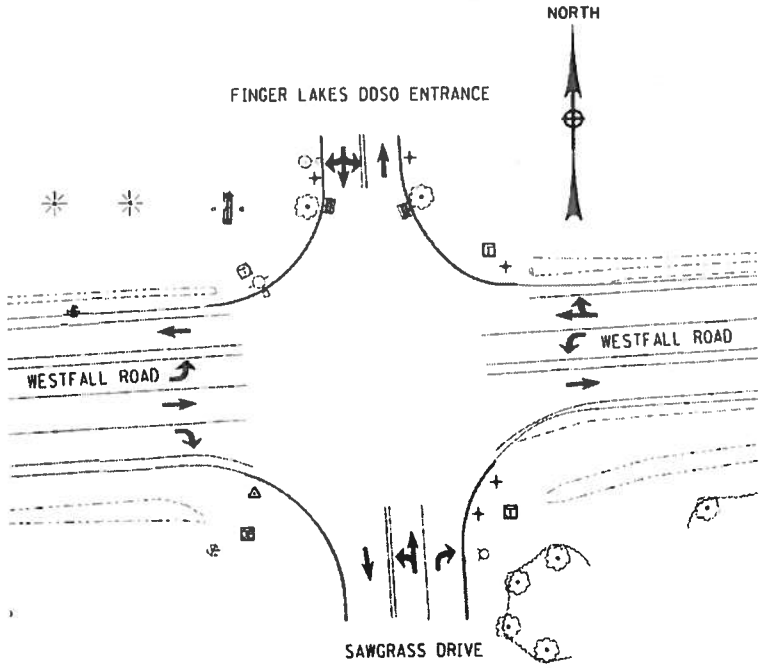


Figure II-7
Sawgrass Drive Lane Configuration

Table II-7 Sawgrass Drive Lane Dimensions

Approach	Lanes	Lane Width (ft)	Lane Length (ft)
Eastbound	Right	10	215
	Thru	11	-
	Left	11	180
Westbound	Thru/Right	11	-
	Left	11	220
Northbound	Right	12	-
	Thru/Left	11	-
Southbound	Thru/Right/Left	13	-

South Clinton Avenue:

South Clinton Avenue forms a four-legged intersection with Westfall Road that is controlled by a traffic signal. Each leg has three lanes with the center lane being designated as a left-turn only lane. The north leg enters at 15° east of perpendicular and the south leg enters at 9° west of perpendicular. The lane configuration and corresponding dimensions are seen below.

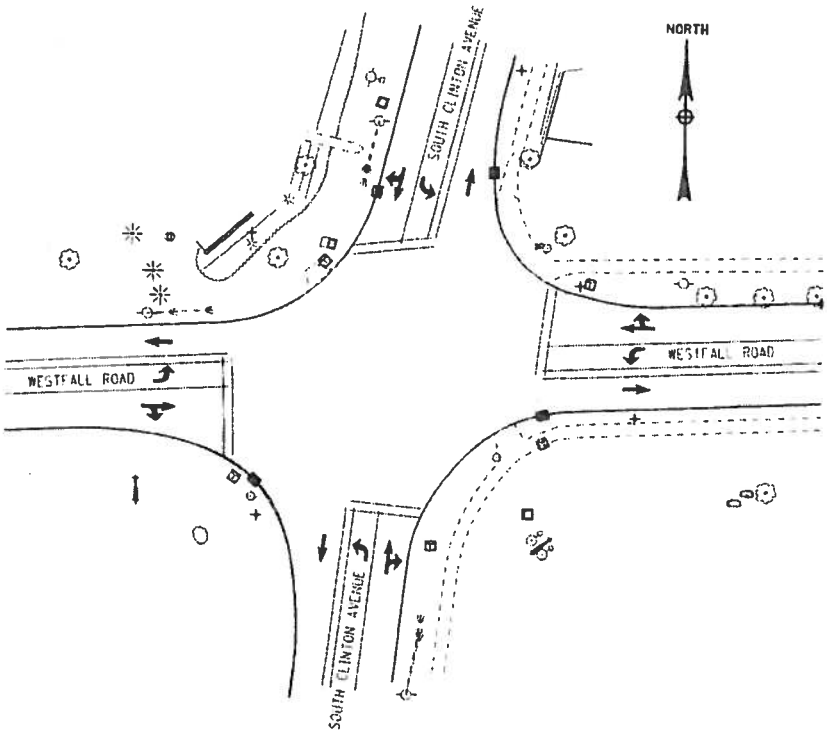


Figure II-8
South Clinton Avenue Lane Configuration

Table II-8 South Clinton Avenue Lane Dimensions			
Approach	**Lanes**	**Lane Width (ft)**	**Lane Length (ft)**
Northbound	Thru/Right	14	-
	Left	11	170
Southbound	Thru/Right	14	-
	Left	11	90
Eastbound	Thru/Right	14	-
	Left	11	425
Westbound	Thru/Right	14	-
	Left	11	170

Lac-de-Ville Boulevard:

Lac-de-Ville Boulevard forms a perpendicular four-leg intersection with Westfall Road that is controlled by a traffic signal. Both the northbound and southbound approaches to the intersection have a right-turn only lane and a through/left-turn lane. Both the eastbound and westbound approaches have one left-turn only lane and one through/right-turn lane. The lane configuration and corresponding widths are seen below.

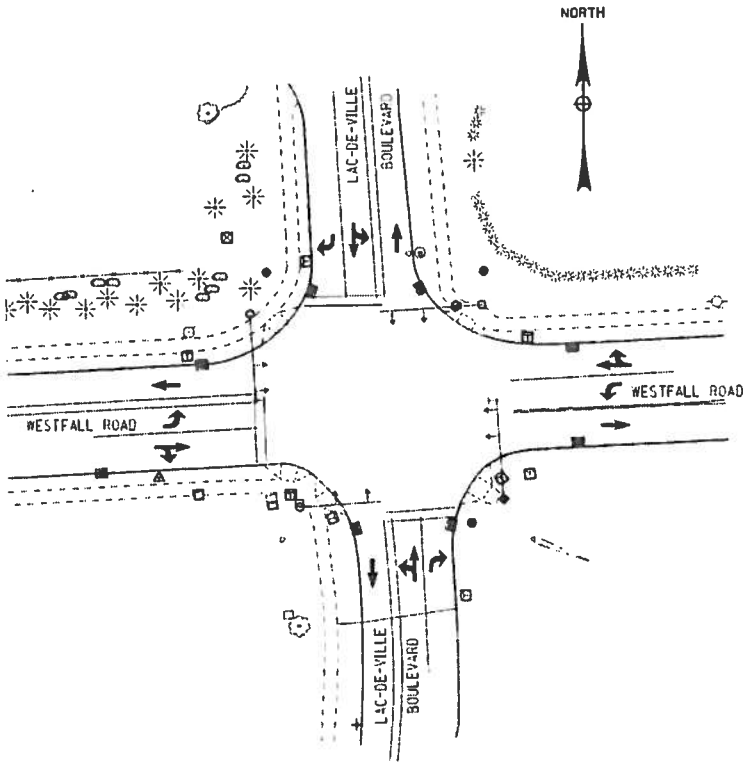


Figure II-9
Lac-de-Ville Boulevard Lane Configuration

Table II-9 Lac-de-Ville Boulevard Dimensions

Approach	Lanes	Lane Width (ft)	Lane Length (ft)
Northbound	Right	11	100
	Thru/Left	11	-
Southbound	Right	12	150
	Thru/Left	12	-
Eastbound	Thru/Right	14	-
	Left	11	100
Westbound	Thru/Right	14	-
	Left	11	100

(7) *Parking Regulations:* Parking along Westfall Road is restricted within the City of Rochester. Parking along Westfall Road within the town of Brighton is restricted from 2AM till 7AM from November 1 through April 15, however, there are no parking provisions on Westfall Road within the project limits.

(8) *Roadside elements:*

i. Snow storage is provided outside the shoulder or curb line in the sections with no sidewalks. In areas where there is existing sidewalk, a snow storage area is provided between the sidewalk and curb line.

ii. Control of access for the frequency and type of driveways along Westfall Road is controlled by the City of Rochester within the City and Monroe County in the Town of Brighton.

iii. Width of existing clear zone along the project corridor varies due to utility poles, fill slopes, non-traversable ditch slopes, signs, retaining walls, and trees.

f. Abutting Highway Segments and Future Plans for Abutting Highway Segments

At the westerly project limit, Westfall Road intersects with State Touring Route 15A (East Henrietta Road), a four-lane principal arterial in this location. Geometry at this intersection is shown in Figure II-6. NYS Route 15A is under the jurisdiction of the City of Rochester within the project limits and has a posted speed limit of 30 MPH. Pavement was milled and overlaid on East Henrietta Road in 2007. There is a NYSDOT project (PIN 4390.17) with an early letting date of 2011 that will review and make recommendations for interchange improvements at the I-390/NYS Route 15A interchange south of Westfall Road.

At Sta. 62+75, Westfall Road intersects with South Clinton Avenue (Monroe County Route 100), a three lane minor arterial in this location. Geometry at this intersection is shown in Figure II-8. South Clinton Avenue is under jurisdiction of Monroe County and has a posted speed limit of 35 MPH. The pavement and intersection was reconstructed in 1991 and recently microsurfaced. There are plans relating to a development project on South Clinton Avenue that would restripe South Clinton Avenue south of Westfall Road between Senator Keating Boulevard and

Woodsmeadow Lane, changing the section from two travel lanes in each direction to one travel lane in each direction with shoulders and a two-way center left turn lane.

g. Speeds and Delays

(1) Existing Speed Limits: The existing regulatory speed limit is 35 MPH.

(2) Operating Speeds: A speed study completed by the MCDOT on April 20, 2007 showed the eastbound 85th percentile speed to be 42 MPH and westbound to be 40 MPH between South Clinton Avenue and Lac-de-Ville Boulevard. The 85th percentile speed between Sawgrass Drive and South Clinton Avenue was 45 MPH in the eastbound direction and 42 MPH in the westbound direction. See Appendix C for speed data.

h. Traffic Volumes

MCDOT collected traffic volumes on Westfall Road west of South Clinton Avenue on September 21, 2004. The Average Daily Traffic (ADT) volume from this count was 14,858 vehicles, with a one way peak of 742 vehicles, and a two way peak of 1,325 vehicles. Turning movement counts were completed on September 27, 2007 at the East Henrietta Road, Sawgrass Drive, South Clinton Avenue, and Lac-de-Ville Boulevard intersections. These turning movement counts were analyzed to find the AM and PM peak hours at each intersection. The peak hours are presented in Table II-10 and the corresponding existing peak hour volumes for each intersection are shown in Figures II-10 and II-11.

Table II-10 Intersection Peak Hours

Intersection	AM Peak Hour	PM Peak Hour
East Henrietta Rd	7:45-8:45 AM	4:45-5:45 PM
Sawgrass Dr	7:45-8:45 AM	4:30- 5:30 PM
South Clinton Ave	7:30-8:30 AM	4:30- 5:30 PM
Lac-de-Ville Blvd	7:45-8:45 AM	4:45-5:45 PM

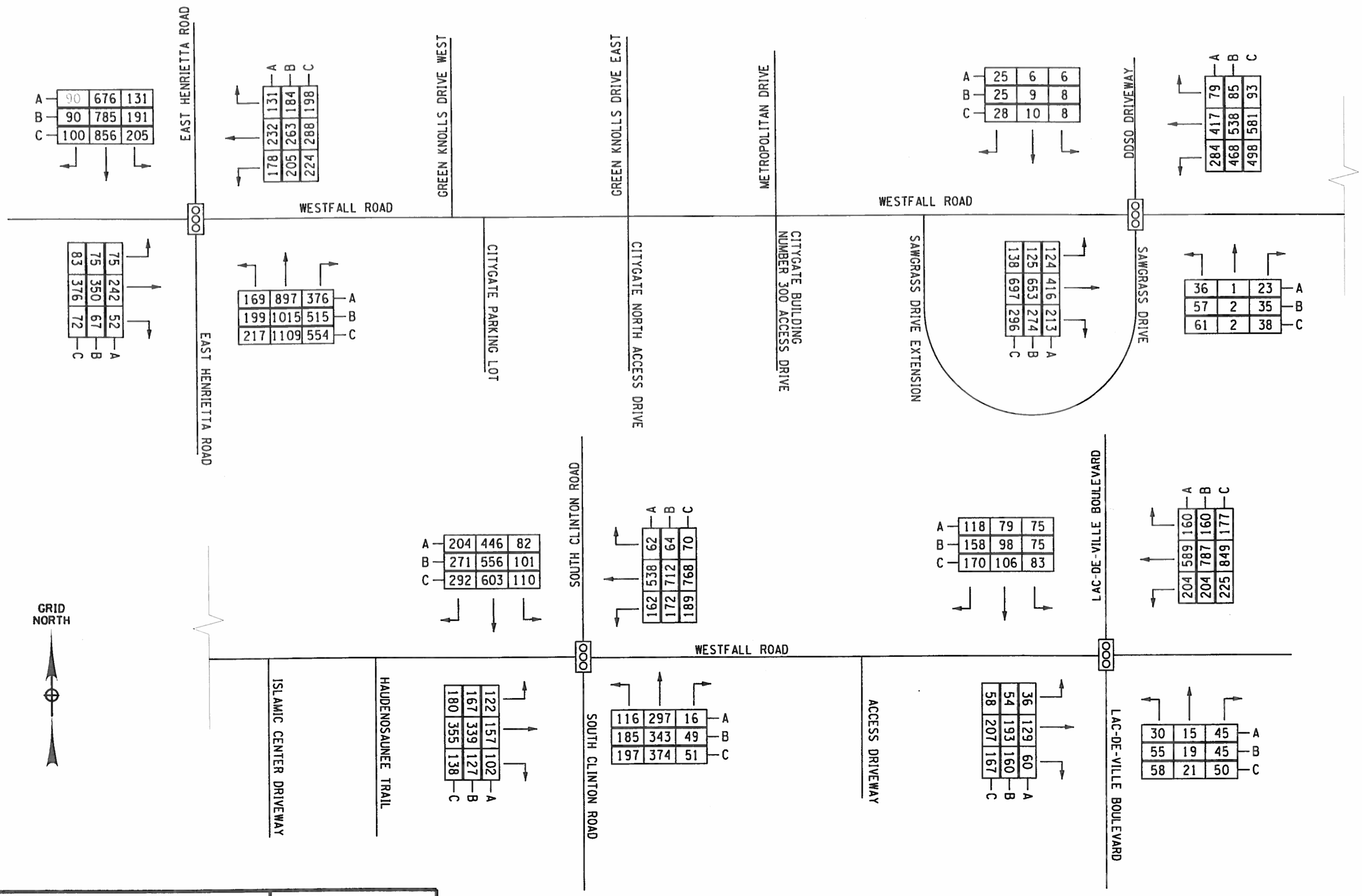


FIGURE II-10: AM PEAK HOUR TRAFFIC FLOW DIAGRAM

LEGEND
A - EXISTING (2007)
B - EXISTING+10 (2017)
C - EXISTING+20 (2027)

NO	DATE	BY	REVISION

Barton & Loguidice, P.C.

DESIGN BY: DAT/JMW
DRAFTED BY: JMW/PJZ

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS:
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

AM PEAK HOUR TRAFFIC FLOW DIAGRAM

SCALE: NTS
DATE ISSUED: 11/2008
DRAWING NO. FIGURE II-10

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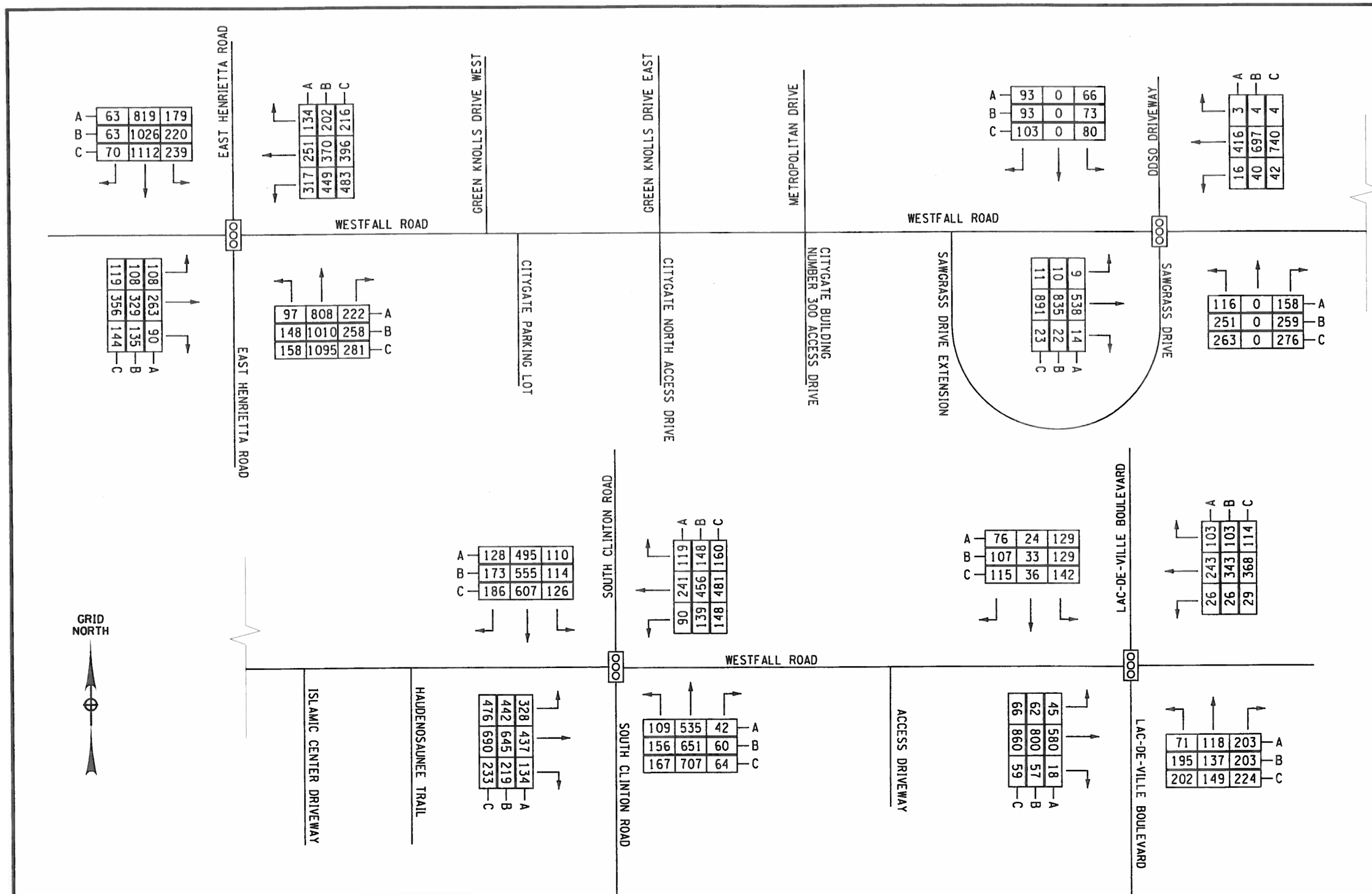

FIGURE II-11: PM PEAK HOUR TRAFFIC FLOW DIAGRAM

LEGEND
A - EXISTING (2007)
B - EXISTING+10 (2017)
C - EXISTING+20 (2027)

NO.	DATE	BY:	REVISION

Barton & Loguidice, P.C.

DESIGN BY: DATJMW
DRAFTED BY: JMWPJZ

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
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PROJECT NAME: WESTFALL ROAD
LIMITS
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BRIDGE IDENTIFICATION NO.: N.A.

PM PEAK HOUR TRAFFIC FLOW DIAGRAM

SCALE: NTS
DATE ISSUED: 11/2008
DRAWING NO. FIGURE II-11

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The 2004 Annual Average Daily Traffic (AADT) was estimated using the 2004 MCDOT volume count and a seasonal adjustment factor of 1.032. The Design Hour Volume (DHV) and the Directional Design Hour Volume (DDHV) were calculated as a percentage of the AADT, and the truck percentage was taken from September 27, 2007 turning movement counts. These volumes are summarized in Table II-11.

Table II-11 – Traffic Volume Summary (Null Conditions)

	MCDOT Volume Count (2004)	Existing (2007)	Existing+10 (2017)	Existing+20 (2027)
AADT	14,397	15,929	18,854	22,316
DHV (two-way)	1,339	1,482	1,754	2,076
DDHV (one-way)	750	830	982	1,163
% Trucks	1.9 %	1.9 %	1.9 %	1.9 %

The September 27, 2007 turning movement counts along with estimated traffic growth numbers generated by proposed future developments (CityGate, Senator Keating Boulevard Site, Sawgrass Medical Center, Clinton Crossing, and the Reserve Residential Development) were used to forecast traffic volumes from 2007 to 2017. The turning movement counts were then forecasted from 2017 to 2027 using a 1% per year background growth factor. Both existing and future turning movement volumes for signalized intersections are diagrammed in Appendix C.

i. Level of Service (LOS)

The intersections within the project were analyzed using Synchro 7.0 and is based on methods presented in the 2000 Highway Capacity Manual. The base Synchro files were provided by MCDOT and were updated accordingly with current and future traffic volumes.

The Level of Service (LOS) for intersections is defined in terms of delay time (seconds). LOS criteria are stated in terms of average stopped delay per vehicle for a 15-minute analysis period (peak hour factor adjustment) and range from "A" to "F." An overall intersection LOS of "D" or better is generally considered acceptable in an urban area. Table II-12 illustrates the intersection ratings based on the time of delay per vehicle.

Table II-12 – LOS Criteria for Signalized Intersections		
Intersection Rating	**Description**	**Delay in Seconds**
A	Little or no delay	<= 10.0
B	Minor, Short delay	> 10 to 20
C	Average delay	>20 to 35
D	Long, but acceptable delay	>35 to 55
E	Long, approaching unacceptable delay	>55 to 80
F	Long, Unacceptable delays	> 80

Table II-13 summarizes the intersection LOS for the signalized intersections.

Table II-13 – Intersection LOS Summary Comparisons (No-Build Conditions)							
Location		**AM Peak Hour - LOS (sec)**			**PM Peak Hour - LOS (sec)**		
		Existing 2007	**Existing + 10 2017**	**Existing + 20 2027**	**Existing 2007**	**Existing + 10 2017**	**Existing + 20 2027**
East Henrietta Rd	**Intersection**	**C (26)**	**D (38)**	**D (54)**	**D (40)**	**F (87)**	**F (111)**
	NB Left	C (24)	D (45)	E (72)	D (36)	E (61)	E (66)
	NB Thru/Right	C (22)	D (43)	E (79)	D (38)	F (148)	F (193)
	SB Left	D (41)	F(82)	F (103)	E (60)	F (93)	F (112)
	SB Thru/Right	B (17)	C (22)	C (25)	C (31)	D (49)	E (62)
	EB Left	C (29)	C (28)	C (30)	C (28)	C (32)	D (36)
	EB Thru/Right	D (38)	D (38)	D (38)	D (46)	D (45)	D (45)
	WB Left	D (41)	D (49)	E (56)	D (54)	F (115)	F (179)
	WB Thru/Right	C (31)	C (25)	C (26)	D (39)	D (43)	D (44)
Sawgrass Dr	**Intersection**	**A (1)**	**C (27)**	**D (45)**	**B (17)**	**D (45)**	**E (60)**
	NB Left/Thru	E (56)	E (56)	E (56)	E (63)	F (174)	F (211)
	NB Right	B (15)	B (11)	B (11)	A (7)	C (29)	C (35)
	SB Left/Thru/Right	C (24)	C (22)	C (21)	D (47)	F (134)	F (223)
	EB Left	A (3)	A (6)	A (8)	A (6)	A (7)	A (7)
	EB Thru	A (3)	A (6)	A (7)	A (9)	C (22)	C (27)
	EB Right	A (1)	A (1)	A (1)	A (3)	A (3)	A (3)
	WB Left	A (2)	F (105)	F (199)	A (4)	A (5)	B (15)
	WB Thru/Right	A (1)	A (2)	A (3)	A (4)	A (5)	A (5)
South Clinton Ave	**Intersection**	**E (60)**	**F (130)**	**F (160)**	**E (56)**	**F (165)**	**F (200)**
	NB Left	D (39)	F (83)	F (99)	D (38)	E (65)	E (77)
	NB Thru/Right	C (28)	C (32)	C (34)	D (51)	F (113)	F (152)
	SB Left	B (18)	B (19)	B (20)	D (44)	D (46)	D (50)
	SB Thru/Right	E (58)	F (150)	F (193)	D (47)	F (95)	F (133)
	EB Left	C (27)	C (32)	C (34)	F (100)	F (323)	F (377)
	EB Thru/Right	C (27)	D (37)	D (38)	E (59)	F (215)	F (254)
	WB Left	C (22)	C (30)	D (41)	D (36)	E (66)	E (77)
	WB Thru/Right	F (114)	F (269)	F (327)	D (50)	F (198)	F (233)
Ville Blvd	**Intersection**	**B (11)**	**B (19)**	**C (34)**	**B (11)**	**C (21)**	**C (32)**
	NB Left/Thru	B (16)	B (16)	B (15)	C (21)	D (38)	D (46)
	NB Right	A (5)	A (5)	A (5)	A (6)	A (9)	B (11)
	SB Left/Thru	C (23)	C (22)	C (22)	C (23)	C (26)	D (37)
	SB Right	A (4)	B (11)	B (13)	A (4)	A (4)	A (3)
	EB Left	B (12)	B (18)	C (21)	A (5)	A (7)	A (7)
	EB Thru/Right	A (4)	A (4)	A (5)	A (8)	C (25)	D (48)
	WB Left	A (7)	B (13)	B (19)	A (7)	B (14)	B (15)
	WB Thru/Right	B (12)	C (28)	E (60)	A (7)	B (12)	B (14)

Table II-14 summarizes the intersections and movements that are projected to have a LOS of E or F for the no-build condition.

Table II-14 – Intersection Level of Service Summary E and F (No-Build Condition)

Location		AM Peak Hour - LOS (sec)			PM Peak Hour - LOS (sec)		
		Existing 2007	Existing+10 2017	Existing+20 2027	Existing 2007	Existing+10 2017	Existing+20 2027
East Henrietta	**Intersection**	-	-	-	-	**F (87)**	**F (111)**
	NB Left	-	-	E (72)	-	E (61)	E (66)
	NB Thru/Right	-	-	E (79)	-	F (148)	F (193)
	SB Left	-	F(82)	F (103)	E (60)	F (93)	F (112)
	SB Thru/Right	-	-	-	-	-	E (62)
	WB Left	-	-	E (56)	-	F (115)	F (179)
Sawgrass	**Intersection**	-	-	-	-	-	**E (60)**
	NB Left/Thru	E (56)	E (56)	E (56)	E (63)	F (174)	F (211)
	SB Left/Thru/Right	-	-	-	-	F (134)	F (223)
	WB Left	-	F (105)	F (199)	-	-	-
South Clinton	**Intersection**	**E (60)**	**F (130)**	**F (160)**	**E (56)**	**F (165)**	**F (200)**
	NB Left	-	F (83)	F (99)	-	E (65)	E (77)
	NB Thru/Right	-	-	-	-	F (113)	F (152)
	SB Thru/Right	E (58)	F (150)	F (193)	-	F (95)	F (133)
	EB Left	-	-	-	F (100)	F (323)	F (377)
	EB Thru/Right	-	-	-	E (59)	F (215)	F (254)
	WB Left	-	-	-	-	E (66)	E (77)
	WB Thru/Right	F (114)	F (269)	F (327)	-	F (198)	F (233)
Lac-de-Ville	WB Thru/Right	-	-	E (60)	-	-	-

The projected increase in traffic volumes for Existing + 10 and Existing + 20 has a significant impact on the average peak hour delays experienced at signalized intersections within the project limits. It is projected that almost all of the movements currently experiencing a LOS E will become a LOS F by ETC + 10. In addition, it is projected that a total of 15 movements (6 in the AM and 9 in the PM) that currently experience acceptable delays will become a LOS E or F by Existing + 20. The South Clinton Avenue and East Henrietta Road intersections in particular experience unacceptable delays and both intersections exhibit an overall intersection LOS of F by Existing + 10.

j. Non-Standard Features and Non-Conforming Features

The geometric features within the project limits were evaluated in accordance with the current design policies in Chapter 2 of the NYSDOT Highway Design manual, AASHTO's "A policy on Geometric Design of Highway and Streets, 2004" and MCDOT Design Standards. The 85th percentile speed was used to obtain the design speed for this project. As previously discussed the 85th

percentile speed for this project is between 40 and 45 MPH. Based on this information a design speed of 45 MPH is recommended.

Non-standard features apply only to the 14 critical design elements listed in Chapter III, Table III-1. The following list details the non-standard features within the project limits:

Grade – MCDOT and NYSDOT standards specify a maximum grade of 7%. This maximum is exceeded 100 ft east of Metropolitan Drive, where the grade is 8.2% for approximately 150 ft.

Shoulder Width – Existing shoulder width varies between 1.5 and 3 ft. MCDOT standards specify a minimum shoulder width of 6 ft for curbed sections and 5 ft for uncurbed sections.

Pavement Cross Slope – The existing pavement cross slope varies between 1% and 3%. MCDOT standards specify a desirable pavement and shoulder cross slope of 3% with a minimum of 2%.

Stopping Sight Distance - There are two locations within the project limits where stopping sight distance is shorter than the NYSDOT standard of 345 ft. A crest curve located at the intersection of Metropolitan Drive has an existing sight distance of 290 ft and a sag curve located approximately 450 ft east of Metropolitan Drive has an existing headlight sight distance of 261 ft.

The following list details the non-conforming features within the project limits:

Ditches – There currently are non-traversable ditches in the existing clear zone within the project limits. The preferred ditch section according to AASHTO has a minimum 1 on 4 foreslope and 1 on 4 backslope. A 1 on 4 slope is considered traversable and recoverable.

Driveway access - Some driveways lack adequate access control and do not conform to current MCDOT guidelines.

k. Safety Considerations, Accident History, and Analysis

The most recent three years of accident data were collected for Westfall Road within in the project limits. Accident records from February 2004 to August 2007 revealed a total of 141 reportable accidents. Of the accidents, 46 were classified as causing an injury, and there were no fatal accidents. The following analysis only takes into account the reportable accident data collected.

Table II-15 shows 13 accident classifications and the frequency of each accident type occurring in the 43-month time frame.

Table II-15 – Accident Type Breakdown

Accident Type	Number of Accidents	Percentage of Accidents
Rear End:	62	44.0
Right Angle:	25	17.0
Left Turn:	22	15.6
Other:	6	4.3
Overtaking:	6	4.3
Right Turn:	6	4.3
Animal:	5	3.5
Unknown:	4	2.8
Run Off Road:	2	1.4
Head On:	1	0.7
Sideswipe:	1	0.7
Pedestrian:	1	0.7
Backing :	1	0.7

Accident rates were calculated per million vehicle miles for segments between intersections and then compared to MCDOT averages for roads with the same functional classification. These rates are summarized in Table II-16.

Table II-16 – Segment Accident Rates

Westfall Road Segment	Number of Accidents	Accident Rate (ACC/MVM)	MCDOT Average Accident Rate (ACC/MVM)
East Henrietta Rd to Green Knolls Dr (W)	4	3.11	1.08
Green Knolls Dr (W) to Green Knolls Dr (E)	2	0.72	1.08
Green Knolls Dr (E) to Metropolitan Dr	3	1.19	1.08
Metropolitan Dr to Sawgrass Dr	3	0.59	1.08
Sawgrass Dr to South Clinton Ave	13	1.64	1.08
South Clinton Ave to Lac-de-Ville Blvd	20	3.84	1.08

The following segments have accident rates that are higher than the MCDOT average rates.

East Henrietta Road to Green Knolls Drive (West): Four accidents were reported; two were rear ends and the other two were designated as "unknown" or "other." There is not a separate left turn lane along this segment, except for the westbound left turn movement to East Henrietta Road. None of the accidents occurred on surfaces affected by snow, ice, or rain. There are no apparent accident patterns in this segment.

Green Knolls Drive (East) to Metropolitan Drive: Three accidents were reported; there were two rear ends and one left turn. There is not a separate left turn lane along this segment. None of the accidents occurred on surfaces affected by snow, ice or rain. There are no apparent accident patterns in this segment.

Sawgrass Drive to South Clinton Avenue: Thirteen accidents were reported; there were seven rear ends, two right angles, and one left turn. Five occurred on pavement surfaces affected by snow, ice, or rain. Sixty four percent (64%) of the accidents occurred in the eastbound direction. Fifty three percent (53%) were rear end accidents. There is currently a separate left turn lane along this segment. There are no apparent accident patterns in this segment.

South Clinton Avenue to Lac-de-Ville Boulevard: Twenty accidents were reported; there were eight rear ends, four right angles, four left turns, two right turns, one collision with an animal, and one was designated as "other." Five occurred on pavement surfaces affected by snow, ice, or rain. Forty percent (40%) of the accidents were rear end accidents. A separate left turn lane exists in this segment. There are no apparent accident patterns in this segment.

Intersection accident rates were calculated per million entering vehicles and were compared to MCDOT averages. These rates are summarized in Table II-17.

Table II-17 – Intersection Accident Rates			
Intersection	Number of Accidents	Accident Rate (ACC/MEV)	MCDOT Average Accident Rate (ACC/MEV)
East Henrietta Road	32	0.55	0.46
Green Knolls Drive (West)	3	0.15	0.21
Green Knolls Drive (East)	3	0.15	0.21
Metropolitan Drive	4	0.19	0.21
Sawgrass Drive	8	0.30	0.21
South Clinton Avenue	37	0.86	0.46
Lac-de-Ville Boulevard	9	0.29	0.24

Accident rates were higher than MCDOT averages for East Henrietta Road, Sawgrass Drive, South Clinton Avenue, and Lac-de-Ville Boulevard.

East Henrietta Road: Thirty-two accidents were reported; there were nine rear ends (28%), two overtakes, six right angles (18%), six left turns (18%), one right turn, one head on, one collision with a pedestrian, and six were designated as "unknown" or "other". Seven of the accidents occurred on pavement surfaces affected by snow, ice, or rain. Of the nine rear end accidents, seven occurred along Westfall Road and two occurred along East Henrietta Road. There are no apparent accident patterns at this intersection.

Sawgrass Drive: Eight accidents were reported; there was one overtake, two right angles, two left turns, one right turn, one sideswipe, and one collision with an animal. None of the accidents occurred on surfaces affected by snow, ice, or rain. These accidents occurred before the traffic signal was installed in February 2008. There are no apparent accident patterns at this intersection.

South Clinton Avenue: Thirty-seven accidents were reported; there were twenty-four rear ends (65%), one overtake, four right angles, five left turns, one right turn, one collision with an animal, and one was designated as "other". Seven of the accidents occurred on pavement surfaces affected by snow, ice, or rain. Rear end accidents at this intersection are more than five times the NYSDOT average for rear ends at similar intersections which implies a rear end accident pattern at this intersection.

Lac-de-Ville Boulevard: Nine accidents were reported; there was one rear end, one overtake, five right angles (56%), one right turn, and one backing. Two of the accidents occurred on pavement surfaces affected by snow, ice, or rain. There are no apparent accident patterns for this intersection.

Accidents rates at the location of the non-standard sight distances and non-standard grades are less than the MCDOT average. There are no known accident patterns directly related to the existing non-standard features. See section II.C.1.j (Non-Standard Features and Non-Conforming Features) for existing non-standard and non-conforming features.

l. Pavement and Shoulder Condition

Existing pavement and shoulder conditions along Westfall Road were determined by pavement cores, Monroe County's Pavement Quality Index (PQI) rating system, and by observing and tabulating surface deteriorations. The collective pavement data has indicated Powell Road (a paper street located between Sawgrass Drive and Haudenosaunee Trail) as the approximate boundary between highly distressed pavement to the west and moderately distressed pavement to the east.

Eleven pavement cores were obtained in October 2007 and revealed asphalt pavement thicknesses ranging from 3.25" to 14.5" and stone subbase thicknesses ranging from 3" to 12". Pavement thicknesses between East Henrietta Road and Powell Road were generally less than 6". Pavement thicknesses between Powell Road and Lac-de-Ville Boulevard were 8.75" or more. Subbase thicknesses were generally less than 6" west of Powell Road and ranged from 3" to 12" east of Powell Road.

Existing pavement quality was analyzed using Monroe County's Pavement Quality Index (PQI) rating system which is based on one or more of three basic performance indicators: Surface Distress Index (SDI), Structural Adequacy Index (SAI), and/or Riding Comfort Index (RCI). PQI scores range from 1 to 10 with 10 being the best condition. The PQI ratings for Westfall Road are based on SDI and RCI scores and are shown in Table II-18.

Table II-18 – Westfall Road Pavement Quality Ratings			
Location	Pavement Quality Index (PQI)	Ride Comfort Index (RCI)	Surface Distress Index (SDI)
West of Powell Road	2.2 to 3.0	3.5 to 4.3	2.3 to 3.1
East of Powell Road	3.5 to 4.0	8.5 to 9.1	3.0 to 3.7

Surface distresses on Westfall Road were observed in October 2007. Pavement west of Powell Road exhibited numerous high severity distresses including wheelpath cracking, edge cracking, shoulder deterioration, and joint distress. Low severity wheelpath rutting and transverse cracks were also noted in this section. Pavement east of Powell Road exhibited low to medium severity distresses including wheelpath cracks, longitudinal cracks, and many utility patches. Monroe County has since placed a wedge surface layer of asphalt on Westfall Road between Metropolitan Drive and Sawgrass Drive. Also, the City of Rochester has placed a ½ inch overlay of asphalt on Westfall Road between East Henrietta Road and Metropolitan Drive.

In general, pavement between East Henrietta Road and Powell Road is in poor condition and exhibits a highly deteriorated surface, inadequate pavement depth, and inadequate subbase depth. Monroe County's quality ratings support this, showing low PQI, RCI, and SDI scores. Pavement between Powell Road and Lac-de-Ville Boulevard is in fair condition and generally exhibits adequate pavement depth with moderate surface distresses. PQI scores are relatively higher for this section, with very high RCI scores.

m. Guide Railing, Median Barrier, Impact Attenuators

There are no guide railing, median barrier, or impact attenuators located on the project.

n. Traffic Control Devices

Signs vary in condition within the project limits and some may warrant replacement. Additional sign installations may be necessary to meet the requirements of the National Manual of Uniform Traffic Control Devices and the New York State Supplement.

The traffic signals located within the project limits include East Henrietta Road, Sawgrass Drive, South Clinton Avenue and Lac-

de-Ville Boulevard. Table II-18 describes these traffic signal controlled intersections.

Table II-18 – Traffic Signal Controlled Intersection Descriptions

Intersection with Westfall Road	Description of Signal Control	Remarks
East Henrietta Road	Econolite ASC 2100 controller Actuated -Coordinated Coordinated N/S and E/W	Pedestrian signal indictors on all legs. Mast arm signal systems
Sawgrass Drive	ASC 8000 controller Actuated- Coordinated Coordinated E/W	Pedestrian signal indicators on the EB and SB approach. Mast arm signal systems.
South Clinton Avenue	Econolite ASC 2100 controller Actuated -Coordinated Coordinated N/S and E/W	Pedestrian signal indicators on East and North legs. Span wire signal system.
Lac-de-Ville Boulevard	Econolite ASC 8000 controller Actuated -Coordinated Coordinated E/W	Pedestrian signal indicators on all legs. Mast arm signal system.

o. Structures

There are no structures within the limits of this project.

p. Hydraulics of Bridges and Culverts

There are two culverts that cross Westfall Road within the project limits. A 40"x 54" corrugated metal pipe arch is located at sta. 52+25 and conveys drainage between a detention pond on the north side of Westfall Road to a large ditch that runs parallel with Haudenosaunee Trail. The pipe is approximately 100 ft long and is in good structural condition, however, debris at the inlet and outlet currently inhibits the hydraulic adequacy of the culvert.

The second culvert, a 42" x 72" corrugated metal pipe arch, is located at sta. 44+75 and conveys drainage from the north side of Westfall Road to a large drainage structure on the south side of Westfall. The 42" x 72" culvert is in fair condition; effectively conveying drainage but showing signs of structural failure at seams. From the drainage structure, water is carried east by two 36"x 58" corrugated metal pipe arches to a large ditch that runs parallel with Haudenosaunee Trail. The two 36" x 58"pipes are located on the south side of Westfall Road and are in good condition.

Figure II-12

42" x 72" CMP at Sta. 44+75

There are no bridges within the limits of this project.

q. Drainage Systems

The existing drainage along Westfall Road is predominantly a closed drainage system; however some open drainage features exist near Sawgrass Drive and near Lac-de-Ville Boulevard. Storm runoff empties into detention ponds as well as combined storm/sanitary and separate storm sewer within the project limits.

East Henrietta Road to Green Knolls Drive (west) is a curbed section on both sides with a closed drainage system. Ten drainage structures empty into a combined storm/sanitary along this section.

Green Knolls Drive (west) to Metropolitan Drive is a curbed section on both sides with a closed drainage system. Two drainage structures are present in this section that empty into a 12 inch CMP closed storm sewer that begins on the north side 300 feet east of Green Knolls Drive and continues eastward.

Metropolitan Drive to Sawgrass Drive consists of an open and closed system. The 12 inch CMP closed system continues on the north side and terminates into a ditch section, 725 feet west of Sawgrass Drive. A concrete gutter in poor condition is located on both north and south sides starting near Metropolitan Drive continuing eastward terminating approximately 725 ft west of Sawgrass Drive. A roadside ditch starts at the end of the gutters on both north and south sides of Westfall Road and continues eastward to Sawgrass Drive.

Sawgrass Drive to South Clinton Avenue starts as an open system which continues as a ditch section. A closed system begins at the start of the curbing approximately 575 feet east of Sawgrass Drive on both sides of the road. The closed system continues to South Clinton Avenue. Runoff in this section empties into a detention pond in Brighton Town Park which empties into Tributary 2 of Tributary 3 of Allen Creek.

South Clinton Avenue to Lac-de-Ville Boulevard is a curbed section on both sides with closed storm water system running along both north and south sides of Westfall Road. In addition to the closed drainage system, a ditch forms on the south side, south of the sidewalk, near Lac-de-Ville Boulevard that empties into the closed system continuing eastward. The ditch is in good condition.

r. Soil and Foundation Conditions

Eleven test borings were performed in October 2007 to investigate subsurface conditions along Westfall Road. Borings were advanced with a hollow stem auger to a depth of 7 ft below top of pavement. The borings revealed a subsurface composition of mostly sands, silts, and silty-clays underneath sand/gravel fills. There was no accumulation of free-standing water in the test borings after drilling. There was sample spoon refusal at two boring locations east of Metropolitan Drive due to crushed stone fragments.

It is not anticipated that soil composition would affect the design and construction of this project. A copy of the Subsurface Investigation Report is included in Appendix E.

s. **Utilities**

Sanitary Sewer – There are two main sanitary sewer pipes along Westfall Road within the City of Rochester that exist approximately in the center of Westfall Road. The two sanitary sewer pipes begin at Green Knolls Drive (East) and flow west past East Henrietta Road. There is also sanitary sewer that exists on the south side of Westfall Road running from approximately 260' east of Green Knolls Drive (East) to approximately 350' west of the City boundary.

Within the Town of Brighton there is a sanitary sewer that exists on the north side of Westfall Road beginning at Schilling Lane and continuing west for approximately 700' before turning south past the project limits. There is also a sanitary sewer pipe that crosses Westfall Road west of South Clinton Avenue.

Table II-19 indicates locations, type, and remarks about the existing sanitary sewer.

Table II-19 – Existing Sanitary Sewer

Location	Offset	Size and Material	Remarks
Sta. 10+00 to Sta. 22+00	0-2' RT	8" VCP	Flows west
Sta. 10+00 to Sta. 11+25	22' LT	21" SW	Flows west - Combined storm/ sanitary
Sta. 11+25 to Sta. 11+90	22'-3' LT	18" CMP	Flows west - Combined storm/ sanitary
Sta. 11+90 to Sta. 14+45	3' LT	18" RCP	Flows west - Combined storm/ sanitary
Sta. 14+45 to Sta. 17+50	2' LT	15" RCP	Flows west - Combined storm/ sanitary
Sta. 17+50 to Sta. 22+05	1' LT	12" RCP	Flows west - Combined storm/ sanitary
Sta. 24+65 to Sta. 26+45	20' RT	8" PVC	Flows east
Sta. 26+45 to Sta. 29+50	20'-40' RT	8" PVC	Flows east
Sta. 29+50 to Sta. 32+40	40' RT	8" PVC	Flows east
Sta. 32+40	-	18" PVC	Flows north, crosses Westfall – 70'-36" DIA. Steel casing.
Sta. 47+10	-	8" PVC	Flows south, crosses Westfall
Sta. 47+10 to Sta. 54+30	45' LT	8" PVC	Flows west
Sta. 62+05	-	8" VCP	Flows south, to the west of S. Clinton Ave

Water mains – The Monroe County Water Authority and the City of Rochester Water Bureau has water mains on Westfall Road. Table II-20 indicates size, locations, and remarks about the water mains.

Table II-20– Existing Water Mains

Location	Size & Type	Remarks
Westfall Road (East Henrietta Road to City Limit)	12" CI	City records show this main on the north side of Westfall Road. An 8" service continues to the Monroe Developmental Center. The 12" water main material is cast iron pipe. The water main was installed between 1924 and 1929. This water main was cleaned and cement mortar lined (1/4" thick) in 1990. This water main has no known history of failure.
Westfall Road (Sawgrass Drive to South Clinton Avenue)	12" DI 16" DI	This main is located on the south side of Westfall Road and was installed in 1992. It increases to 16" installed in 1989 at the South Clinton intersection and continues south on South Clinton. This water main has no known history of failure.
Westfall Road (Shilling Lane to South Clinton Avenue)	6" CI	This main is located on the north side of Westfall Road and was installed in 1958. The main continues north at the South Clinton intersection as a 6" DI. The 6" CI main has a history of failures and is a candidate for replacement.
Westfall Road (South Clinton Avenue to Lac-de-Ville Boulevard)	6" DI 8" DI	Main located on the north side, increases to 8 inch approx. 750 feet east of South Clinton Avenue. This water main has no known history of failure.
East Henrietta Road (within project limits)	24" DI	This main crosses Westfall Road at the East Henrietta Road intersection.
South Clinton Avenue (within project limits)	38" City Conduit 37" City Conduit	These mains cross Westfall Road at the South Clinton intersection.

Gas- Rochester Gas and Electric has gas distribution systems along Westfall Road that consist of wrapped steel (WR ST) and polyethylene (PE) pipes ranging in size from 4 inch to 12 inch. The following table indicates size, locations, and remarks about the gas mains.

Table II-21 – Existing RG&E Gas Mains

Location	Size and Material	Remarks
Westfall Road (East Henrietta Road to Green Knolls Drive)	12" WR ST	A 12" WR ST gas main (installed 1964) and a 12" WR ST high pressure gas main (installed 1949) run along the north side of Westfall Road.
Westfall Road (Green Knolls Drive to Metropolitan Drive)	4" WR ST 12" WR ST	A 4" WR ST gas main (installed 1964, 1969) and a 12" WR ST high pressure gas main (installed 1949) run along the north side of Westfall Road.
Westfall Road (Metropolitan Drive to South Clinton Avenue)	4" PE 12" WR ST 6" WR ST	A 4" PE gas main (installed 2000) crosses Westfall at Metropolitan Drive and runs along the south side of Westfall for 550 ft before turning south on Sawgrass. A 12" WR ST high pressure gas main (installed 1963, 1950, 1992, and 1990) runs along the north side of Westfall Road. A 6" WR ST gas main runs along the north side of Westfall Road beginning 600 ft east of South Clinton.
Westfall Road (South Clinton Avenue to Lac-de-Ville Boulevard)	8" WR ST 12" WR ST 6" WR ST	An 8" WR ST gas main (installed 1990) crosses Westfall 135 ft east of South Clinton. A 12" WR ST high pressure gas main (installed 1950, 1990) runs partially along the north side and partially along the north travel lane of Westfall. A 6" WR ST gas main (installed 1994) runs along the south side of Westfall.

t. Railroads

There are no railroads within the limits of this project.

u. Visual Environment/Landscaping

The Westfall Road corridor is a mix of residential, office, commercial, and park existing land uses. This mix of existing land uses brings a variety of visual and landscaping to the area including mature trees, well established lawns/plantings in the commercial areas, overhead utilities, closed and open drainage systems, and sidewalks

v. Provisions for Pedestrians and Bicyclists

Existing sidewalk on the north side of Westfall Road between East Henrietta Road and Metropolitan Drive is in fair condition having some locations of minor upheavals and non-standard ramp slopes. Sidewalk on the south side of Westfall Road between East Henrietta Road and Green Knolls Drive (East) is in poor condition exhibiting major upheavals, concrete deterioration, and non-conforming slopes and ramps. There is a 600 ft section of sidewalk on the north side of Westfall in the vicinity of Haudenosaunee Trail, servicing the Deerfield Woods subdivision. The sidewalk in this location is in good condition and meets standards. Sidewalk exists between South Clinton Avenue and Lac-de-Ville Boulevard on both north and south sides of Westfall Road and is in good condition meeting current standards.

Handicap accessibility, as defined by the Americans with Disabilities Act, is provided by sidewalks and ramps located to the east of South Clinton Avenue and north of Westfall Road near Haudenosaunee Trail. The sections of sidewalk between East Henrietta Road and Metropolitan Drive lack handicap accessible sidewalks.

There are several proposed developments (medical office, residential (CityGate)) along Westfall Road that have the potential to generate pedestrian and bicycle traffic.

Bicycles currently share the roadway with vehicles by making use of curb offsets and shoulders between Metropolitan Drive and Lac-de-Ville Boulevard. There are no provisions for bicyclists between East Henrietta Road and Metropolitan Drive, except to share the roadway lane with vehicles.

w. Planned Development for the Area

There are a few parcels left within Sawgrass Drive yet to be developed. One project currently under construction is the Brighton Medical Center, a 32,000 SF medical office building. Another 80,000 SF medical office building is reportedly proposed at the western terminus of Sawgrass Drive loop.

The Brighton Villas at the southeast corner of Westfall Road and Lac-de-Ville Boulevard is a 43 unit residential development, currently under construction.

The "Reserve" is a proposed 336 mixed unit residential development off the east side of South Clinton Avenue, situated

south of the I390/I590 interchange split and north of the Canal. This project was submitted to the Town of Brighton in the summer of 2008 and is in the very early stages of the approval process.

CityGate is a proposed mixed development, situated mostly in the City, upon the former Iola Campus. This development will consist of a 350 room hotel, 343,000 SF Shopping center, 160,000 SF office park, 990 apartment units, 990 mid rise apartments units, 110 residential condominium units.

Senator Keating Boulevard site is a multi-use development consisting of restaurants 18,100 SF, conference center (30,000 SF), retail (84,000) SF, hotel (162 rooms), office space (665,900 SF) and medical office space (60,000 SF). There are plans to extend Senator Keating Boulevard from where it currently ends near Lac-de-Ville Boulevard east to South Winton Road.

x. System Elements and Conditions

There are no known problems with Westfall Road that currently affect other existing transportation problems in the area or Region. However Westfall Road may receive additional traffic due to congestion at the NYS Route 15A/ I-390 interchange.

During construction, normal congestion and decreased mobility would occur through the project corridor due to contractor activities. It is anticipated that this decrease in mobility would be temporary. Coordination with the Brighton School District, Fire Department, Ambulance, and Police Department would be required to maintain these services to local residents.

2. Needs

a. Project Level Needs

(1) *Pavement Needs:* As described in Section II.C.1.1, the existing pavement between East Henrietta Road and Powell Road (Sta. 11+50 to Sta. 47+75) is in poor condition, exhibiting major surface deteriorations, inadequate pavement thicknesses (3.25" to 6"), and inadequate sub-base thicknesses (3" to 6"). Existing pavement from Powell Road to Lac-De-Ville Boulevard (Sta. 47+75 to Sta. 76+50) is in fair condition, exhibiting medium severity surface deteriorations and having adequate asphalt pavement (between 8.75" and 14.5"). The subbase gravel (3" to 12") does not meet current standards in some locations but the existing asphalt pavement provides an

adequate base and is performing relatively well based on the Riding Comfort Index (RCI) scores.

Figure II-13

Deteriorated Pavement at Metropolitan Drive

This project is necessary to address the identified pavement deficiencies and stop further degradation of the existing asphalt pavement, improve ride quality, and improve overall safety.

(2) *Safety Needs:* The accident analysis for Westfall Road shows the accident rates are higher than the MCDOT averages for four of the six segments and four of the seven intersections within the project limits as indicated in Tables II-16 and II-17, respectively. There are a relatively large number of rear-end accidents, especially near the South Clinton Avenue intersection. The high number of rear-end accidents may be related to congestion throughout the corridor, and providing additional lanes may help to reduce these accident rates.

(3) *Capacity Needs:*

The East Henrietta Road intersection is expected to operate at a LOS F during the PM peak hour in Existing + 10.

Sawgrass Drive is expected to operate at a LOS E during the PM peak hour in Existing + 20.

The South Clinton Avenue intersection currently operates at a LOS E during peak hours and it is anticipated that the intersection will operate at a LOS F by Existing + 10.

The predicted unacceptable LOS ratings for Existing + 10 and Existing + 20 are a result of the projected increase in traffic volumes associated with anticipated commercial development on and near Westfall Road over the next 10 to 20 years.

The additional capacities that would be required to bring all intersections to an acceptable level (LOS D or better) are listed in Table II-22. Meeting all of these capacity needs may not be feasible due to property impacts and excessive right-of-way acquisition of properties. These unacceptable delays are only expected to occur for less than one hour in one typical day (24 hours).

Table II-22 Capacity Needs for a minimum LOS D	
East Henrietta Road	
Existing AM	**Existing PM**
No Change	Add NB Right
Existing + 10 AM	**Existing + 10 PM**
Add NB Right	Add NB Right Add WB Left (2 total), Protected Only
Existing + 20 AM	**Existing + 20 PM**
Add WB Left (2 total), Protected Only Add NB Right	Add WB Left (2 total), Protected Only Add NB Right
Sawgrass Drive	
Existing AM	**Existing PM**
No Change	No Change
Existing + 10 AM	**Existing + 10 PM**
Add WB Left, Prot + Perm	Add SB Right (configuration LT, R) – NB is LOS 'E', but v/c<1.0 Or Add EB Thru (2 total) – all movements LOS 'D' or better
Existing + 20 AM	**Existing + 20 PM**
Add WB Left, Prot + Perm	Add SB Right (configuration LT, R) – NB is LOS 'E', but v/c<1.0 Or Add EB Thru (2 total) – all movements LOS 'D' or better
South Clinton Avenue	
Existing AM	**Existing PM**
Add WB Thru (configuration T, TR)	Add EB Right Add WB Thru (Configuration T, TR) Add SB Right
Existing + 10 AM	**Existing + 10 PM**
Add WB Thru (configuration T, TR) Add SB Right	Add EB Right Add WB Thru (Configuration T, TR) Add SB Thru (configuration T, TR) Add NB Thru (configuration T, TR)
Existing + 20 AM	**Existing + 20 PM**
Add WB Thru (configuration T, TR) Add SB Thru (configuration T, TR)	Add EB Thru (configuration T, TR) Add WB Thru (Configuration T, TR) Add SB Thru (configuration T, TR) Add NB Thru (configuration T, TR)
Lac-de-Ville Boulevard	
Existing AM	**Existing PM**
No Change	No Change
Existing + 10 AM	**Existing + 10 PM**
No Change	No Change
Existing + 20 AM	**Existing + 20 PM**
Add WB Right (configuration L, T, R) Add NB Right (configuration L, T, R)	Add EB Right (configuration L, T, R) Add NB Right (configuration L, T, R)

b. Corridor Area Needs

(1) *Modal Interrelationship:* The proposed project should not adversely affect any airport, rail, port, or other mass transit services. An analysis comparing the cost of increased capacity to the cost of improving other transportation modes is not applicable. Improving bicycle and pedestrian facilities encourages non-motorized forms of transportation making Westfall Road and the surrounding area an efficient multimodal use corridor.

(2) *System Needs:* Westfall Road serves as a major connection between East Henrietta Road, South Clinton Avenue, and Winton Road. Existing traffic congestion during peak travel periods combined with an anticipated increase in traffic volumes related to proposed developments may require increased capacity on Westfall Road between East Henrietta Road and Lac-de-Ville Boulevard in order to provide a safe and efficient route between these connection points. There are plans for extending Senator Keating Boulevard to Winton Road which may alleviate traffic on Westfall Road between Lac-de-Ville Boulevard and Winton Road.

(3) *Mobility Needs:* Morning and evening traffic counts indicates that Westfall Road is a commuter route for westbound traffic in the morning and eastbound traffic in the evening. The establishment of businesses and medical offices along Westfall Road verifies this travel pattern. The existing poor pavement in particular between East Henrietta Road and South Clinton Avenue reduces the ridability which people and goods travel though this area.

(4) *Social Demands and Economic Development:* The majority of the project between East Henrietta Road and South Clinton Avenue is commercial, community service and park land. There is a minor amount of residential property. Development of the community service areas would include medical offices. It would be important to provide for future anticipated pedestrian and vehicle traffic volumes along the corridor while minimizing negative impacts that may occur to adjacent properties.

(5) *Transportation Plans:* This project is listed on the Genesee Transportation Council Transportation Improvement Program for 2007-2012 as H05-02-MN1.

D. Objectives

The objectives of this project are to:

1. Correct identified pavement deficiencies and extend the useful life of the pavement and maintain a structurally sound highway, using cost effective pavement treatments.

2. Address highway capacity deficiencies at all signalized intersections to provide a Level of Service D or better for the overall intersection, provide a Level of Service E or better for each individual movement, and provide a volume/capacity ratio that does not exceed 1.00 for each individual movement using the Existing + 10 (2017) traffic projections.

3. Address traffic related safety issues and provide improvements that are anticipated to reduce accident rates throughout the corridor.

4. Provide safe, effective, and improved accommodation for pedestrians and bicyclists.

5. Develop a project that is consistent with the neighborhood character and preserves the environment, scenic, cultural and natural resources of the area.

III. ALTERNATIVE SOLUTIONS AND EVALUATION

A. Design Criteria

The design criteria for Westfall Road, as presented in Table III-1 has been developed in accordance with Chapter 2 (Design Criteria) of the New York State Department of Transportation's Highway Design Manual (HDM), the 2004 edition of the American Association of State and Highway Transportation Officials (AASHTO) Manual, "A Policy on Geometric Design of Highways and Streets", and Monroe County's Geometric Design Standards.

Table III-1 –Main Line Highway Design (in accordance with HDM § 2.7)			
PIN	4753.77	**NHS (Y/N)**	N
Route No. & Name	CR 239	**Functional Class**	Urban Minor Arterial
Project Type	Reconstruction	**Design Classification (AASHTO Class)**	Urban Arterial
% Trucks	< 2%	**Terrain**	Rolling
ADT	15333	**Truck Access Route:**	Non-Qualifying Highway

	Element	Standard Criteria	Reference	Existing Conditions
1	Design Speed [1]	45 MPH	HDM 2.7.2.2A	35 MPH Posted
2	Lane Width [2] travel/turn lanes	11 ft (minimum)	MCDOT	11 Feet
3	Shoulder Width [3] - swale or ditch - curb - gutter	8 ft (desired) 5 ft (minimum) 6 ft (minimum) 4 ft (minimum)	MCDOT	Varies 1 ft to 1.5 ft*
4	Bridge Roadway width	NA	NA	NA
5	Grade (maximum) [7]	7%	HDM 2.7.2.2 E	8.2%*
6	Horizontal curvature	666 ft @ e=4.0%	HDM 2.7.2.2 F	NA
7	Super-elevation rate	4.0% (maximum)	HDM 2.7.2.2 G	NA
8	Stopping Sight Distance	345 ft (minimum)	HDM 2.7.2.2 H	261 ft*
9	Horizontal Clearance ➢ with barrier ➢ w/o barrier ➢ at intersection	 0 ft 1.6 ft 3.3 ft	HDM 2.7.2.2 I	 NA 2 ft 3 ft
10	Vertical Clearance	NA	NA	NA
11	Pavement Cross Slope	3% (desired) 2% (minimum)	MCDOT	Varies 1.5% to 3% *
12	Rollover ➢ between travel lanes ➢ at EOT	 6.0% (maximum) 8.0% (maximum)	 MCDOT HDM 2.7.2.2 L	 Varies 3% to 6% Less than 0.5%
13	Structural Capacity	NA	NA	NA
14	Level of Service [4]	C (desirable) D (acceptable)	AASHTO	Varies
15	Control of Access	NA	NA	NA
16	Pedestrian Accommodations [5,6] ➢ sidewalk ➢ snow storage	 5 feet 2 ft min	 AASHTO	 5 ft Varies 4 ft to 11 ft
17	Median Width	NA	NA	NA
18	Design Vehicle [4]	S-Bus-12	AASHTO	NA

* Non-standard Feature

Notes:

1. MCDOT would review the selected Design Speed for Final Design
2. Curb lane width minimum is 14 feet.
3. Shoulder not normally provided where 3, 4, or 5 lanes are planned. A 2 foot to 3 foot curb offset is typically provided.
4. These elements are included as additional design parameters but are not considered design criteria for an Urban Arterial.
5. Tree lawn areas provide a buffer zone for pedestrians, snow storage, and utilities between the edge of pavement/curb and front of sidewalk.
6. To assure access for persons with disabilities, pedestrian facilities shall be located and constructed in accordance with "American with Disabilities Act Accessibility Guidelines for Buildings and Facilities.
7. An appropriate minimum grade is typically 0.5%, but grades of 0.3% may be used.

B. Alternatives Considered

During the Project Initiation phase and preliminary design phases of this project, several alternatives were considered for Westfall Road. The following is a brief summary of each alternative considered.

1. Alternative Number 1: No-Build / Maintenance

Under this alternative, the City and County would continue to maintain Westfall Road with routine maintenance efforts to extend the service life of the existing infrastructure. This maintenance would be temporary and would not eliminate or permanently improve identified geometric, pavement, drainage, operational and safety deficiencies. The pavement would continue to deteriorate and eventually the work required to maintain the facility would increase beyond what is considered a normal maintenance program. In addition to the continuing deterioration of the infrastructure, other inconveniences, delays, and annoyances to the local community and residents using this facility would escalate into larger problems and a more costly solution.

Figure III-1 Westfall Road looking west at E. Henrietta Road

The No-Build Alternative does not correct the present infrastructure deficiencies or satisfy the project objectives and will be dismissed from further consideration.

2. Alternative Number 2: Two-Lane Highway

This alternative would provide a two-lane section utilizing 11 ft travel lanes and 6 ft shoulders with curb edge treatments. Overall pavement width would be 34 ft. This lane configuration matches MCDOT's minimum lane and shoulder width for a two-lane urban minor arterial. Reconstruction sections would include total pavement and subbase replacement between East Henrietta Road and Sta. 47+75, near Haudenosaunee Trail. Rehabilitation sections would include a pavement milling and overlay between Sta. 47+75 and Lac-de-Ville Boulevard.

Although the two-lane section would increase the overall pavement width between East Henrietta Road and Sawgrass Drive, it does

not address the congestion related capacity and safety needs discussed in section II.C.2.a (Project Level Needs).

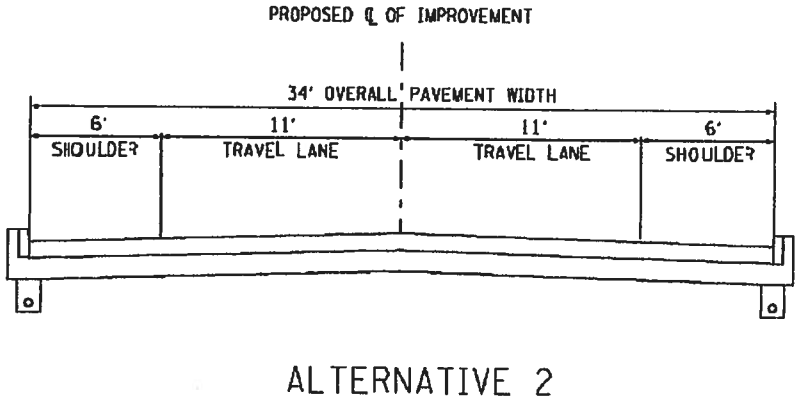


Figure III-2
Highway Section

3. **Alternative Number 3: Three-Lane Highway and Intersection Improvements**

a. **Highway Improvements**

This alternative would provide a three-lane section utilizing 14 ft travel (curb) lanes and an 11 ft continuous center left turn lane. Overall pavement width would be 39 ft. The three-lane section would provide additional mobility for turning vehicles, and an overall reduction in congestion is anticipated through the use of the two-way center left turn lane. Reconstruction sections would include total pavement and subbase replacement between East Henrietta Road and Sta. 47+75, near Haudenosaunee Trail. Rehabilitation sections would include a pavement milling and overlay between Sta. 47+75 and Lac-de-Ville Boulevard.

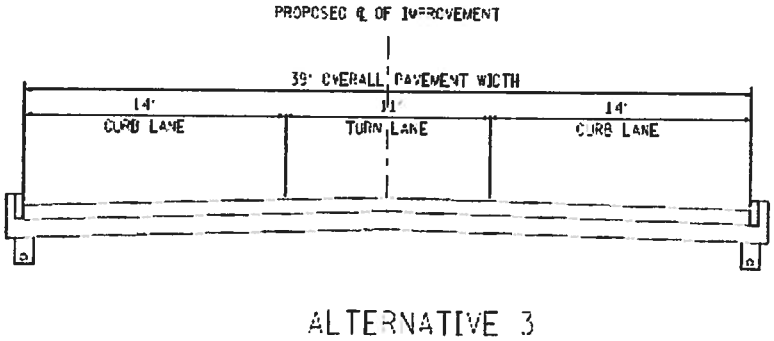


Figure III-3
Highway Section

b. **Intersection Improvements**

This alternative would address the intersection capacity and safety needs identified in section II.C.2 by providing additional lanes at intersections and adjusting signal times and phases as necessary. Improvements would include additional lanes at East Henrietta Road, Sawgrass Drive, and South Clinton Avenue intersections. The existing traffic signal would be replaced with a new traffic signal at South Clinton Avenue, and the traffic signals at East Henrietta Road and Sawgrass Drive intersections would be modified.

C. Feasible Alternatives

Based on the assessment completed to date, Alternative Number 3, Three-Lane Highway and Intersection Improvements have been deemed feasible to meet the project objectives. The following sections provide a more detailed evaluation of the feasible alternative. Typical sections, plans, and profiles can be found in Appendix A.

1. Description of the Feasible Alternative

The feasible alternative would provide a typical three lane section (14 ft travel (curb) lanes and an 11 ft continuous center left turn lane) on Westfall Road from East Henrietta Road to Lac-de-Ville Boulevard. These proposed lanes widths would match the existing lane widths from Haudenosaunee Trail to Lac-de-Ville Boulevard.

Intersection improvements would include:

Intersection	Proposed Improvements
East Henrietta Road	• Add a northbound right turn lane. • Add a westbound left turn lane (2 total).
Sawgrass Drive	• Add a southbound right turn lane.
South Clinton Avenue	• Add a westbound through/right lane. • Add a southbound right turn lane. • Add an eastbound through/right lane.
Lac-de-Ville Boulevard	• No changes are proposed.

The proposed configurations for these intersections are shown on the plan sheets in Appendix A. In addition to intersection widening, a new traffic signal would replace the existing traffic signal at the South Clinton Avenue intersection. Traffic signal modifications at the East Henrietta Road and Sawgrass Drive intersections would be required due to pavement widening. Traffic signal interconnect conduit would be provided for the length of the project.

2. Engineering Considerations of the Feasible Alternatives

a. Geometric Features

The feasible alternatives would address all the existing non-standard features within the project limits such that these features meet the design criteria listed in Table III-1, *Design Criteria.*

The proposed roadway profile between Metropolitan Drive and Sawgrass Drive would be raised as a part of the feasible alternative to eliminate three existing non-standard features including two stopping sight distances and a vertical profile grade. The stopping sight distances at Sta. 28+40 and Sta. 33+66 would increase from 290 ft and 261 ft, respectively, to the standard distance of 345 ft, and the existing grade east of Metropolitan Drive would decrease from an existing 8.2% to the standard grade of 7%. This profile adjustment would result in an additional earth work volume of approximately 2500 cubic yards.

Pavement cross slopes would be constructed to MCDOT standards during pavement reconstruction or rehabilitation.

The feasible alternatives would also correct the existing non-conforming ditches present between Metropolitan Drive and Sawgrass Drive. Installation of curb and a closed drainage system would eliminate all existing non-conforming ditches.

b. Traffic Forecast Operations and Considerations

(1) Table III-2 shows the Intersection Level of Service summary for the Build conditions for Existing + 10 and Existing + 20 peak hour volume forecasts.

Table III-2 – Intersection LOS Summary Comparisons (Build Conditions)					
	Location	AM Peak Hour - LOS (sec)		PM Peak Hour - LOS (sec)	
		Existing + 10 2017	Existing + 20 2027	Existing + 10 2017	Existing + 20 2027
East Henrietta Rd	**Intersection**	**C (32.8)**	**D (39.9)**	**D (42.2)**	**D (51.4)**
	NB Left	D (36.2)	D (48.9)	D (51.1)	D (52.9)
	NB Thru	C (31.4)	D (41.8)	D (49.2)	D (53.2)
	NB Right	A (8.8)	B (15.1)	A (9.4)	A (8.8)
	SB Left	D (40.4)	D (52)	D (54.1)	E (75.2)
	SB Thru/Right	C (30.8)	D (40.7)	D (38.1)	D (45.3)
	EB Left	D (36.3)	D (36.4)	C (27.2)	D (40.7)
	EB Thru/Right	D (48.6)	D (50)	D (50.7)	D (53.3)
	WB Left	D (54.9)	D (49.9)	D (53.9)	E (74.4)
	WB Thru/Right	D (35.2)	D (37.6)	C (31.1)	D (52.5)
Sawgrass Dr	**Intersection**	**C (24)**	**C (30)**	**C (28)**	**D (37)**
	NB Left/Thru	E (56)	E (56)	E (72)	E (80)
	NB Right	B (12)	B (11)	C (28)	C (30)
	SB Left	D (42)	D (42)	D (52)	D (49)
	SB Thru/Right	B (14)	B (14)	A (6)	A (6)
	EB Left	C (24)	C (30)	A (9)	A (10)
	EB Thru	D (36)	D (50)	C (28)	D (45)
	EB Right	A (3)	A (5)	A (3)	A (4)
	WB Left	D (47)	D (54)	C (29)	E (62)
	WB Thru/Right	A (2)	A (2)	B (11)	B (14)
South Clinton Ave	**Intersection**	**C (34)**	**D (37)**	**E (70)**	**F (83)**
	NB Left	D (36)	C (34)	C (28)	D (51)
	NB Thru/Right	C (29)	C (26)	E (78)	F (174)
	SB Left	C (25)	C (23)	D (41)	D (44)
	SB Thru	D (55)	D (55)	D (54)	E (79)
	SB Right	B (17)	C (20)	B (16)	B (19)
	EB Left	C (31)	E (65)	F (201)	F (116)
	EB Thru/Right	A (10)	B (12)	D (47)	C (33)
	WB Left	C (22)	C (30)	C (33)	D (40)
	WB Thru/Right	D (44)	D (49)	E (56)	E (63)
Lac-De-Ville Blvd	**Intersection**	**C (22)**	**C (26)**	**C (32)**	**D (44)**
	NB Left/Thru	D (44)	D (54)	D (54)	E (72)
	NB Right	A (9)	B (11)	B (14)	B (16)
	SB Left/Thru	D (55)	E (72)	D (47)	E (77)
	SB Right	B (15)	C (22)	A (3.9)	A (5)
	EB Left	C (28)	D (54)	B (12)	B (19)
	EB Thru/Right	B (14)	B (17)	D (35)	D (51)
	WB Left	B (11)	A (10)	D (54)	E (62)
	WB Thru/Right	C (21)	C (22)	C (22)	C (23)

Under the feasible alternative, East Henrietta Road, Sawgrass Drive, and Lac-de-Ville Boulevard are predicted to have an acceptable overall intersection LOS (compared with only Lac-de-Ville Boulevard under the no-build condition).

Delays are predicted to decrease with the feasible alternative at all intersections except Lac-de-Ville Boulevard, where the actuated cycle length would increase from 60 seconds to 120 seconds to match adjacent signals in the network.

The calculated LOS for the South Clinton Avenue intersection is E during the Existing + 10 PM peak hour. Despite not meeting the project objective of LOS D or better, the average delay for the intersection is decreased from 165 seconds (LOS F) under the no-build condition to 70 seconds (LOS E) under the feasible alternative. A delay of 55 seconds (LOS D) would be acceptable at this intersection.

The eastbound left turn movement at South Clinton Avenue is calculated to be a LOS of F during the Existing + 10 PM peak hour. Despite not meeting the project objective of LOS E or better for individual movements, the average delay is decreased from 323 seconds under the no-build condition to 201 seconds under the feasible alternative.

The northbound through movement at South Clinton Avenue is calculated to be a LOS of E and has a volume to capacity (v/c) ratio of 1.05 during the Existing + 10 PM peak hour. A v/c ratio above 1.0 indicates an excess of demand over capacity and does not meet the project objectives for individual movements at signalized intersections. Despite not meeting project objectives, the average delay is decreased from 113 seconds (LOS F) under the no-build condition to 78 seconds (LOS E) under the feasible alternative.

The required improvement to mitigate these projected future operational deficiencies would be to extend a second northbound through lane and add a second eastbound left turn lane at the South Clinton Avenue intersection. Since these improvements would result in significant property impacts, additional construction costs, possible building acquisitions and excessive ROW acquisitions, they are not recommended at this time. In addition, the projected operational deficiencies are only expected to occur for less than one hour during peak AM and PM periods of traffic in one typical day (24 hours).

(4) *Safety Considerations:* Under the feasible alternative, it is anticipated that the accident rates mentioned in Section II.C.1.k (Accident History) would be reduced.

Specifically, it is anticipated that:

- Intersection widening at South Clinton Avenue would improve the LOS at this intersection and thus decrease congestion and the corresponding number of rear end accidents.
- The addition of a two-way center left turn lane would decrease accident rates in the corridor by improving the mobility of through-traffic.

Additionally, it is anticipated that accident rates and the overall safety of the corridor would be improved with the following infrastructure improvements:

- Improved pavement striping and signage.
- Improved roadway drainage.
- Continuous sidewalk and curbing on both sides of Westfall Road.

c. Pavement

Based on the results of the pavement cores performed along Westfall Road, it is recommended that the pavement treatment consist of full depth reconstruction between East Henrietta Road and Powell Road (Sta. 11+62 to Sta. 47+75), and milling/overlaying from Powell Road to Lac-de-Ville Boulevard (Sta. 47+75 to Sta. 75+70).

Using the NYSDOT Comprehensive Pavement Design Manual, dated June 2000 and elements of the NYS Thickness Design Manual for New and Reconstructed Pavements, Revision 1 (10/31/94), the minimum pavement section consist of 6 ½ inches of asphalt concrete over 12 inches of sub-base material. Based on this evaluation, it is recommended that Monroe County's standard pavement section be used for this project. The asphalt pavement courses would consist of:

- 6 inches of asphalt base course placed in 2-3 inch lifts
- 2 inches of binder
- 1½ inches of top

The combined pavement thickness would be 9 ½ inches. Geotextile fabric would be placed beneath the 12 inch subbase course in new pavement and pavement reconstruction areas as needed to prevent the mixing of fines and provide additional support for the new pavement in these areas.

d. Structures

There are no structures associated with this project.

e. Hydraulics of Bridge and Culverts

The 40" x 50" culvert at Sta. 52+25 is in good condition and would not be significantly impacted by the proposed highway improvements. The inlet and outlet of the culvert would be cleaned as part of the feasible alternative in order to improve the hydraulic adequacy of the culvert in this location.

The 42" x 72" culvert at Sta. 44+75 would be replaced under the feasible alternative in order to address the structural deficiencies of the existing culvert.

f. Drainage

Overall drainage patterns would not be altered significantly. Proposed drainage for the preferred alternative would include a closed drainage system designed for the ten-year storm frequency. Surface runoff along the corridor would be carried longitudinally along the curb line to catch basins interspaced throughout the corridor. The catch basins would connect to an associated storm water drainage system that would manage road drainage and storm water drainage in accordance with water quality practices. Channel protection would be provided as necessary to reduce the potential for localized scouring.

Underdrain would be placed along both sides of the roadway to provide for adequate pavement section drainage and would connect to the proposed storm inlets.

The proposed profile would generally duplicate current conditions. Some changes may occur at locations where the sight distance needs improvement.

Reticuline (bicycle safe) drainage grates would be installed to provide a safe riding surface for bicyclists.

The proposed stormwater improvements would be detailed during the Final Design and shown on the contract plans.

g. Maintenance Responsibility

The proposed ownership for the various features along Westfall Road is described in Table III-3:

Table III-3 – Ownership and Maintenance Jurisdiction – Westfall Road		
Feature	**Within City of Rochester**	**Within Town of Brighton**
Pavement	City of Rochester	Monroe County
Traffic Signal System	Monroe County	Monroe County
Signs/Pavement Markings	Monroe County	Monroe County
Sidewalks	City of Rochester	Town of Brighton
Storm Sewers	Monroe County Pure Waters	Monroe County
Sanitary Sewers	Monroe County Pure Waters	Town of Brighton
Interceptor Sewer	Monroe County Pure Waters	Monroe County Pure Waters
Water Main	City of Rochester Water Bureau	Monroe County Water Authority
Telephone System	Frontier Telephone of Rochester	Frontier Telephone of Rochester
Gas Distribution System	Rochester Gas and Electric	Rochester Gas and Electric
Electric Distribution System	Rochester Gas and Electric	Rochester Gas and Electric
Cable Telephone System	Time Warner Communications	Time Warner Communications
Fiber Optic System	Fibertech of Rochester, MCDOT and MCDES	Fibertech of Rochester, MCDOT and MCDES

h. Maintenance and Protection of Traffic

Traffic on Westfall Road would be maintained using both on and off site measures. The off-site measures would be used where work zones and activities are required for an extended period of time. The details would be developed during final design. It is anticipated that one way traffic flow would be established while work is completed on one half of the roadway.

All construction sequencing would be coordinated with other construction projects within the area in order to minimize impacts to the traveling public.

A detour route may be necessary for the reconstruction of Westfall Road between East Henrietta Road and Haudenosaunee Trail. The detour route would likely include East Henrietta Road, South Avenue, Elmwood Avenue, and South Clinton Avenue.

The projected construction schedule would be to have the roadway work completed in one construction season, starting in 2011.

During construction, access would be maintained to all residential, church, recreational, business and commercial driveways. A clearly marked travel way would be delineated through the use of temporary pavement markings, traffic signage and delineation devices.

All maintenance and protection of traffic plans would be designed using Monroe County's standards, National MUTCD, NYSDOT supplement to the National MUTCD, the pertinent sections of the NYSDOT Highway Design Manual, and relevant NYSDOT Engineering Instructions and Bulletins.

i. Soils and Foundations

The Subsurface Investigation Report (see Appendix E) revealed no major problems with existing soil conditions and no action would be required. Three of the eleven bores showed native topsoil 2 to 4 feet below the existing surface. Excavation of the pavement and subbase would include removal of topsoil that is exposed. However, as discussed previously, the use of a geotextile fabric underneath the pavement subbase would be recommended to help keep fine-grained material from mixing with the subbase in certain locations.

j. Utilities

A list of public and privately owned utilities is provided in Section II.C.1.s (Utilities). Impacts to existing utilities are anticipated due to the introduction of a closed drainage system, sidewalk, and widening the pavement section.

It is anticipated that water main replacement or relocation would be included between Sawgrass Drive and the eastern property line of 980 Westfall Road (Sta. 68+50).

All proposed impacts and relocations would be coordinated with the respective utility companies during Final Design.

k. Railroads

There are no active railroads within the project limits.

l. Right-of-Way

De minimis right-of-way actions (temporary easements, permanent easements) would be required along the corridor. These acquisitions would be a result of roadway widening, drainage improvements, and incorporation of sidewalks. The overall width of Alternative 3 with sidewalks is approximately 60 feet. The existing right-of-way width between East Henrietta Road and Sawgrass Drive is 49.5 feet. In general, strip takings would be required to accommodate the proposed highway section. The right of way acquisitions are shown in Table III-4:

Table III-4 – Right of Way Acquisitions				
Property	**Reputed Owner**	**Type of Acquisition**	**Estimated Area of Acquistion (sf)**	**Percent of Total Parcel**
350 East Henrietta Rd	Anthony J. Costello Son Dev	PE	32,202	4.0%
435 East Henrietta Rd	Monroe Community Hospital	PE	3,137	0.3%
401 Westfall Rd	County of Monroe	PE	876	0.2%
435 Westfall Rd	South Wedge Inc	PE	2,958	9.4%
445 Westfall Rd	County of Monroe	PE	2,632	10.0%
0 Westfall Rd	Castle Office Group, LLC	PE	10,616	3.1%
620 Westfall Rd	Rochester State Hospital	TE	1,233	<0.1%
620 Westfall Road	Rochester State Hospital	PE	8,981	0.3%
777 Westfall Rd	New York State	PE	2,372	0.1%
880A-880E Westfall Rd	Professional Office Building	PE	1,838	3.0%
890A-890F Westfall Rd	Professional Office Building	PE	1,819	3.6%
900A-900D Westfall Rd	Professional Office Building	PE	6,073	9.5%
940 Westfall Road	Ambrosia Properties, LLC	PE	901	5.2%
979 Westfall Road	Genesee Valley Assoc	PE	1,633	1.4%
2220 South Clinton Ave	Ambrosia Properties, LLC	PE	1,626	7.7%
2253 South Clinton Ave	Westfall Park Associates	PE	2,638	0.8%
4901 Lac de Ville Blvd	Comida	PE	2,059	0.4%
		TOTAL	83,594	

m. Landscape Development

It is expected that some impacts to the existing landscape would occur. The primary landscape goal is to protect the existing vegetation by minimizing grading, trimming, and clearing operations. Landscape development activities for the project may include:

- Repair lawn area disturbed during construction
- Protect existing vegetation within the project limits
- Plant new vegetation as necessary

In general, landscaping and streetscape measures would be included in this project to ensure a visually appealing final product.

n. Provisions for Pedestrians

The project corridor traverses through a mix of land uses including: businesses, religious, park land, apartments and medical offices. Future pedestrian volumes are anticipated to increase with the addition of sidewalks along Westfall Road. Sidewalks would connect to the existing sidewalk system at East Henrietta Road, South Clinton Avenue and connect to the existing sidewalk system on Westfall Road east of South Clinton Avenue. The proposed sidewalk would connect to the existing systems along the project corridor with new 5 foot wide concrete sidewalk. Curb cuts and ADA compliant ramps would be provided at all side street intersections.

The signalized intersections that include East Henrietta Road, Sawgrass Drive, South Clinton Avenue and Lac-de-Ville Boulevard would have crosswalks and pushbutton indicators for the pedestrian signals.

A 5 foot green space would separate the sidewalk from the road curb line in most locations.

A north-south trail that will intersect the project at Sawgrass Drive is being progressed as a separate contract. The multi-use trail will be 10 feet wide within the project limits and cross Westfall Road at Sawgrass Drive.

o. Provisions for Bicycling

Alternative Number 3 would accommodate bicyclists in the proposed 14 foot wide shared use lane in each direction.

p. Lighting

The proposed lighting would be placed in the locations as it currently exists. The existing lighting includes standard luminaries and brackets mounted on Rochester Gas and Electric (RG&E) poles within the City limits from Metropolitan Drive to East Henrietta Road. Coordination with utility companies would be required for relocation of poles and bracket arms impacted by the project design.

D. Project Costs and Schedule

1. Project Costs

The estimated opinions of probable costs for Westfall Road are:

Table III-5 - Feasible Opinion of Probable Costs

MAJOR ITEM COSTS:		**ORIGINAL**
PAVEMENT:	$	1,225,000
SUBBASE:	$	262,000
MILLING:	$	43,000
CURBING	$	278,000
SIDEWALK	$	250,000
EARTHWORK:	$	288,000
UNDERDRAIN:	$	101,000
DRAINAGE:	$	779,000
LANDSCAPE ITEMS:	$	82,000
MISC. (SIGNS, MARKS):	$	32,000
TRAFFIC SIGNAL	$	400,000
ADMINISTRATION/FIELD OFFICE	$	15,000
SUBTOTAL MAJOR ITEM COSTS:	**$**	**3,755,000**
MISCELLANEOUS ITEM COSTS:		
M&PT (USE 8 %):	$	301,000
SURVEY (USE 2 %):	$	76,000
SUBTOTAL	**$**	**4,132,000**
CONTINGENCY (USE 10 %):	$	413,000
SUBTOTAL	**$**	**4,545,000**
MOBILIZATION (USE 4 %):	$	190,000
SUBTOTAL	**$**	**4,735,000**
TOTAL PROJECT COSTS:	**$**	**4,735,000**

This section of Westfall Road would be funded with 80% Federal, 15% State and 5% County Funds. Funding in the amount of $5,455,000 is programmed for 2011 and is pending adoption by the Genesee Transportation Council.

2. Schedule

The following are considered key project dates:

- Receive Design Approval — Summer 2009
- Advertise for Construction — Winter 2011
- Construction Begins — Summer 2011
- Construction Ends — Summer 2012

IV. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSIDERATIONS

A. Introduction

The purpose of this chapter is to identify the social, economic, and environmental consequences related to the proposed Phase III Westfall Road Improvements project.

1. State Environmental Quality Review Act and Lead Agency

Classification of the proposed project under the New York State Environmental Quality Review Act (SEQRA), New York State Department of Transportation Environmental Procedures Manual (17 NYCRR Part 15), as determined by Monroe County, the lead agency for SEQRA and is an Unlisted Action. This determination was made based on the following SEQRA criteria:

- Minor improvements or alterations to existing highways, including safety improvements, such as adding or widening shoulders, adding auxiliary lanes for weaving, climbing, turning, or speed change, or correlation of substandard features.

A negative declaration was issued for this project on November 28, 2008, see Appendix B for this correspondence.

2. National Environmental Action Plan Classification

The project is being progressed as a Programmatic Categorical Exclusion, Class II Action, under the provisions of the National Environmental Policy Act (NEPA), as defined by the Federal Highway Administration (FHWA) in 23 CFR 771 of the Code of Federal Regulations.

A completed NEPA Assessment checklist is contained within Appendix H of this report.

B. Social, Economic, and Environmental Consequences

1. Social Consequences

a. Affected Population

The project corridor is primarily medical offices, one church, a Town Park, and commercial business buildings. The residential areas adjoining the project are between Metropolitan Drive and East Henrietta Road. There are no retail businesses located within the project limits.

The Town of Brighton had a population of 35,588 in 2000. Males account for 47% and females accounted for 53% of the population. The majority of the population is between the ages of 25 to 44. The majority of the population consists white followed by Asian. The median household income was $52,066. Renter occupied housing accounted for 40.6 percent of the housing units with a median owner occupied value home of $124,100.

b. Local Planning Process

There are a few parcels left within Sawgrass Drive yet to be developed. One project currently under construction is the Brighton Medical Center, a 32,000 SF medical office building. Another 80,000 SF medical office building is proposed at the western terminus of Sawgrass Drive loop.

The Brighton Villas at the southeast corner of Westfall and Lac-de-Ville is a 43 unit residential development currently under construction.

The "Reserve" is a proposed 336 mixed unit residential development off the east side of South Clinton, situated south of the I390/I590 interchange split and north of the Canal. This project was submitted to the Town of Brighton in the summer of 2008 and is in the very beginning stages of the approval process.

CityGate is a proposed mixed development, situated mostly in the City, upon the former Iola Campus. This development will consist of a 350 room hotel, 343,000 SF Shopping center, 160,000 SF office park, 990 apartment units, 990 mid rise apartments units, 110 residential condominium units.

Senator Keating Boulevard site is a multi use development consisting of restaurants (18,100 SF), conference center (30,000 SF), retail (84,000 SF), hotel (162 rooms), office space (665,900 SF) and medical office space (60,000 SF).

c. Community Cohesion

This project is not expected to change neighborhoods, impact property values, or isolate a portion of a neighborhood or ethnic group.

d. Changes in Travel Patterns & Accessibility

No permanent changes in accessibility or travel patterns would occur as a result of this project. Due to construction activities, some temporary delays and detours can be expected. Upon completion of the project, existing travel patterns would be restored.

e. Impacts on School Districts, Recreation Areas, Churches, or Businesses

The project would create minimal disturbance to school districts, recreation areas, churches, or businesses. The only adverse affect associated with these groups would be during construction.

f. Impacts on Police, Fire Protection, and Ambulance Access

These services would be contacted prior to construction in order to establish a plan to minimize response times during construction.

g. Impacts on Highway Safety, Traffic Safety, and Overall Public Safety

To ensure highway, traffic, and public safety, this project would be constructed in accordance with the criteria established in the National Manual of Uniform Traffic Control Devices with NYS Supplement. Construction of the project would eliminate all of the nonstandard features and would improve the overall safety in the project area. The widened curb-to-curb width will improve safety by providing drivers with more room for turning movements and provide an acceptable width for shared use with bicyclists. Additional sidewalks connecting existing sidewalks would increase pedestrian mobility through the project area and provide safer routes.

h. General Social Groups Benefited or Harmed

This project is not expected to adversely affect the elderly, persons with disabilities, minorities, or ethnic groups.

(1) *Effects on Elderly & Disabled Persons:* Construction of a safer, more forgiving roadway would benefit drivers who are elderly or disabled, and have typically slower reaction times and reflexes compared to average drivers. An easier road to drive should promote accessibility by all groups.

(2) *Effects on Low Income, Minority, and Ethnic Groups:* There is no foreseeable correlation between the construction of this project and effects on low income, minority, or ethnic groups. This project would not have any adverse effects on human health or any environmental effects on minority or low-income populations.

2. Economic Consequences

a. Impacts on Regional and Local Economies

A major short-term benefit would be the generation of jobs to construct the proposed improvements. This project would result in long-term benefits such as easier and safer movement of people and goods and an improved infrastructure.

b. Impacts on Existing Highway-Related Businesses

There are no area businesses that would be permanently impacted due the project.

c. Impacts on Established Business Districts

There are no established business districts in or adjacent to the project area.

d. Relocation Impacts

No residences or businesses would be displaced as a result of this project.

3. Environmental Consequences

a. Surface Waters/Wetlands

(1) *Surface Waters:* Two intermittent streams are shown to cross Westfall Road within the project limits, according to the Official Compilation of Codes, Rules, and Regulations of the State of New York, Division of Water Resources. These waters are both tributaries of Tributary 3 of Allen Creek which crosses Westfall Road east of the project area. Allen Creek flows northeast from Westfall Road, flowing into the Irondequoit Creek in the Town of Penfield, Monroe County. The New York State Department of Environmental Conservation (NYSDEC) Water Index Numbers for the two tributaries that cross Westfall Road

within the project limits are Ont. 108-P 113-3-8-3-1 and Ont. 108-P 113-3-8-3-1. The water quality classification for these waters is Class C with C Standards.

Within the project area, Tributaries 1 and 2 of Tributary 3 of Allen's Creek are classified by the NYSDEC as Class C waters with C Standards (6 NYCRR Part 846). Class C waters with C Standards are not included in the definition of a protected stream in 6 NYCRR Part 608 Use and Protection of Waters. According to the NYSDEC, the best usage of Class C waters is for fishing and other non-contact recreational activities. They are not suitable as a drinking water and do not meet the New York State Department of Health (NYSDOH) drinking water standards (6 NYCRR Part 701). Tributaries 1 and 2 of Tributary 3 of Allen Creek flow south, underneath Westfall Road, via existing culvert locations. Tributary 1 crosses Westfall Road between Haudenosaunee Trail and Sawgrass Drive. Tributary 1 was not observed during the site walkover of the project corridor. It is likely that the drainage pattern of this water has been altered since the initial NYSDEC stream mapping was completed.

Because of the water quality classification of these waters, an Article 15 Stream Disturbance Permit would not be required from the NYSDEC in order to upgrade or replace drainage culverts within the project area. It is anticipated that the proposed project would qualify for a United States Army Corps of Engineers (USACE) Section 404 Nationwide #3 permit for replacement and reconstruction of an existing structure and/or facility. A Section 401 Water Quality Certification would be required from the NYSDEC as a blanket permit for the required USACE Nationwide permit. The proposed culvert replacements and subsequent roadway work would result in temporary runoff changes and minor discharges of fill material. Potential impacts would be minimized by the use of temporary erosion and sediment control practices during construction.

(2) *Wetlands:* A review of NYSDEC freshwater wetland mapping indicates an absence of NYSDEC jurisdictional wetlands within the project area. The closest wetland under state jurisdiction, BR-10, is located approximately 1700-feet to the north of Westfall Road. Because there would not be any impacts to NYSDEC regulated wetlands, an Article 24 Freshwater Wetlands Permit would not be

required for this project. National Wetland Inventory mapping showed three wetland areas within 600-feet of Westfall Road, but none immediately adjacent.

A wetland site inspection of the project area was performed by Barton & Loguidice, P.C. on October 31, 2007, to determine the presence of wetlands immediately adjacent to the project site. This inspection concluded with the identification of one wetland area under federal jurisdiction adjacent to Westfall Road. This wetland area is associated with Tributary 2 of Tributary 3 of Allen Creek. This wetland is located at the convergence of three culverts, just west of Haudenosaunee Trail. No impacts to this wetland are proposed..

(3) *Coastal Zone Management:* The project site is not located within the New York State Coastal Zone.

(4) *Navigable Waters:* The intermittent streams mapped within the project corridor do not meet the definition of a navigable water according to the guidelines set forth by the NYSDEC. Therefore, an Article 15 Permit for Excavation and Fill in Navigable Waters would not be required from the NYSDEC. Neither the USACE nor the United States Coast Guard (USCG) recognizes these waters as navigable waterways. Since the project does not involve construction activities in a navigable waterway as defined by the USACE or the USCG, this project would not require Section 10 or Section 9 permits.

(5) *Wild, Scenic and Recreational Rivers:* The intermittent streams located along Westfall Road are not listed in the National Wild, Scenic, and Recreational Rivers Program, nor are they a part of the NYS Wild, Scenic, and Recreational River System Act (16 U.S.C. 1271-1287), Article 15, Title 27 of the 1994 Environmental Conservation Law (ECL).

(6) *Flood Plains:* Federal Emergency Management Agency (FEMA) mapping showed that the entire project corridor is located outside of the 100-year and 500-year flood zones. Therefore, Executive Order (EO) 11988, which regulates the amount of impact a project can have on a floodplain, does not apply to this project.

b. Water Source Quality

The Westfall Road project area is located within the Irondequoit Bay Drainage Basin (Part 846). This area is not located within or adjacent to any United States Environmental Protection Agency (USEPA) designated Sole Source Aquifers. The project site does not overlay a primary water supply aquifer or a principal aquifer area as mapped by the United States Geologic Survey (USGS) (Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York – Finger Lakes Sheet, Water Resources Investigations Report 87-4122, Miller, 1988).

The project corridor is not located in an area classified as a primary water supply aquifer or a principal aquifer area by the NYSDEC. No further processing for NYSDEC designated aquifers is required under this guidance.

According to the 1990 NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) No. 2.1.3, there are several criteria that an aquifer must meet in order to exhibit principal aquifer characteristics. These include sustained well yield, aquifer thickness, and extent of contiguous permeable deposits serving as aquifer recharge areas. Since detailed hydrogeologic data is not often available for specific areas requiring principal aquifer determinations, the USGS Water Resources references cited above allow for preliminary aquifer identification on the absence of such data.

A site walkover of the proposed project corridor was completed. Based on the observations from this walkover, no visible indicators were present which would refute the information contained in the previously cited references that indicate that the project site does not overlie a principal or primary aquifer. The residential and commercial properties that line Westfall Road are served by a public water supply.

c. General Ecology and Wildlife

The project area is located in the center of Monroe County. The site is located in the Town of Brighton and the City of Rochester. Commercial properties and townhouse complexes primarily line both sides of Westfall Road, within the project limits. The project corridor provides for a high level of vehicular and pedestrian traffic. The two previously noted tributaries that cross Westfall Road are small drainages with minimal flow and associated vegetation.

The NYSDEC Natural Heritage Program (NHP) was contacted for information regarding the reported presence of any state listed endangered or threatened species or significant habitats located within or adjacent to the project area. A response from the NHP indicated that no known occurrences of threatened or endangered species are known near the project area. Copies of the correspondence with the NYSDEC NHP can be found in Appendix B.

An information search regarding federally listed endangered and threatened species was conducted. The Department of the Interior United States Fish and Wildlife Service (USFWS) Cortland Field Office website was consulted for a list of the species located in Monroe County under USFWS protection. This database search identified that populations of the bog turtle (*Clemmys muhlenbergii*) are known to occur within the Townships of Riga and Sweden within Monroe County. The proposed Westfall Road Improvement project is not near these townships; therefore, no further coordination is necessary. Regardless, no suitable bog turtle habitat was observed within the project limits. No threatened, endangered, or rare species were observed within the project area during the site walkover conducted on October 31, 2007.

The NYSDEC list of Critical Environmental Areas (CEAs) was reviewed to determine if any such areas exist near the project site. There are currently two Critical Environmental Areas located within Monroe County. One listed CEA protects Hotel Creek within the Town of Riga, while the other lists protected areas within the City of Rochester. These protected areas consist of the following:

- Land within 100-feet of the Genesee River Barge Canal, Lake Ontario, or River Gorge;
- Slopes and Crests of glacial formations;
- Areas zoned as "open space";
- Lands with slopes greater than 15 percent;
- Heavily wooded areas;
- Freshwater wetlands; and
- Drainage systems designated on official street mapping.

The Westfall Road Improvements Project would not impact any of these protected lands within the City of Rochester.

d. Historic and Cultural Resources

A review of the State Historic Preservation Office's (SHPO) website indicated that the project corridor is located within an Archeological Sensitive Area. There is one listed historic property (94NR00541) located near the project area. This property is located on South Clinton Avenue, north of Westfall Road. Therefore, no impacts to this historic site would occur.

A Cultural Resource Management Report was prepared by the Regional Heritage Preservation Program of the Rochester Museum & Science Center. The report presents the results of a cultural resource reconnaissance survey conducted within the project limits. The report is attached as Appendix G (separately bound).

This reviewed information was documented in a project screening letter and submitted to the NYS Office of Parks, Recreation, and Historic Preservation (OPRHP) for their determination regarding the potential of the project to adversely impact archeological or cultural resources within the project area. Based on their review it is the OPRHP's opinion that this project will have *No Impact* upon cultural resources in or eligible for inclusion in the State and National Register of Historic Places. See letter from OPRHP dated March 18, 2009 in Appendix B.

The U.S Department of Transportation, Federal Highway Administration concurred that the project will have *No Effect* on properties on or eligible for inclusion on the National Register of Historic Places, see correspondence in Appendix B dated April 17, 2009 from FHA.

e. Visual Resources

The proposed project would not reduce the aesthetic value of the Westfall Road corridor or the surrounding area. This project would enhance the safety and accessibility within the area. All appropriate measures would be incorporated into the project plans to minimize impacts to environmental resources and parks in the area. A photo simulation of the proposed alternative is included in Appendix J.

f. Parks and Recreational Facilities

Existing parkland within the project limits includes the Town of Brighton Park, located west of South Clinton Avenue. The proposed pavement rehabilitation and infrastructure improvements for this project would not significantly impact this parkland.

Due to Federal funding of this project, Section 106 of the Historic Preservation Act and Section 4(f) of the National Transportation Act of 1966 will apply to this project. Section 106 applies to historic and cultural resources, including tribal lands and pre-contact sites. Section 4(f) reviews impacts that may occur to public parks and recreational lands, wildlife and waterfowl refuges, and historic sites. Section 106 determinations of effect have been reviewed and confirmed by the Federal Highway Administration (FHWA) that the requirements of 36CFR Part 800 have been met for this project. FHWA has found that this undertaking would have NO Effect upon properties on or eligible for inclusion on the National Register of Historic Places and notified SHPO of this finding. See FHWA letter dated April 17, 2009 in Appendix B.

g. Farmland Assessment

There are no mapped agricultural districts within or adjacent to the proposed project limits. Therefore, the NYS Farmland Protection legislation (Article 25-AA of the NYS Agriculture and Markets Law Section 305 (4)) and the Federal Farmland Protection legislation (7 CFR Part 658) do not apply to this project and no further farmland assessment is necessary.

h. Air, Noise and Energy

(1) *Air Quality:* This project has been evaluated in accordance with the NYSDOT Environmental Procedures Manual (EPM), Chapter 1.1 Air Quality, to determine whether or not an air quality analysis is required. The initial screening determination for an air quality analysis is based on Level of Service (LOS) ratings for the project. Existing (2007) levels of service were determined for the Westfall Road project corridor and for all intersections located within the project limits. The estimated time of completion for this project is 2010. The Existing +20 (year 2027) levels of service were also calculated. Multiple intersections within the project corridor have LOS ratings of D or worse in the Existing +20 condition. A capture criteria screening and a volume threshold screening were completed in order to determine whether this project would have impacts on the air quality in the area. Through these preliminary analyses, it was determined that further microscale or mesoscale air quality is not required for this project. The results of these screenings are included in the Air Quality Report, included in Appendix K. (separately bound).

(2) *Noise:* This project has not been evaluated for classification as a Type I project under Section 772.5(h) of the Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772).
The project is not a Type I project under the Federal Highway Administration's (FHWA) guidance regarding noise analysis and abatement and is therefore exempt from noise study requirements. The project does not meet the Type I criteria because there would be no significant change to the vertical/horizontal alignment of the roadway or an increase in the number of though-fare traffic lanes. A temporary increase in noise levels may result during the construction of this project. The Contractor would be required to observe all applicable local, state, and federal noise ordinances. No long-term noise impacts are anticipated to result from this project.

(3) *Energy:* The project would not significantly alter vehicle miles traveled, land use development patterns, number of vehicle trips, travel patterns, or operating speeds that would affect energy requirements. Therefore, based on the guidelines presented in the NYSDOT EPM, no change in energy use or consumption is expected as a result of this project. There would be a temporary increase in energy use during construction.

i. Contaminated Materials Assessment

(1) *Asbestos:* No structures are proposed for demolition or rehabilitation as part of this project; therefore, an asbestos screening was not performed. Should the demolition or rehabilitation of existing structures be added to the project scope, an asbestos site assessment would be completed.

(2) *Hazardous Waste:* A Hazardous Waste/Contaminated Materials site walkover was completed on October 31, 2007. The results of this site visit have been documented in a Hazardous Waste/Contaminated Materials Screening report, in accordance with the New York State DOT Environmental Practices Manual (EPM) Chapter 5.1. This report includes a review of available historical records, land-uses, and a review of published local, state, and federal government records.

The conclusions and recommendations for the Hazardous Waste/ Contaminated Materials Screening indicates there is

potential for involvement with petroleum contaminated soils. This finding is based on the frequency of reported spills and traffic accidents. The majority of these spills met cleanup standards and have been closed by NYSDEC since their occurrence, but residual contamination may still be present. The project drawings and documents should include the following items for the removal, handling and disposal of petroleum contaminates soil if encountered: Item 15203.9804 Field Identification of Petroleum Contaminated soil During Construction, Item 15230.9806 Disposal of Petroleum Contaminated Soil, Item 15203.9807 Sample and Laboratory Analysis of Soil Samples.

A copy of the Hazardous Waste/Contaminated Materials screening report is included in Appendix I of the draft design report (separately bound).

(3) *Lead:* No structures are proposed for demolition or rehabilitation as part of this project; therefore, a lead paint analysis was not completed.

j. Construction Impacts

Construction of the project would not result in any permanent adverse impacts on the project area. Temporary effects to the project area due to construction may include: construction equipment noise and/or dust and potential for soil erosion. The project contract would include specifications that require the Contractor, as applicable, to conform to Federal and State regulations regarding minimizing construction noise, dust and soil erosion. During construction of this project some inconveniences may be experienced by adjacent landowners due to delays associated with the highway reconstruction project.

It is anticipated that this project would be completed within a single construction season.

k. Anticipated Permits, Approvals, and Coordination

Table IV-1 – Permits/Approvals Anticipated	
U.S. Army Corps of Engineers - Section 404 Permit	Y
FHWA Section 4(f) Approval	TBD
NPS Section 6(f) Approval	TBD
FHWA Categorical Exclusion (D List)	Y
NYSDEC Water Quality Certification	Y
NYS SHPO Final Effect Determination	Y
Air Quality Analysis	Y

V RECOMMENDATIONS

The recommended alternatives for making improvements to Westfall Road include Alternative Number 3, Three-Lane Highway. These alternatives include two 14-foot travel lanes, one 11-foot center turning lane, granite curb, and continuous sidewalks as shown in the proposed plans and typical sections. Intersection improvements at East Henrietta Road, Sawgrass Drive, and South Clinton Avenue include additional lanes and traffic signal modifications.

The recommended alternatives provide highway improvements that are consistent with the adjoining highway sections for Westfall Road. Selection of this alternative is based upon engineering, social, economic, and environmental considerations as documented in this report.

The recommended alternatives provide a long term solution to address deteriorating pavement, drainage, safety, and operational deficiencies. They would add pedestrian and bicycle facilities, provide intersection improvements and upgrade traffic signals. The proposed alternatives meet design criteria as documented in this Design Report.

The following features summarize what is recommended for the feasible alternative:

- Installation of one 14-foot travel lane in each direction.
- Installation of one center 11-foot turning lane.
- Installation of a northbound right turn lane at the East Henrietta Road intersection.
- Installation of an additional westbound left turn lane (two total) at East Henrietta Road.
- Installation of a southbound right turn lane at the Sawgrass Drive intersection.
- Installation of a southbound right turn lane, an eastbound through/right lane, and a westbound through/right lane at the South Clinton Avenue intersection.
- Installation of stone (granite) curbs.
- Installation of a new sidewalk system to be used in conjunction with the existing sidewalk segments. Finished sidewalk would be continuous on both sides of the roadway. A 10 foot wide trail section will be included in the section at Sawgrass Drive.
- Traffic signal upgrades.
- Pavement markings and traffic sign upgrades.

Plan, profile, and typical sections for the recommended alternatives are included in Appendix A.

The following provides a summary of the recommendations for this project. Additional discussions of the recommended features are included in Chapter III of this report.

A. Pavement

Based upon a visual assessment and pavement cores/borings, full depth pavement reconstruction is recommended starting at East Henrietta Road and ending at Sta. 47+75 near Haudenosaunee Trail. Pavement rehabilitation including milling and

overlaying the existing pavement is recommended from Sta. 47+75 to Lac-de-Ville Boulevard.

B. Geometry

It is recommended that the Westfall Road existing horizontal alignment be retained. The addition of new horizontal curves is not necessary.

Two vertical curves would be improved as part of this project. The first crest curve is at the intersection of Metropolitan Drive and the other sag curve is located approximately 450 feet east of Metropolitan Drive. This would improve the non-standard sight distances.

MCDOT and NYSDOT standards specify a maximum grade of 7%. This maximum grade is exceeded 100 feet east of Metropolitan Drive, where the grade is 8.2% for approximately 150 feet. The grade in this location would meet the maximum requirement as part of this project.

C. Other

1. Drainage

Installation of a new closed drainage system throughout the reconstruction portion is recommended.

2. Curbs

New granite curbs are recommended in the reconstruction section. The existing curbing between Haudenosaunee Trail and Lac-de-Ville Boulevard would be re-set as necessary.

3. Travel/Bicycle Lanes

A 14-foot shared use lane, one in each direction, is recommended to accommodate both vehicular and bicycle traffic.

4. Sidewalks

Sidewalks would connect to the existing sidewalk system at East Henrietta Road, South Clinton Avenue and connect to the existing sidewalk system on Westfall Road east of South Clinton Avenue. The proposed sidewalk would connect to the existing systems along the project corridor with new 5 foot wide concrete sidewalk. Curb cuts and ADA compliant ramps would be provided at all side street intersections.

A north-south trail that will intersect the project at Sawgrass Drive is being progressed as a separate project.. This multi-use trail will be 10 feet wide within the project limits and cross Westfall Road at Sawgrass Drive.

Signalized intersections at East Henrietta Road, Sawgrass Drive, South Clinton Avenue, and Lac-de-Ville Boulevard would have crosswalks and pushbutton indicators for the pedestrian signals.

A 5-foot green space would separate the sidewalk from the road curb line in most cases.

5. Lighting

It is recommended that lighting be provided as it currently exists within the City of Rochester from Metropolitan Drive to East Henrietta Road.

6. Intersections

It is recommended that intersection improvements be incorporated for the East Henrietta Road, Sawgrass Drive, and South Clinton Avenue intersections. These improvements would include the following additional lanes:

Intersection	Proposed Improvements
East Henrietta Road	• Add a northbound right turn lane. • Add a westbound left turn lane (2 total).
Sawgrass Drive	• Add a southbound right turn lane.
South Clinton Avenue	• Add a westbound through/right lane. • Add a southbound right turn lane. • Add an eastbound through/right lane.
Lac-de-Ville Boulevard	• No changes are proposed.

7. Traffic Signals

It is recommended that signal modifications/upgrades be completed at the East Henrietta Road, Sawgrass Drive, and South Clinton Avenue intersections to accommodate intersection widening. Traffic signal span poles at the South Clinton Avenue intersection would be replaced with mast arm poles. Interconnection conduit and fiber optic cable would be included within the project limits.

8. Utility Impacts

The respective utility companies, as necessary, would relocate overhead and underground utilities. It is anticipated that water main replacement or relocation improvements would be included between Sawgrass Drive and the eastern property line of 980 Westfall Road (Sta. 68+50). Additional

utilities affected by construction would be adjusted or relocated, as necessary, in accordance with the Monroe County rules and regulations governing the accommodation of utilities within the highway right-of-way. Public utilities, if impacted, would be relocated and/or adjusted as part of the project. The overall scope of work for each utility would be identified and coordinated during the final design.

9. Bridges and Structures

There are two culverts that cross Westfall Road within the project limits. A 40"x 54" corrugated metal pipe arch is located at Sta. 52+25 and conveys drainage between a detention pond on the north side of Westfall Road to a large ditch that runs parallel with Haudenosaunee Trail. This culvert is in good condition however, it is recommended that the ditch immediately south of this culvert be cleaned and reshaped to facilitate drainage.

The second culvert, a 42" x 72" corrugated metal pipe arch located at Sta. 44+75 and conveys drainage to a large south drainage structure south of Westfall Road. This culvert shows signs structural failure and it is recommended that this culvert be replaced.

10. SEQR/NEPA Evaluation

Classification of the proposed project under the New York State Environmental Quality Review Act (SEQRA), New York State Department of Transportation Environmental Procedures Manual (17 NYCRR Part 15), is an Unlisted Action.

The project is being progressed as a Programmatic Categorical Exclusion, Class II Action, under the provisions of the National Environmental Policy Act (NEPA), as defined by the Federal Highway Administration (FHWA) in 23 CFR 771 of the Code of Federal Regulations.

11. Environmental Considerations

Two intermittent streams are shown to cross Westfall Road, within the project limits, according to the Official Compilation of Codes, Rules, and Regulations of the State of New York, Division of Water Resources. These waters are both tributaries of Tributary 3 of Allens Creek, which crosses Westfall Road east of the project area. The water quality classification for these waters is Class C with C Standards. Allens Creek flows northeast from Westfall Road, flowing into Irondequoit Creek in the Town of Penfield, Monroe County.

Within the project area, Tributaries 1 and 2 of Tributary 3 of Allens Creek are classified by NYSDEC as a Class C waters with C Standards (6 NYCRR Part 846). Class C waters with C Standards are not included in the definition of a protected stream in 6 NYCRR Part 608 Use and Protection of Waters. According to NYSDEC, the best usage of Class C waters is for fishing and other non-contact recreational activities. They are not suitable as a drinking water and do not meet the New York State Department of Health (NYSDOH) drinking water standards (6 NYCRR Part 701).

A review of NYSDEC freshwater wetland mapping indicates an absence of NYSDEC jurisdictional wetlands within the project area.

The wetland inspection concluded with the identification of one wetland area under federal jurisdiction adjacent to Westfall Road. Any impacts to this wetland would be temporary and would be restored upon project completion.

The NYSDEC Natural Heritage Program (NHP) was contacted for information regarding the reported presence of any state listed endangered or threatened species or significant habitats located within or adjacent to the project area. A response from the NHP indicated that no known occurrences of threatened or endangered species are known near the project area.

An information search regarding federally listed endangered and threatened species was conducted. No known endangered or threatened species were noted in the filed or literature search for this project.

12. Landscape

Monroe County would take general measures to ensure a visually appealing project corridor by incorporating landscape features and street amenities.

Some of the landscape amenities are: new granite curb, 5-foot wide tree lawn area, and a 5-foot wide sidewalk. It is recommended that any trees lost due to the impacts associated with the construction be considered for replacement.

13. Cost Estimate

The estimate of probable cost for Westfall Road, Phase III, from East Henrietta Road to Lac-de-Ville Boulevard is $4,735,000. The Federal Highway Administration (FHWA), New York State Department of Transportation, and Monroe County would provide funding for this project.

Chapter VI – PROJECT COORDINATION

The project coordination that occurred during the preparation of the Design Reports (DR) and that will occur during final plan preparation is as follows:

A. Local Residents

A Public Information Meeting was held February 11, 2009. The purpose of this meeting was to:

- Notify the citizens that Monroe County Department of Transportation has initiated a capital improvement project on Westfall Road from East Henrietta Road to Lac-de-Ville Boulevard.
- Receive comments, suggestions, and concerns about the project.

The meeting was held at Monroe Community Hospital, Auditorium B on February 11, 2009 from 4:00 to 7:00 PM. Six (6) residents/citizens attended the open house/public information meeting; see sign in sheet in Appendix B. Two written comments received at the February meeting, one regarding a residential driveway width on the north side of Westfall Road, just west of East Henrietta Road and the other was the need for a traffic signal at the Islamic Center driveway on Westfall Road, see Appendix B for the comments received. These two comments will be reviewed during final plan preparation to check conformance for driveway entrances to a County Highway and to see if a traffic signal is warranted at the Islamic Center Driveway.

B. Local Municipality

Coordination was held with the Town of Brighton and the City of Rochester to review the design alternatives and provide an update on the overall progress of this project.

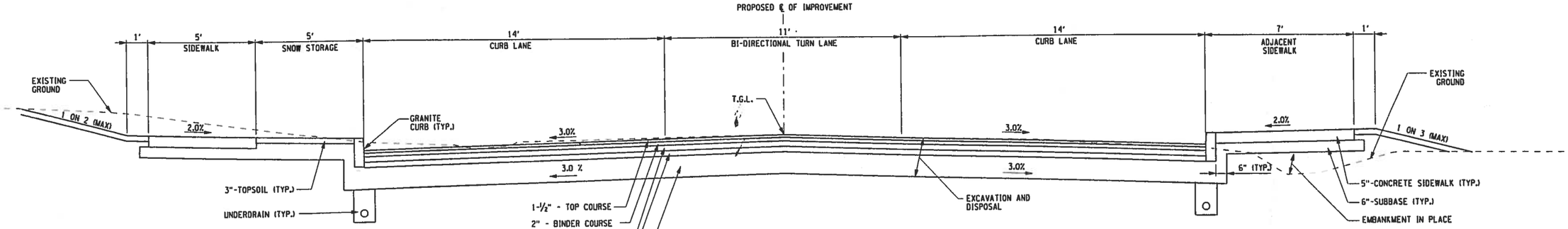
C. Agencies/Utilities

A coordination meeting with the Monroe County Water Authority (MCWA), Rochester Gas and Electric (RG&E), and Time Warner Cable (TWC) will be held during the preliminary design phases of this project. Initial contact with these utilities has been made.

The Archaeological Reconnaissance Survey, prepared by the Rochester Museum and Science Center was submitted to the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) for determination concurrence. Based on their review it is the OPRHP's opinion that this project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Register of Historic Places. See letter from OPRHP dated March 18, 2009 in Appendix B.

APPENDIX A

Project Plans, Profile, and Typical Section



HALF SECTION
5' SIDEWALK WITH 5' SNOW STORAGE

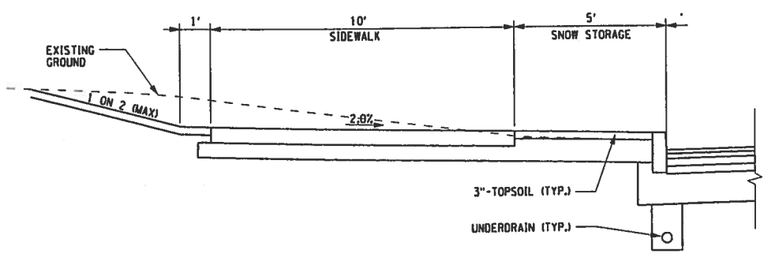
LOCATION:
STA. 11+65 TO STA. 41+50 LT.
STA. 45+25 TO STA. 50+25 LT.
STA. 55+75 TO STA. 62+50 LT.
STA. 22+00 TO STA. 56+75 RT.
STA. 63+00 TO STA. 72+25 RT.

TYPICAL SECTION
3 LANE FULL DEPTH RECONSTRUCTION

LOCATION:
STA. 11+65 TO STA. 47+75

HALF SECTION
7' ADJACENT SIDEWALK

LOCATION:
STA. 63+25 TO STA. 67+75 LT.
STA. 11+65 TO STA. 22+00 RT.



HALF SECTION
10' SIDEWALK WITH 5' SNOW STORAGE

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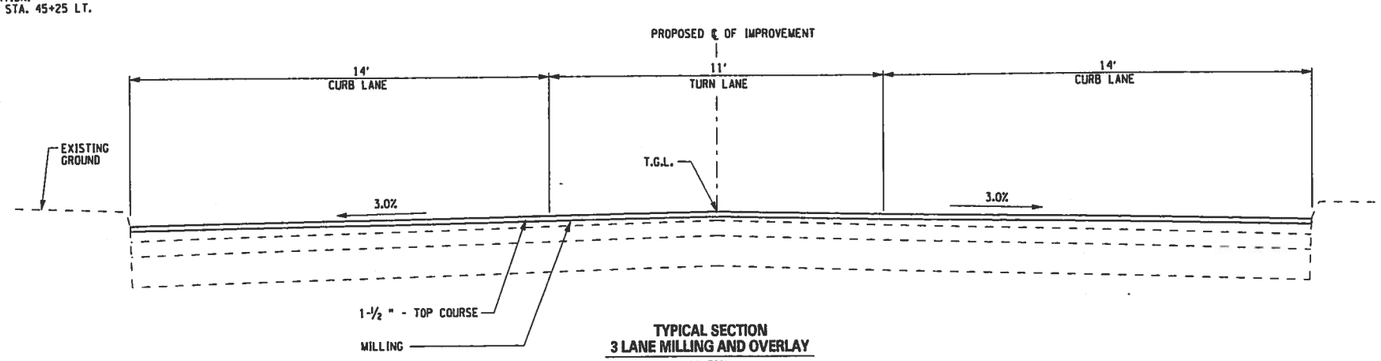

TYPICAL SECTION
3 LANE MILLING AND OVERLAY

LOCATION:
STA. 47+75 TO STA. 75+70

ITEM NO.	DESCRIPTION	UNITS	ITEM NO.	DESCRIPTION	UNITS	NOTES

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMW\PJZ
DESIGN BY: DAT\JMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

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PROJECT NAME: WESTFALL ROAD
LIMITS:
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

TYPICAL SECTIONS

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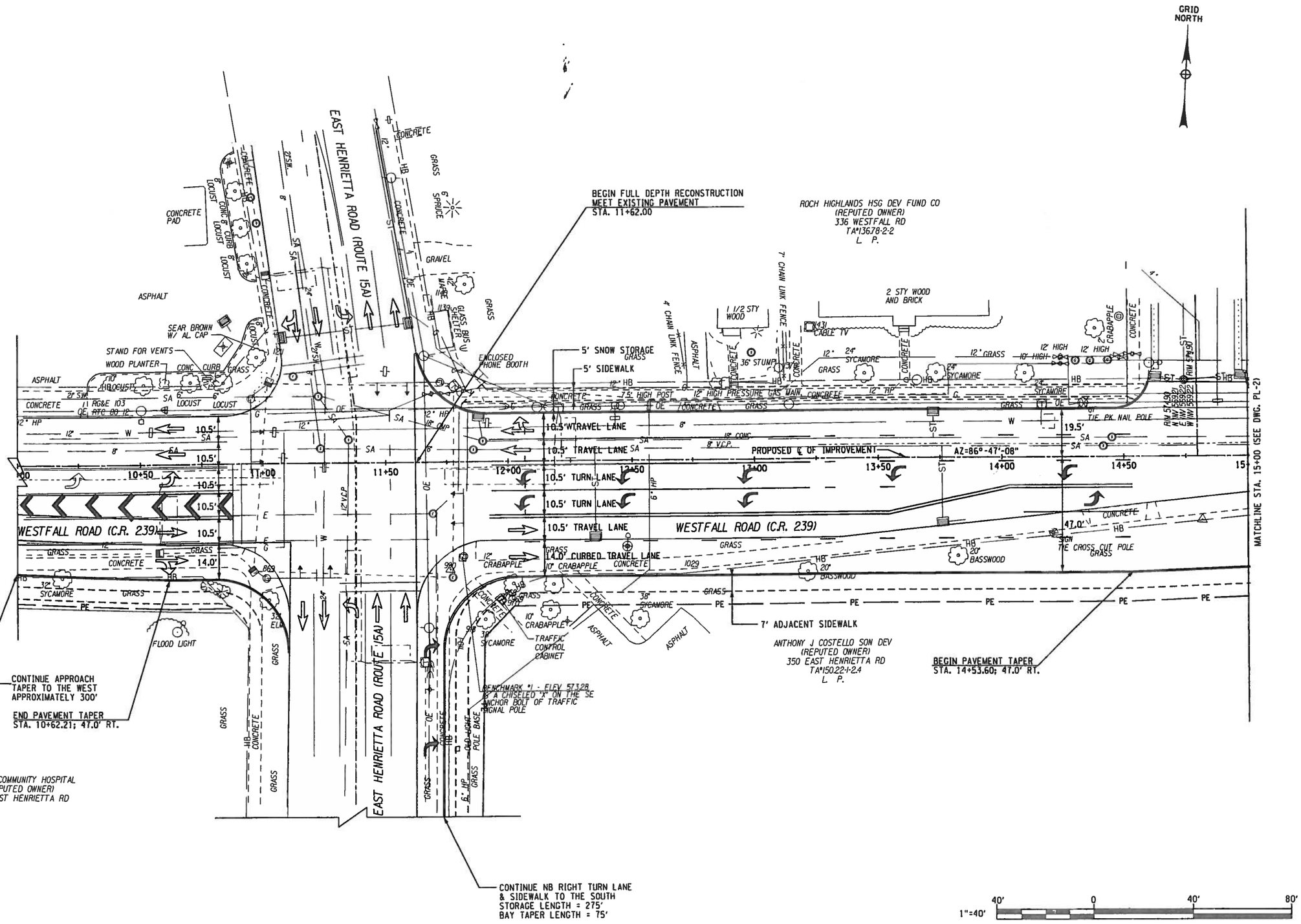

NO.	DATE	BY:	REVISION

PROGRESS PLANS

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ROCHESTER, NEW YORK 14614-1231

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PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 10+00 TO STA. 15+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

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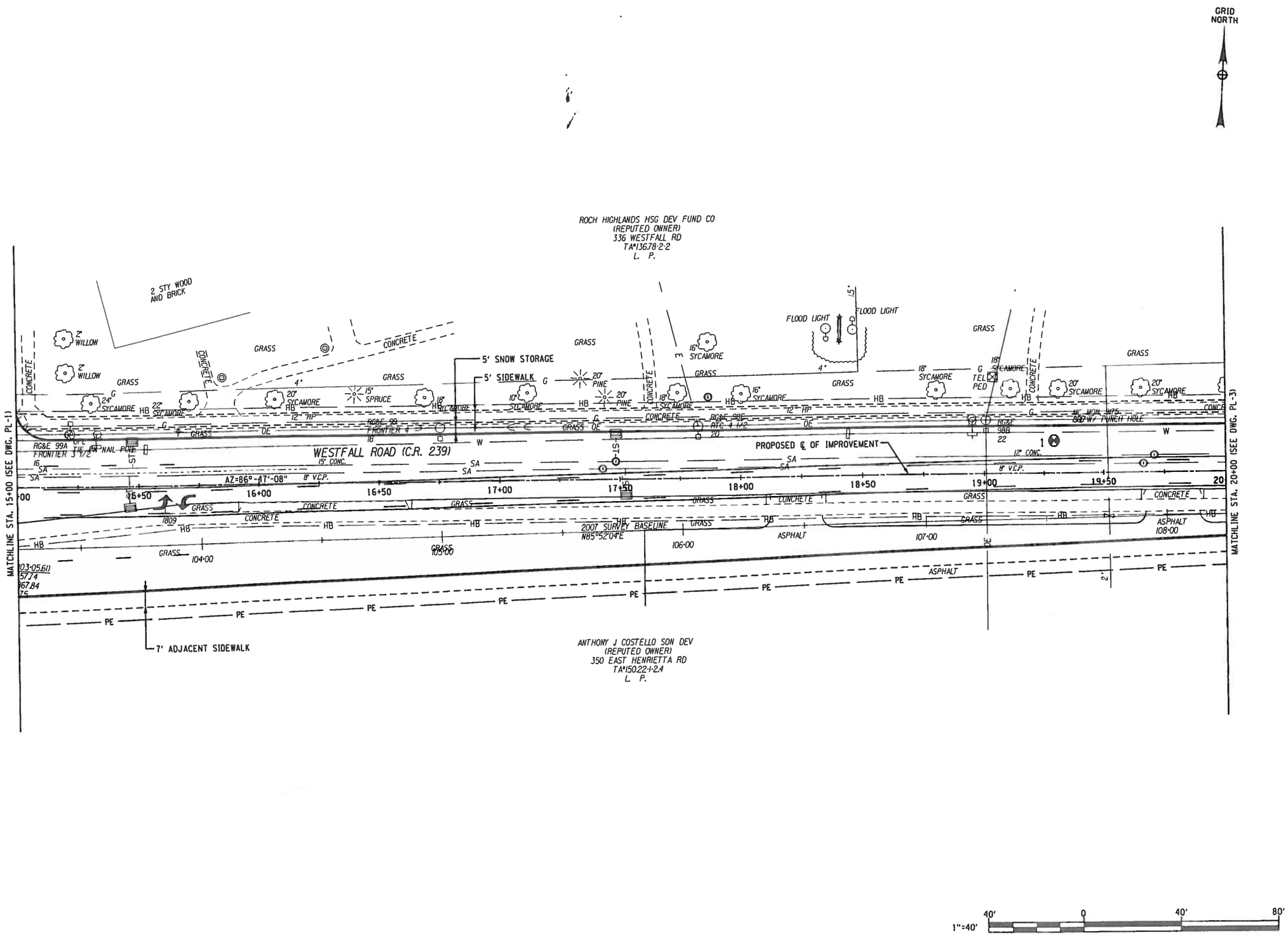

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PROJECT NAME: WESTFALL ROAD

LIMITS: STA. 15+00 TO STA. 20+00

TOWN: BRIGHTON

CAPITAL PROJECT NO.: 4753.77

BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

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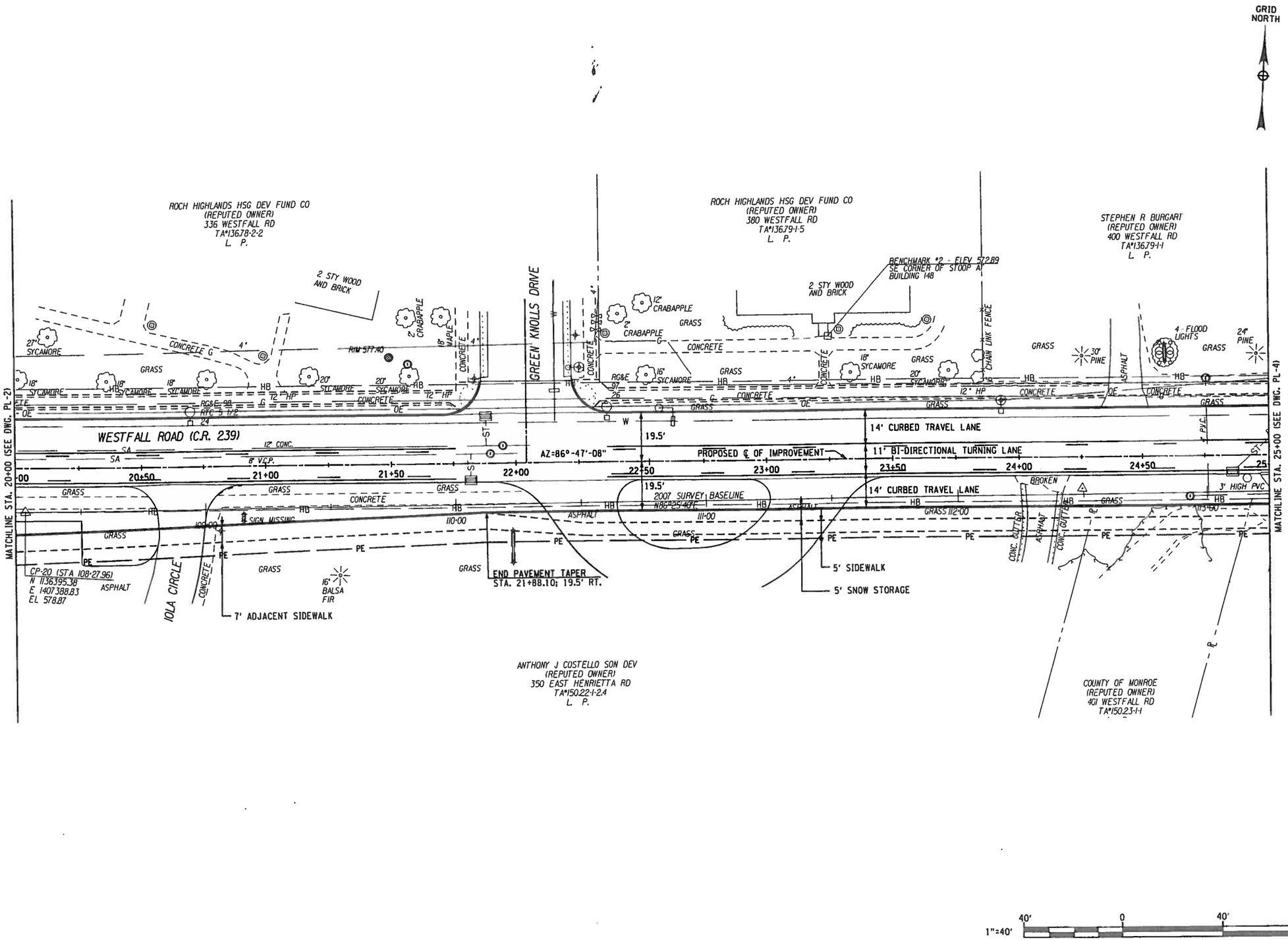

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ROCHESTER, NEW YORK 14614-1231

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LIMITS: STA. 20+00 TO STA. 25+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
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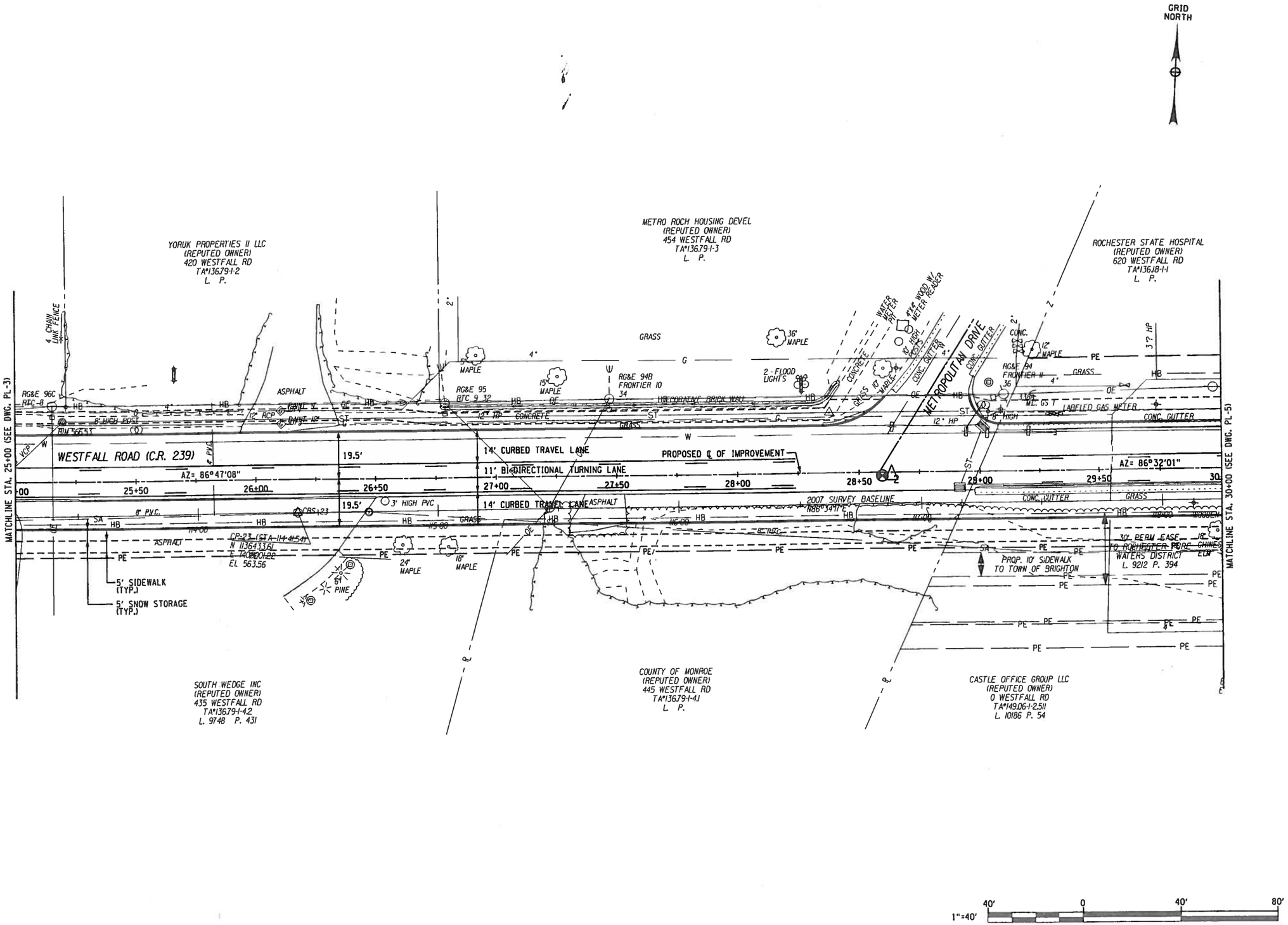

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PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 25+00 TO STA. 30+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
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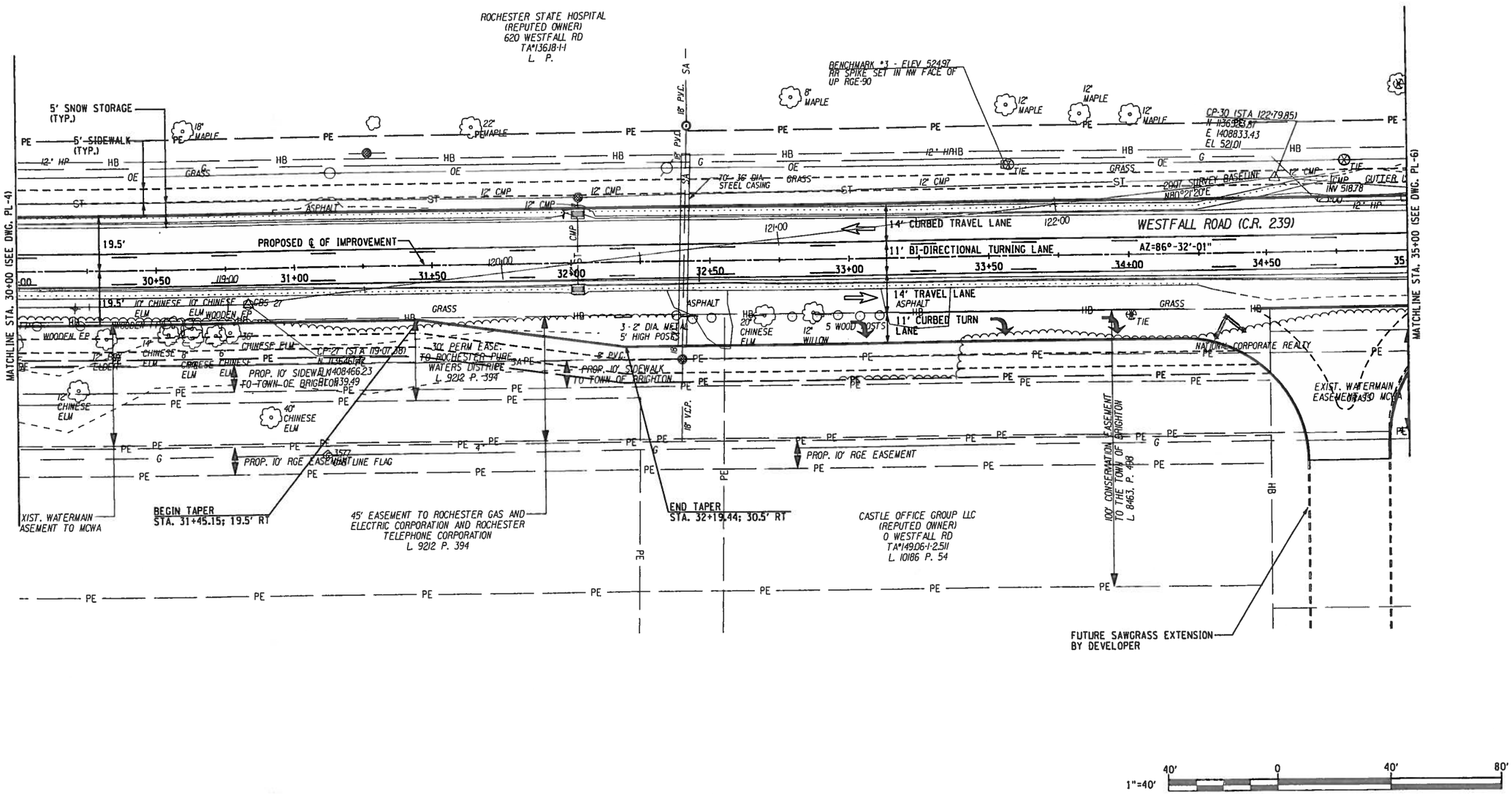

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LIMITS: STA. 30+00 TO STA. 35+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
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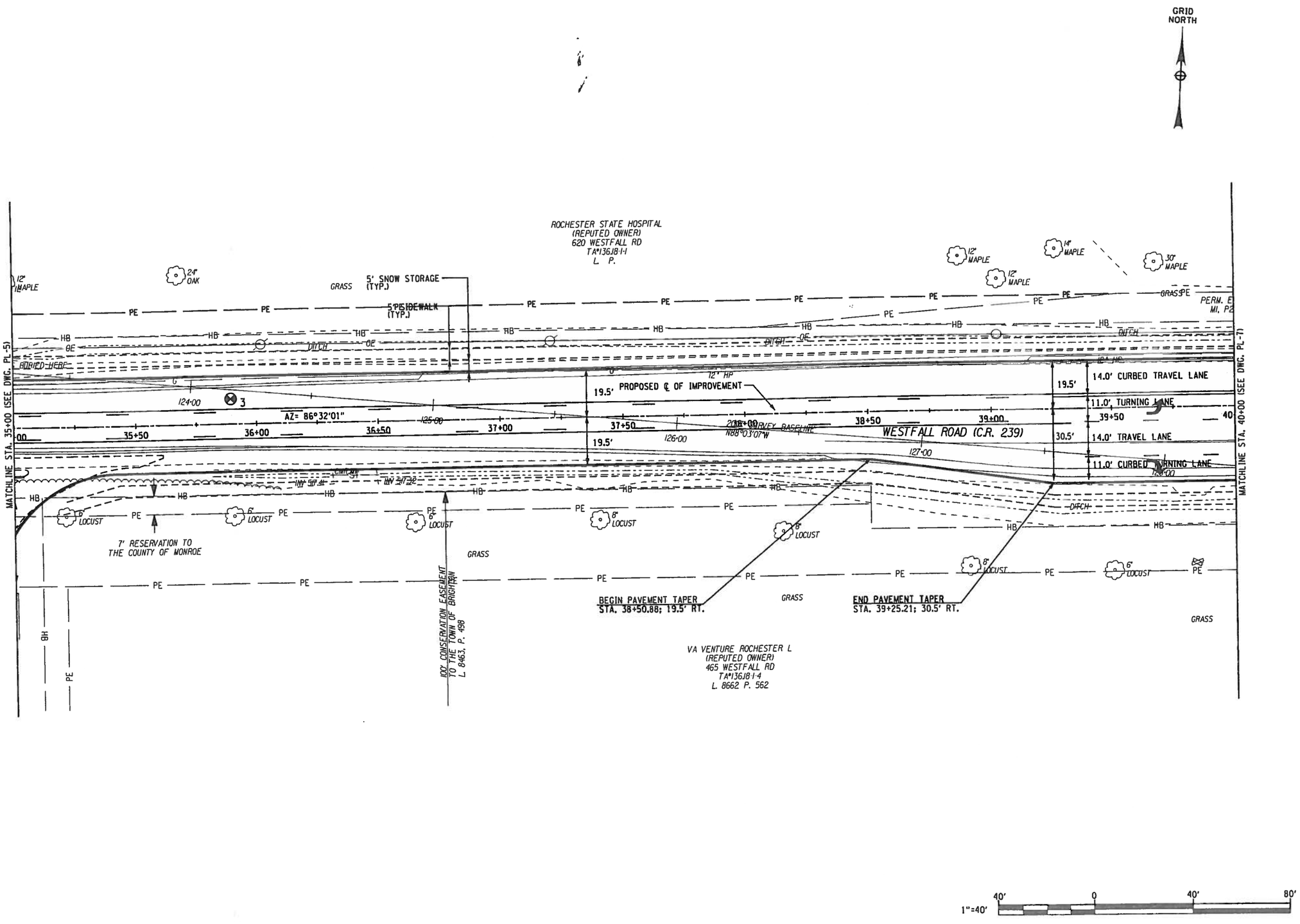

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PROGRESS PLANS

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PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 35+00 TO STA. 40+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
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GENERAL PLAN

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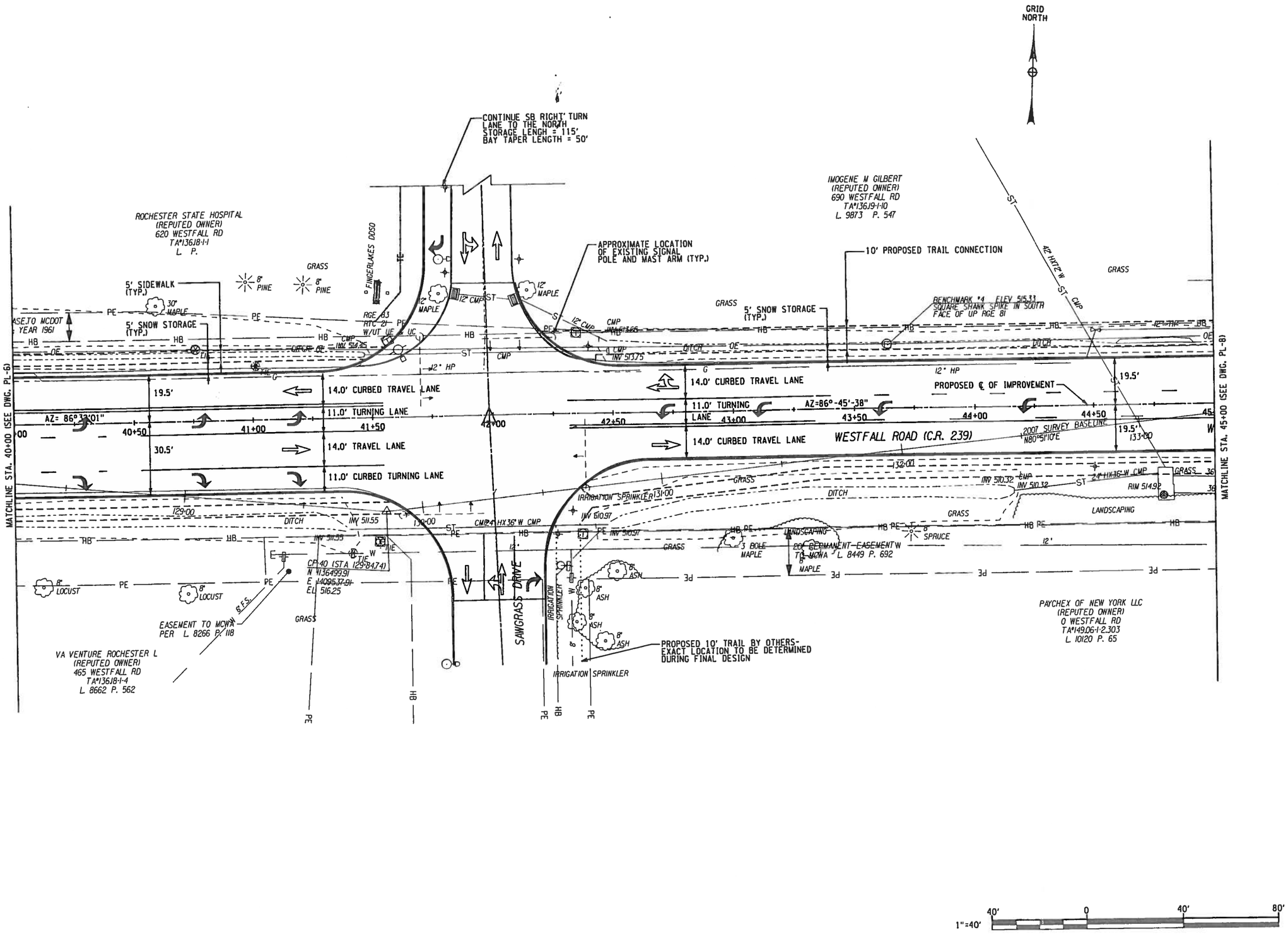

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PROGRESS PLANS

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DEPARTMENT OF TRANSPORTATION
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PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 40+00 TO STA. 45+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'
DATE ISSUED: 05 / 2009
DRAWING NO. PL-7

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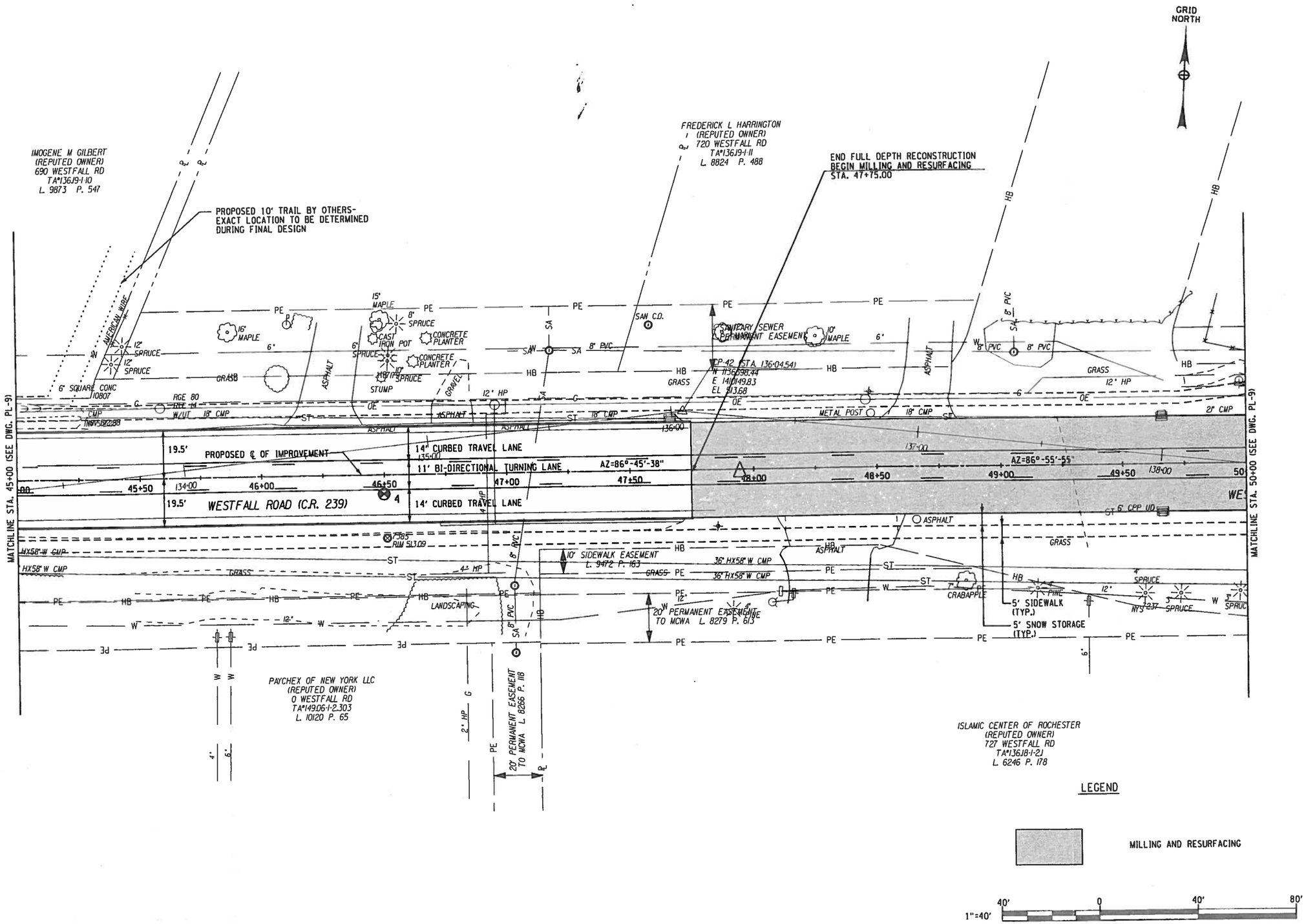

NO	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMWPJZ

DESIGN BY: DATJMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 45+00 TO STA. 50+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'
DATE ISSUED: 05 / 2009
DRAWING NO. PL-8

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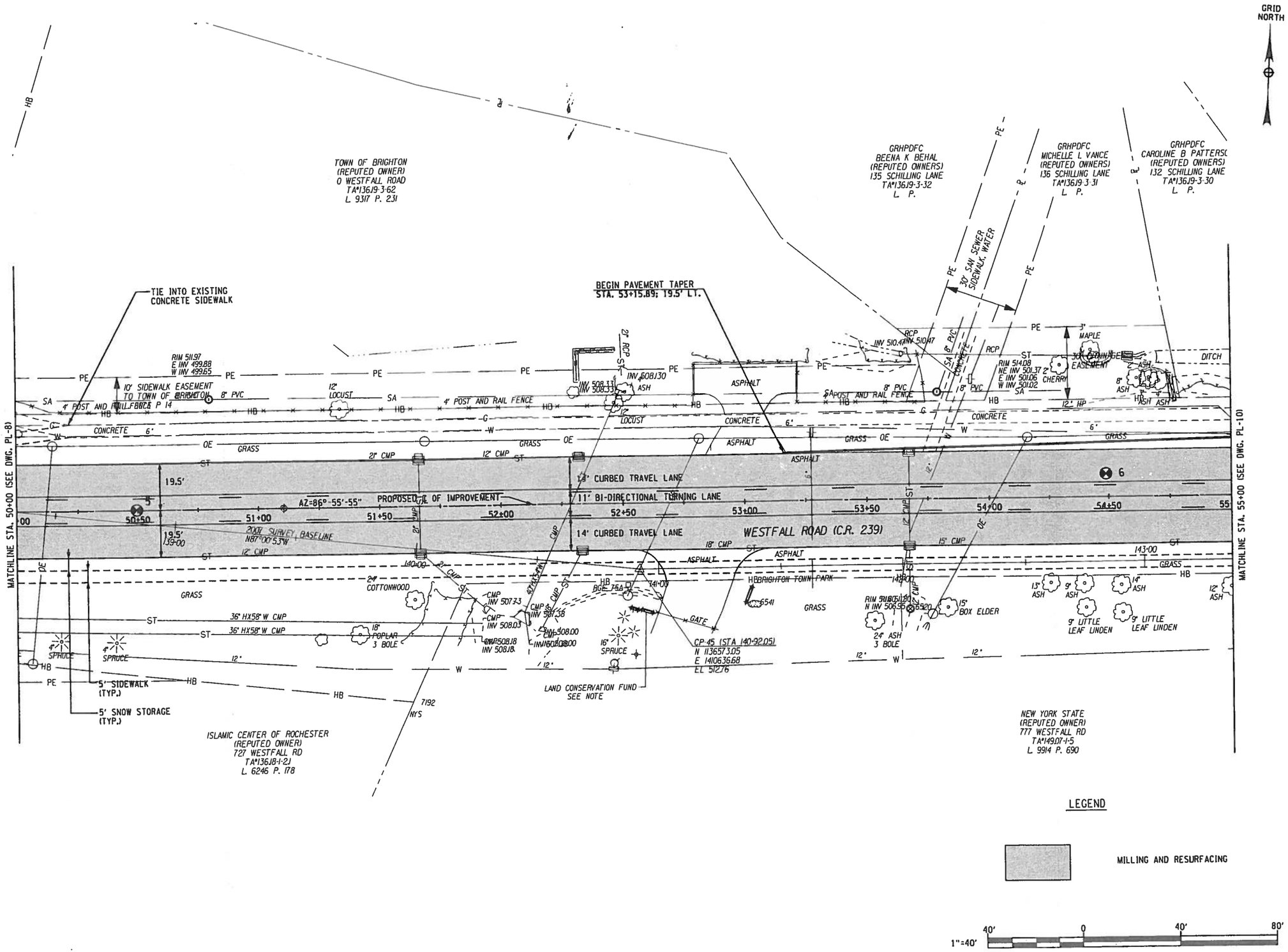

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMWAPJZ

DESIGN BY: DATJMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 50+00 TO STA. 55+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'
DATE ISSUED: 05 / 2009
DRAWING NO. PL-9

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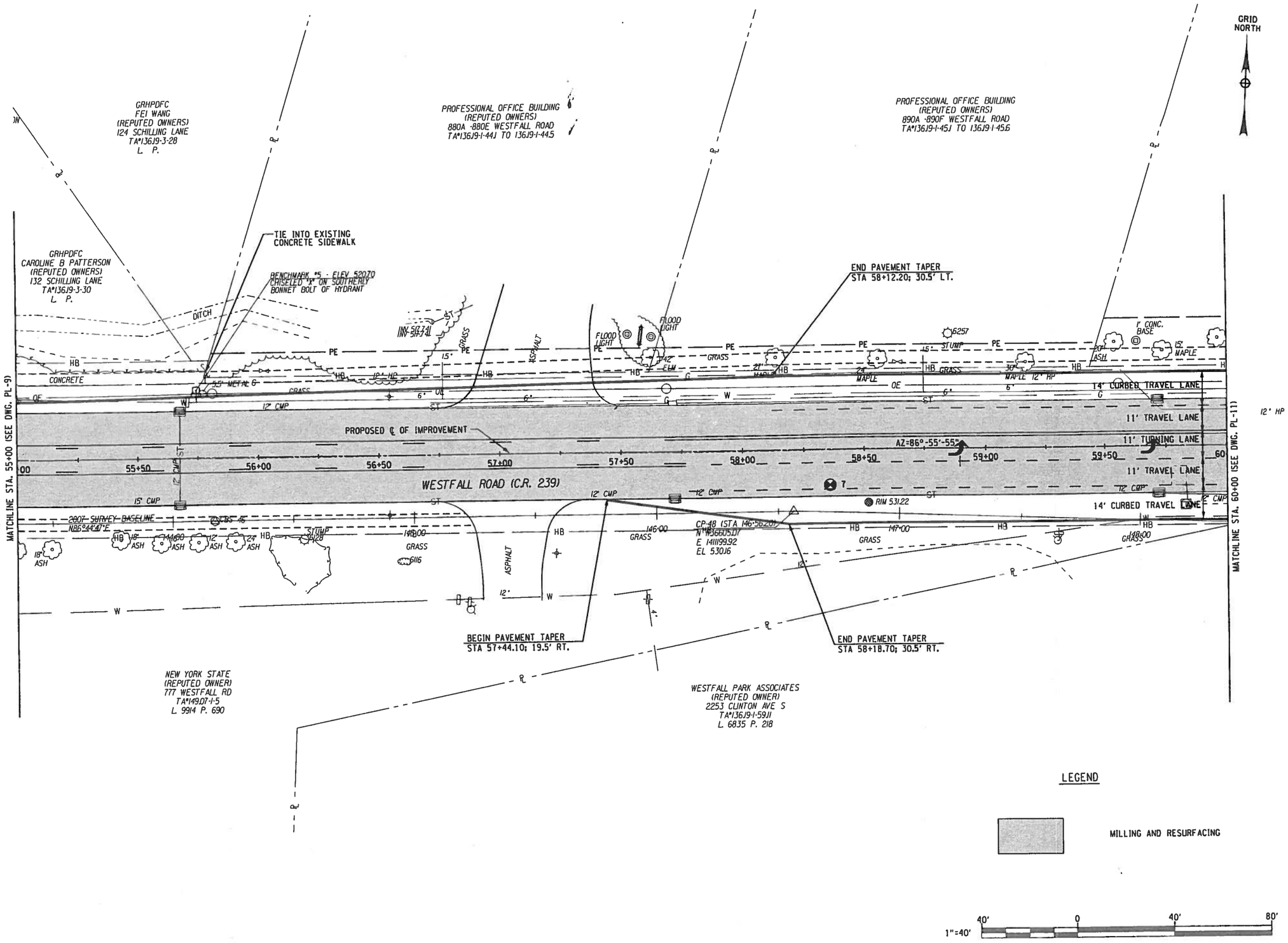

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMWPJZ

DESIGN BY: DATJMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ALTERATION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME	LIMITS	TOWN	CAPITAL PROJECT NO.	BRIDGE IDENTIFICATION NO.
WESTFALL ROAD	STA. 55+00 TO STA. 60+00	BRIGHTON	4753.77	N.A.

GENERAL PLAN

SCALE: 1"= 40'

DATE ISSUED: 05 / 2009

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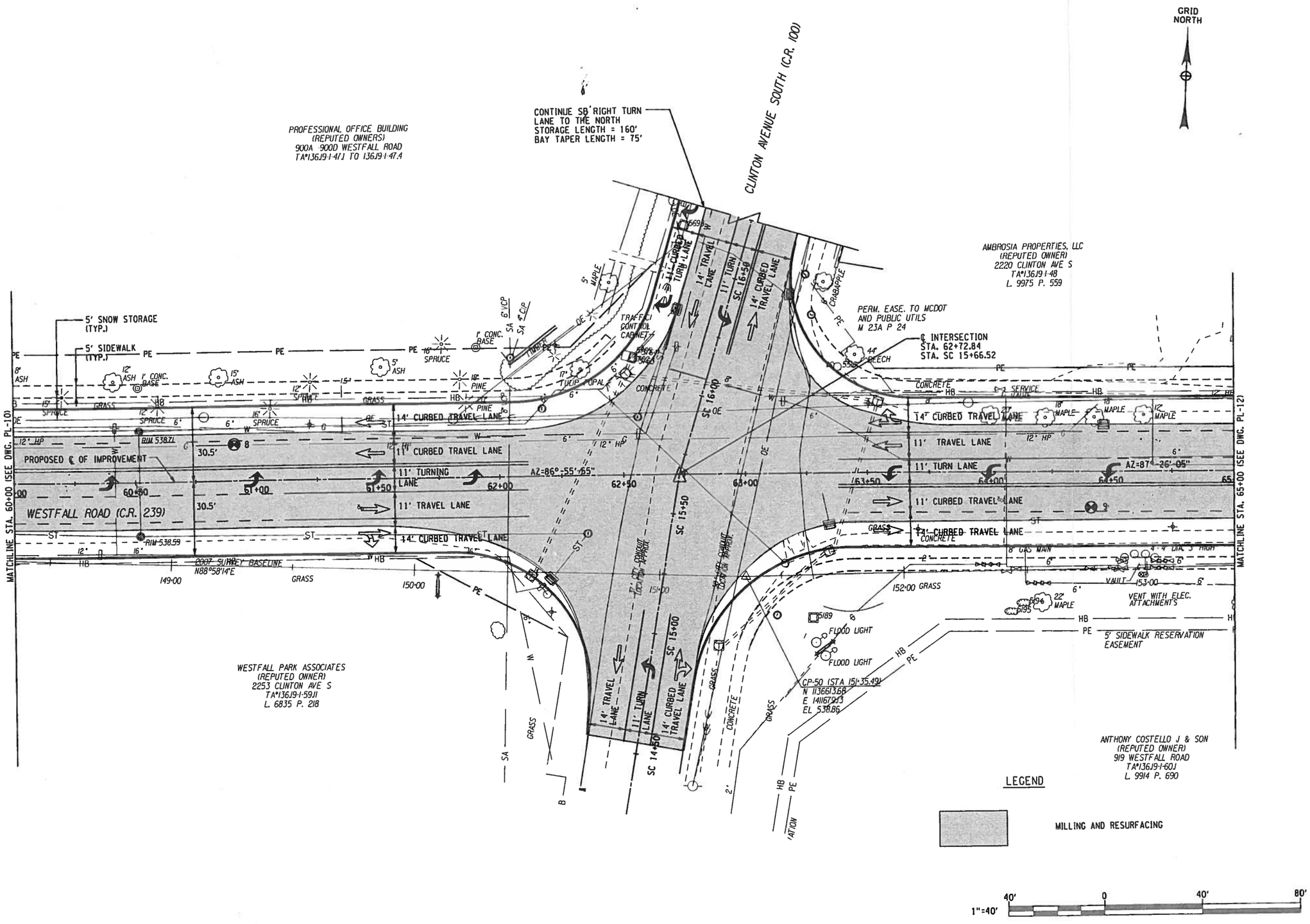

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMW/PJZ

DESIGN BY: DAT/JMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 60+00 TO STA. 65+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'
DATE ISSUED: 05 / 2009
DRAWING NO. PL-11

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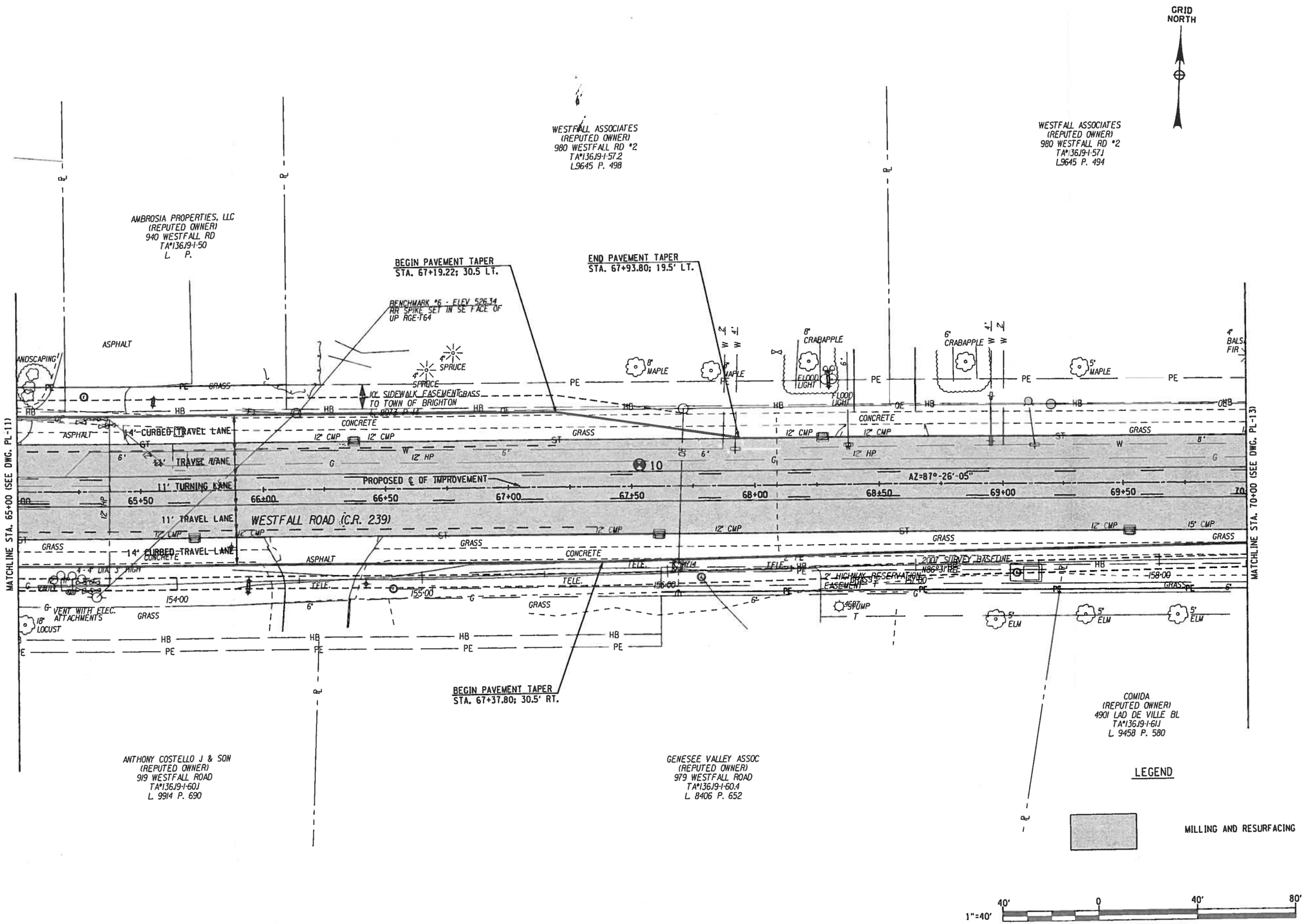

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMW/PJZ

DESIGN BY: DAT/JMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 65+00 TO STA. 70+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'
DATE ISSUED: 05 / 2009
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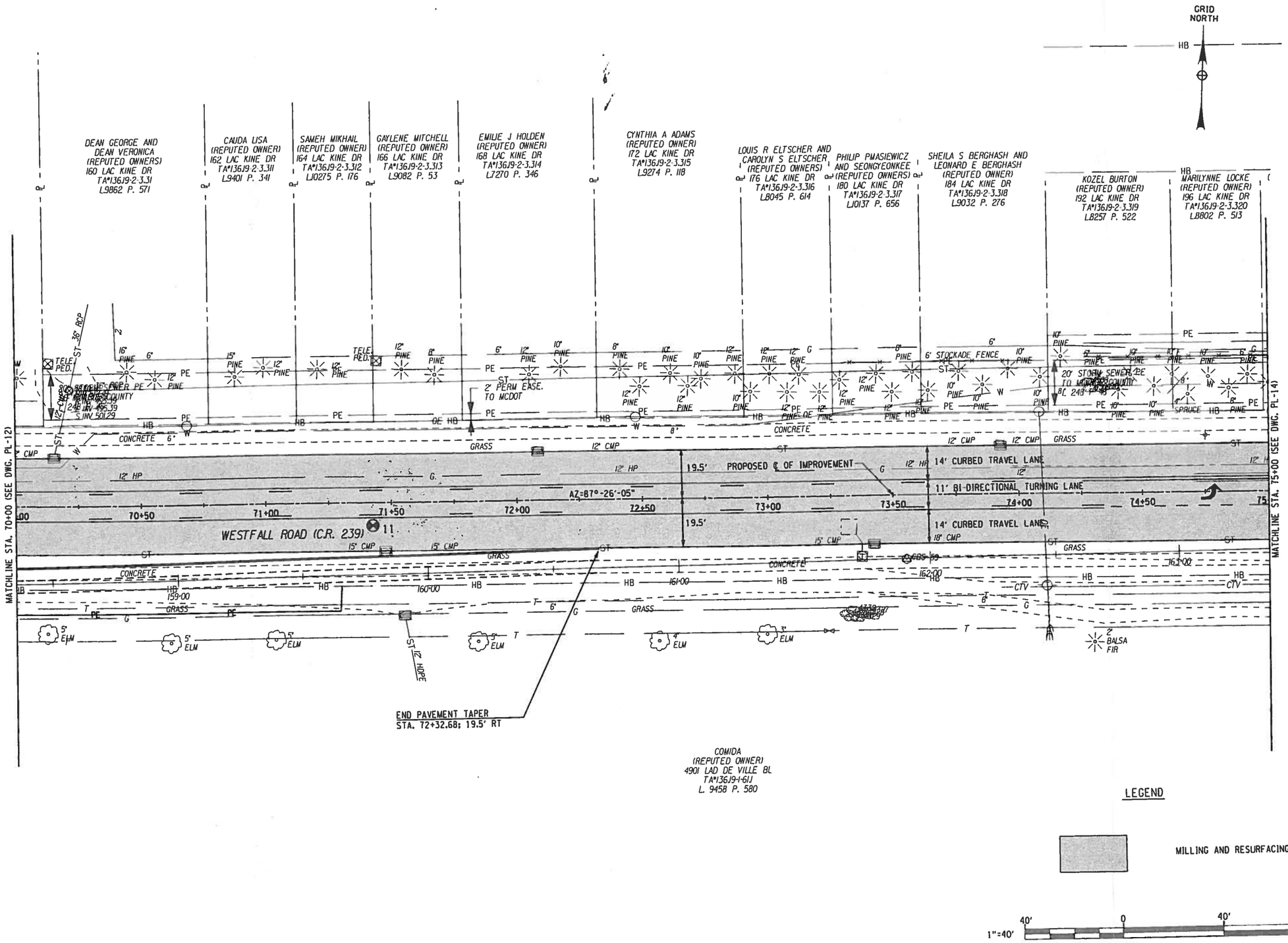

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMWWPJZ

DESIGN BY: DATJMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS: STA. 70+00 TO STA. 75+00
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'
DATE ISSUED: 05 / 2009
DRAWING NO. PL-13

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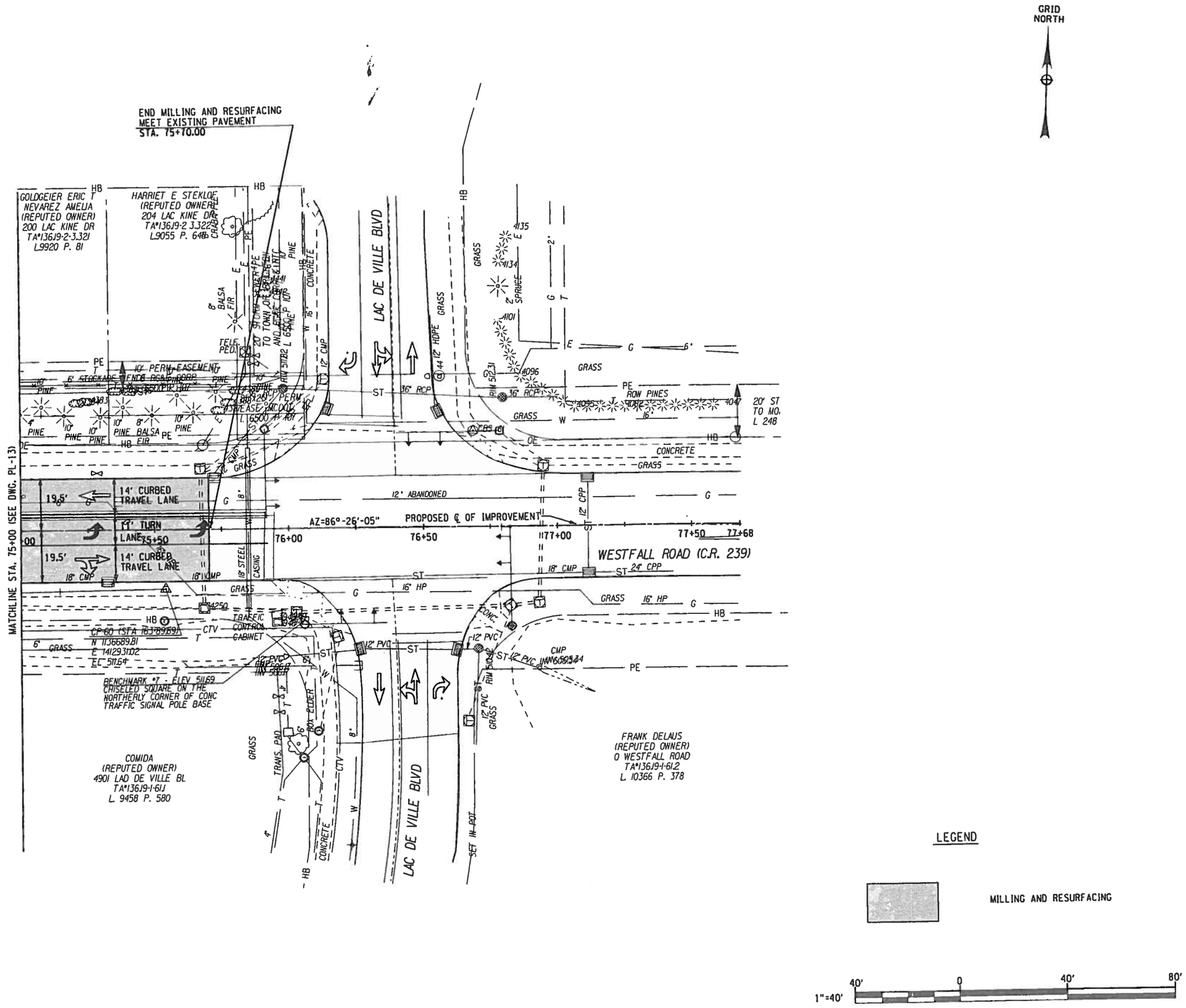

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DESIGN BY: DAT/JMW

DRAFTED BY: JMW/PJZ

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD

LIMITS: STA. 75+00 TO STA. 77+68

TOWN: BRIGHTON

CAPITAL PROJECT NO.: 4753.77

BRIDGE IDENTIFICATION NO.: N.A.

GENERAL PLAN

SCALE: 1"= 40'

DATE ISSUED: 05 / 2009

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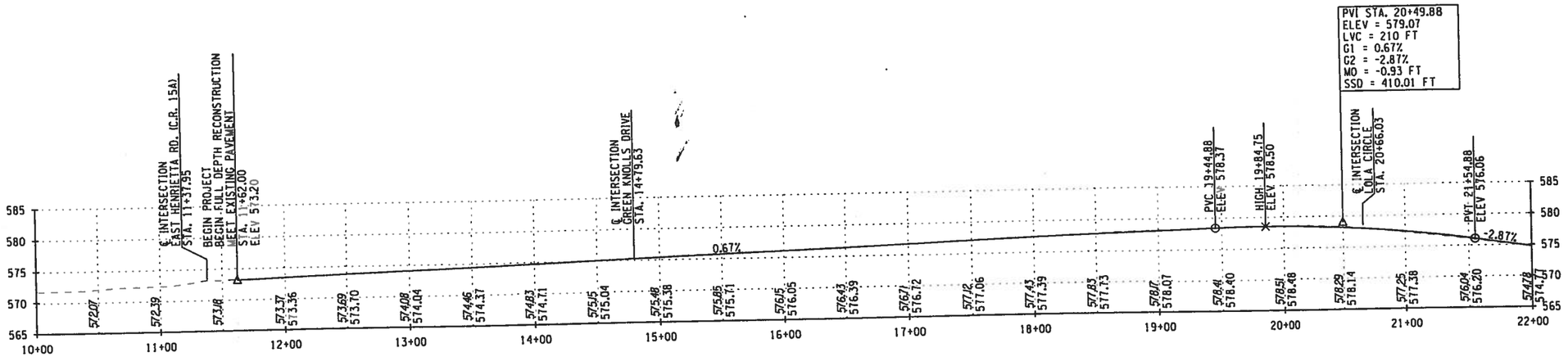
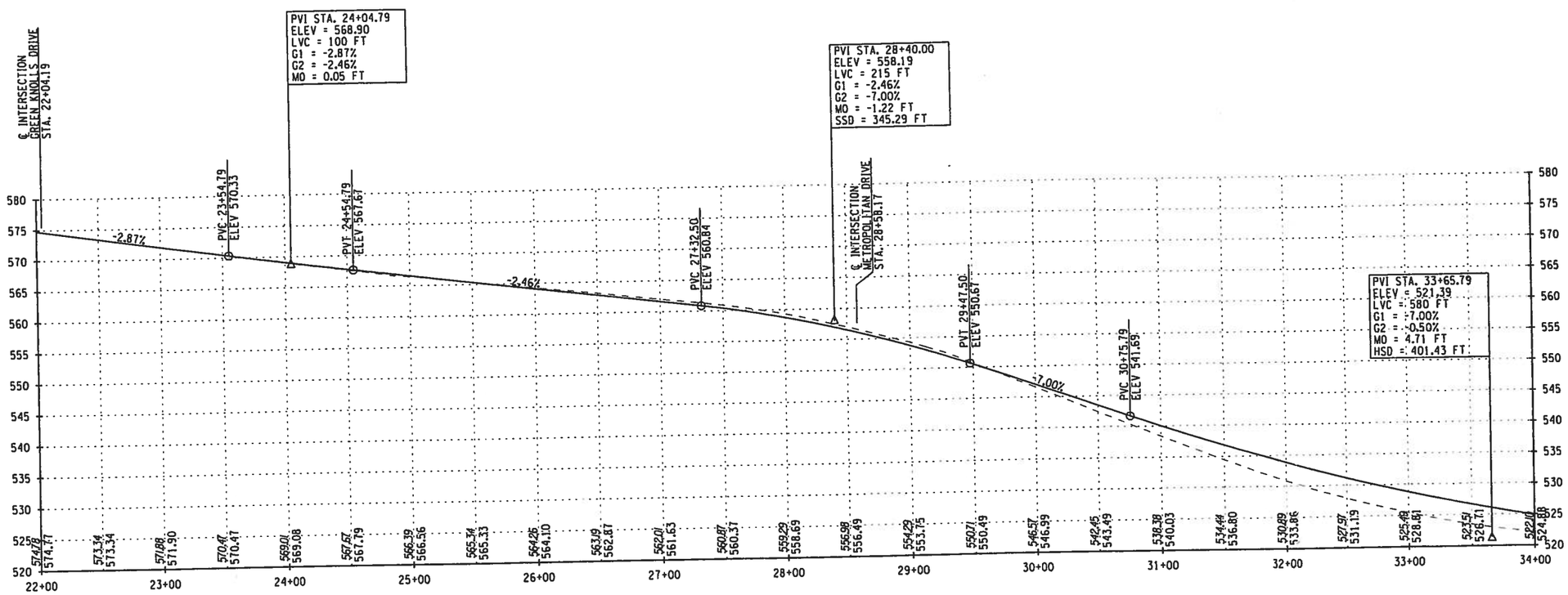


PROFILE WESTFALL ROAD



PROFILE WESTFALL ROAD

30'
20'
10'
0
0 50' 100' 150'
GRAPHIC SCALE
1" = 100' HORIZONTAL
1" = 20' VERTICAL

REVISION	NO	DATE	BY:

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMW\PJZ

DESIGN BY: DAT\JMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

PROFILE

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DATE ISSUED: 05 / 2009
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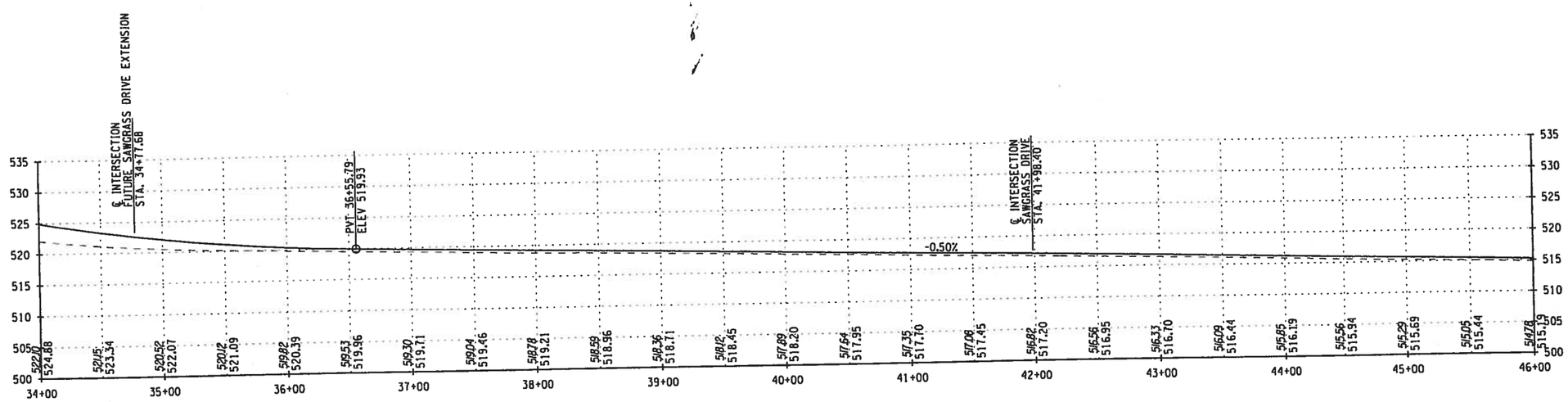

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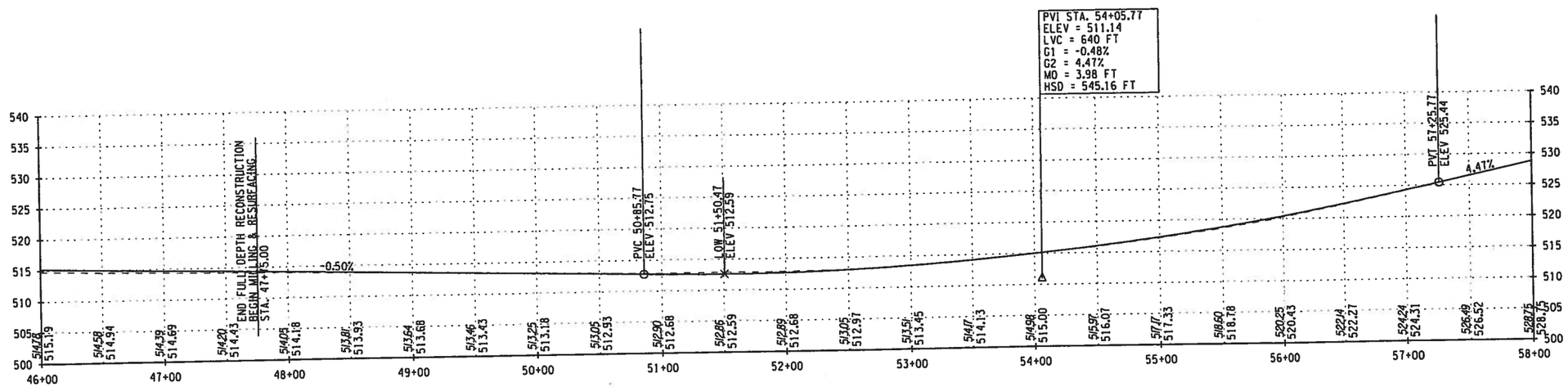

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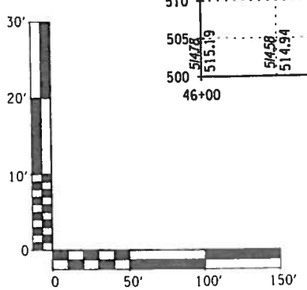

GRAPHIC SCALE
1" = 100' HORIZONTAL
1" = 20' VERTICAL

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DESIGN BY: DAT/JMW
DRAFTED BY: JMW/PJZ

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS:
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

PROFILE

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DATE ISSUED: 05 / 2009
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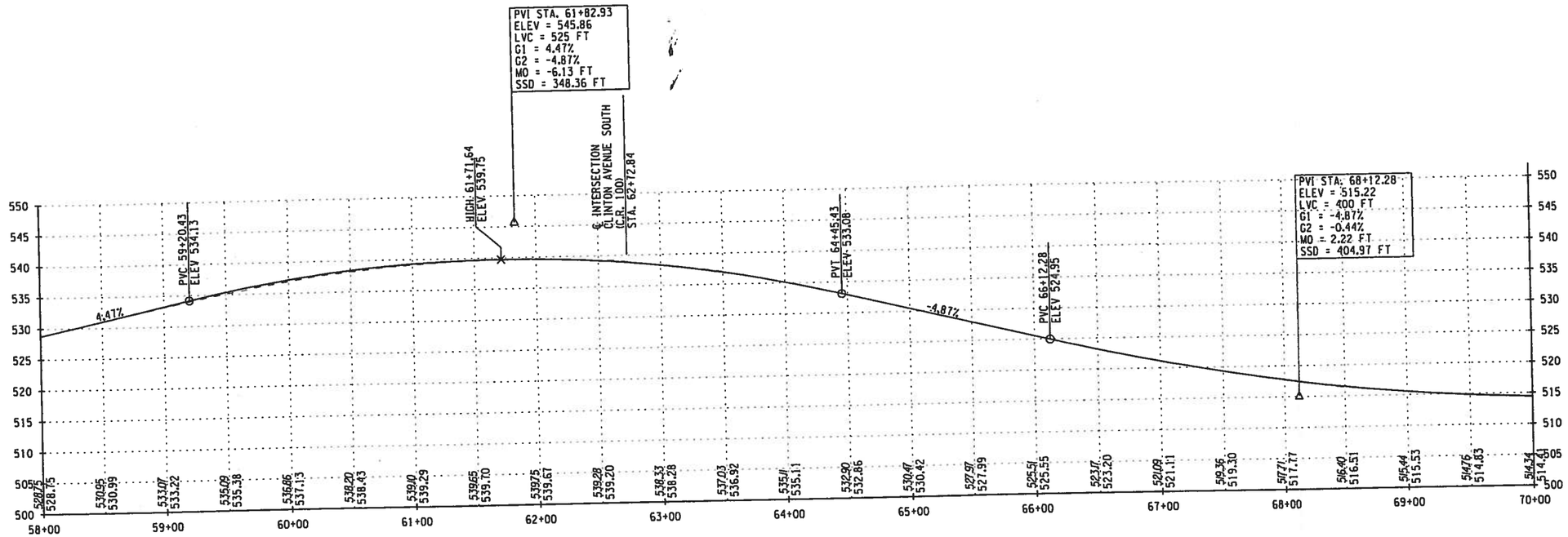

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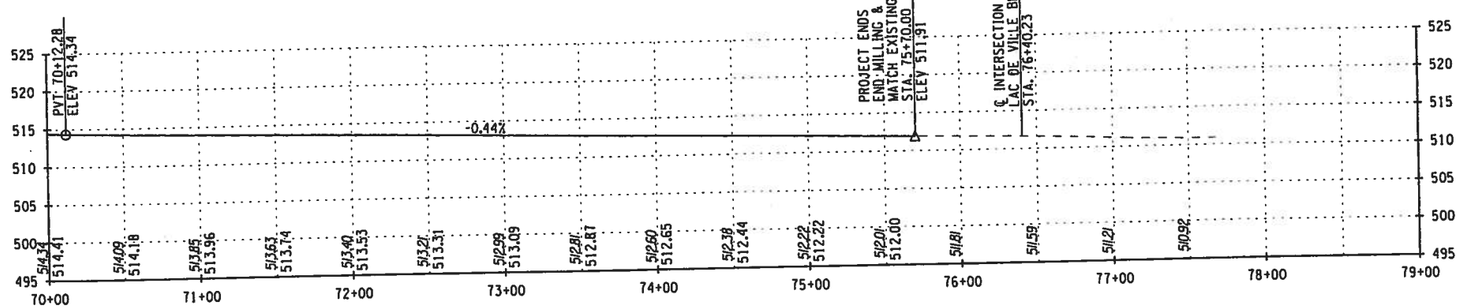

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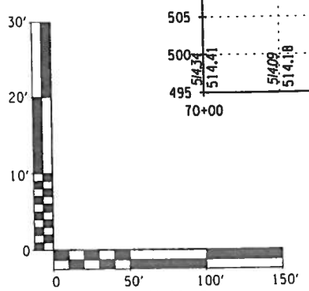

GRAPHIC SCALE
1" = 100' HORIZONTAL
1" = 20' VERTICAL

NO.	DATE	BY:	REVISION

PROGRESS PLANS

Barton & Loguidice, P.C.

DRAFTED BY: JMW/PJZ

DESIGN BY: DAT/JMW

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE PROFESSIONAL EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS:
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

PROFILE

SCALE: AS SHOWN
DATE ISSUED: 05 / 2009
DRAWING NO. PR-3

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TIME = 8:49:07 AM

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APPENDIX B

Correspondence

786

Department of Transportation

Monroe County, New York

Maggie Brooks
County Executive

Terrence J. Rice, P.E.
Director

Open House/Public Information Meeting

P.I.N. 47543.77
Westfall Road III Project
(East Henrietta Road to Lac de Ville Blvd.)
City of Rochester/Town of Brighton
Monroe County, New York

Name Bilkis Bawany Date 1/11/09

Address 184 westfall Rd

City/Town Rochester State NY Zip Code 14620

I / We wish to comment about the following aspects of the Project:

Dear county Executive
I will very very apriciated when youhave ~~solf~~ solve my problem. My problem is when snow Pawl do Road or walking Path My Parking lot block I snow turn like a stone. I'm Handycape women hard to clean up & I stock at home. I living my self, no help for me. Snow shovel guy only come when show are 3" inches, so please make wide my Driveway & walking Path so I can go out. I'm very very Thankful for you.

Your
Bilkis Bawany.

Return to:

Mr. Scott A. Leathersich
Monroe County DOT
CityPlace, Suite 6100
50 W. Main Street
Rochester, NY 14614

787

Department of Transportation

Monroe County, New York

Maggie Brooks
County Executive

Terrence J. Rice, P.E.
Director

Open House/Public Information Meeting

P.I.N. 47543.77
Westfall Road III Project
(East Henrietta Road to Lac de Ville Blvd.)
City of Rochester/Town of Brighton
Monroe County, New York

Name _____ Date _____

Address _____

City/Town _____ State _____ Zip Code _____

I / We wish to comment about the following aspects of the Project:

Islamic Center 272 Westfal Rd has very bad problem when people Pray at the friday & other's days very very difficult to turning both side, because no Stop light there can you see this problem. & solve for us we very very thankfull for you

Your

Bilal Bawaj.

Return to:

Mr. Scott A. Leathersich
Monroe County DOT
CityPlace, Suite 6100
50 W. Main Street
Rochester, NY 14614

U.S. Department of Transportation
Federal Highway Administration

New York Division

Leo W. O'Brien Federal Building, Suite 719
Clinton Avenue & North Pearl Street
Albany, NY 12207

April 17, 2009

Steve Beauvais, Regional Local Project Liaison
New York State Department of Transportation, Region 4
1530 Jefferson Road
Rochester, NY 14623

In Reply Refer To:
HDO-NY

Subject: Section 106 Concurrence
Westfall Road from East Henrietta Road to Lac de Ville project
City of Rochester and Town of Brighton, Monroe County
PIN # 4753.77

Please refer to your March 24, 2009 letter requesting our review and confirmation that the requirements of 36 CFR Part 800 have been met for subject project. You have applied the criteria of effect in compliance with Section 106 of the National Historic Preservation Act and found that this undertaking would have *No Effect* upon properties on or eligible for inclusion on the National Register of Historic Places and notified the State Historic Preservation Officer (SHPO) of your finding. The SHPO has issued an opinion of *No Effect* upon cultural resources on or eligible for inclusion in the National Registers of Historic Places in their letter dated March 18, 2009.

We have reviewed the submitted documentation and concur that the project will have *No Effect* on properties on or eligible for inclusion on the National Register of Historic Places.

Sincerely,

V. Remezova

Valeriya Remezova
Area Engineer

cc: Nancy Herter, OPRHP (09PR01220)
Mary Ivey, NYSDOT, Environmental Analysis Bureau, POD 41

DATE 4/22/09
DAN ___ CHRIS ___
ROB ___ RICK ___
CHARLIE ___ MARVIN ___
FRANK ___ STEVE ✓
KEN ___ RICH ___
ZARIF ___ STEVE ___
ED ___ OTHER ___

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OFFICE OF PARKS, RECREATION HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

David A. Paterson
Governor

Carol Ash
Commissioner

March 18, 2009

Scott Leathersich
Monroe County Department of Transportation
50 West Main St
City Place Suite 6100
Rochester, New York 14614

Re: DOT, DEC
Westfall Road III Improvement Project 4753.77
City of Rochester & Town of Brighton
Monroe County
09PR01220

Dear Mr. Leathersich:

Thank you for requesting the comments of the Field Services Bureau of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the Phase I Cultural Resources Investigation Report, prepared by the Rochester Museum and dated November 27, 2007, in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Field Services Bureau and relate only to Historic/Cultural resources. They do not include potential 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 State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the OPRHP's opinion that your project will have **No Impact** upon cultural resources in or eligible for inclusion in the State and National Register of Historic Places.

The OPRHP appreciates the opportunity to comment on this information. Please telephone me at ext. 3280 with any questions you may have. Please also refer to the PR# above in any future correspondence for this project.

Sincerely,

Nancy Herter

Nancy Herter
Scientist, Archaeology

BARTON & LOGUIDICE
MAR 25 2009
ROCHESTER, NY

cc. David Tuttle, Barton & Loguidice

An Equal Opportunity/Affirmative Action Agency

printed on recycled paper

Westfall Road III Improvements
Open House Public Information Meeting
February 11, 2009

SIGN-IN SHEET

Name	Address
Tim KERF	TOWN OF BRIGHTON DPW
Roseann Schmid	Fisher Associates
Stacey Ehrmentraut	MWS Enterprises / 5701 Transit Rd East Amherst
Terry Slaybaugh	AJE and Sons Dev. Company
Art English	MC DES
Bilkis Bawany	184 Westfall Rd Rochester NY 14620
T. Rice	MCDOT
S. Leathersich	MCDOT
ANNE H. PANKIW	246 WESTFALL RD ROCHESTER NY 14620
ALLISON CLARKE GILBOT	1863 Westfall Rd.
Jim Mogue	690 Westfall RD
Steve Beauvais	NYSDOT
T. Frelier	MCDOT

State Environmental Quality Review
NEGATIVE DECLARATION
Notice of Determination of Non-Significance

Date: November 28, 2008

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

The County of Monroe, as lead agency, has determined that the proposed action described below will not have a significant effect on the environment and a Draft Environmental Impact Statement will not be prepared.

Maggie Brooks, County Executive

APPROVED AS TO FORM BY MON. CO. ATTORNEY 12/07/08

Name of Action: Westfall Road Corridor Improvements

SEQR Status: Type 1

Description of Action: The project involves the reconstruction of Westfall Road between East Henrietta Road in the City of Rochester and Lac de Ville Boulevard in the Town of Brighton. The existing road is a combination of sections of two lanes and three lanes. The improvements will include widening the two lane sections to three lanes with a left turn lane in the middle and improvements to the East Henrietta Road and South Clinton Avenue intersections. The construction will occur primarily within the existing road right-of-way. Minor acquisitions will occur for improvements at the Westfall Road/East Henrietta Road and Westfall Road/South Clinton Avenue intersections. The purpose of the improvements is to improve the structural integrity of this facility to preserve the investment in the highway system, as well as provide for better traffic flow and safety within this corridor. The project will also involve new sidewalks and bicycle space.

Location: Westfall Road between East Henrietta Road and Lac de Ville Blvd. in the City of Rochester and Town of Brighton

Reasons Supporting This Determination:
(See 617.7 (c) for requirements of this determination)

The purpose of this project is to reconstruct the existing roadways and to improve traffic flow by providing a continuous stretch of three lane road in this area. The existing road is a combination of two and three lanes. The middle lane is a left turn lane. The proposal will also provide sidewalks and bicycle space.

The existing drainage system is adequate to handle the minor increase in impervious surface resulting from the road improvements. Erosion control measures will be incorporated into construction to stabilize exposed soil during construction. A cultural resources survey has been completed and SHPO has determined that there will be no affect on historic or archeological resources. It is expected that the improvements will have a beneficial impact on adjoining Town parkland by providing better traffic flow and access to the property. The improvements will occur in existing road right of way. There will be minimal disturbance to vegetation since the widening will occur primarily in existing shoulder areas.

Minor temporary impacts commonly associated with construction practices will be experienced such as equipment noise, dust, and traffic disruption. These will be mitigated as much as possible but are considered minor and temporary for the duration of construction.

No significant short-term, long-term or cumulative impacts are anticipated from this proposal. Supporting information can be found in the draft Engineering Report for this project and information on file in the Monroe County Department of Transportation Offices.

For further Information:

Contact Person: Scott Leathersich, Physical Services Planner

Address: Monroe County Department of Transportation, 6100 CityPlace, 50 West Main Street
Rochester, New York 14614

Telephone Number: (585) 753-7748

Distribution List:

State: Kevin O'Buckley, Regional Director, New York State Department of Transportation
Ruth Pierpont, Director, New York State Historic Preservation Office
Environmental Notice Bulletin

County: Judy Seil, Director, Planning & Development Department

Local: Hon. Robert J. Duffy, Mayor, City of Rochester
Hon. Sandra L. Frankel, Supervisor, Town of Brighton

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Corning Tower The Governor Nelson A. Rockefeller Empire State Plaza Albany, New York 12237

Richard F. Daines, M.D.
Commissioner

Wendy E. Saunders
Chief of Staff

January 28, 2008

Johanna Duffy
Barton & Loguidice, P.C.
290 Elwood Davis Road, Box 3107
Syracuse, New York 13220

Re: FOIL #08-01-246
Westfall Road Improvements-Phase III

Dear Ms. Duffy:

This will acknowledge receipt of your January 23, 2008 request for copies of documents under the Freedom of Information Law.

We have forwarded your request to appropriate Department program units to identify documents that are responsive to your request and which may be made available under provisions of the Freedom of Information Law.

We estimate that within 20 business days we will complete your request or determine the availability of documents responsive to your request or we will notify you in writing if the responsible program areas should require additional time to locate, assemble and review responsive documents.

Please be aware that under the rules and regulations of the New York State Department of Health for implementation of the Freedom of Information Law, there is a fee of $0.25 per page for providing paper copies of documents and/or computer printouts, (IF AVAILABLE) and $60.00 for files on CD (IF AVAILABLE).

When the information or documents have been identified, you will be advised of the cost and how payment should be made.

Sincerely,

Robert "Jake" LoCicero, Esq.
Records Access Office

NYS Department of Environmental Conservation
Region 8 Freedom of Information Law
6274 East Avon-Lima Road
Avon, New York 14414-9519
Website: www.dec.state.ny.gov

Alexander B. Grannis
Commissioner

INITIALS
FILE #
JAN 2 4 2008
Barton & Loguidice, P.C.
Reply To

January 24, 2008

Ms. Johanna Duffy
290 Elwood Davis Road
Box 3107
Syracuse, NY 13220

FOIL Request Number **08-0085**

Dear Ms. Duffy:

This is to acknowledge receipt of your Freedom of Information Law (FOIL) request and to advise you we are conducting a file search for the following parcel(s) of real property:

Several Addresses located on Westfall, South Clinton Avenue, & East Henrietta Road

Please note, we do not search for spill files without a spill number. If you are interested in spill information and have not already provided us with a spill number, we refer you to the NYSDEC spill website: http://www.dec.ny.gov/cfmx/extapps/derfoil/index.cfm.

If you locate a spill number from the database you may contact me for a copy of the spill fact sheet or other information that is included in the file. If you do not have access to a computer, please call me at (585) 226-5363.

Also, be advised if you are asking us to check for properties in the surrounding area, we are unable to do a search by radius. We need names and addresses for each property. Due to the large volume of requests we receive, you may expect a reply in about four weeks.

If you call or write, refer to Request Number 08-0085.

Sincerely,

Jill M. Andolina

Jill M. Andolina
Region 8 FOIL Coordinator

Barton & Loguidice, P.C.
Engineers • Environmental Scientists • Planners • Landscape Designers
Syracuse • Albany • Rochester

January 23, 2008

Records Access Office
State of New York Department of Health
Corning Tower
The Governor Nelson A. Rockefeller Empire State Plaza
Albany, New York 12237

Subj: FOIL Request
Re: Westfall Road Improvements – Phase III
File: 1066.005-R

Dear Records Access Office:

We have been retained by the Monroe County Department of Transportation to provide design plans for the improvement of Westfall Road (County Route 239), located in the Town of Brighton, Monroe County, New York. The corridor limits of this project are East Henrietta Road to the west and Lac-de-Ville Boulevard to the east, a total distance of 1.2-miles. The project improvements for Westfall Road include pavement rehabilitation or reconstruction, widening, drainage improvements, and possible minor profile changes. The proposed project corridor travels through urban commercial and residential areas. Most of the land adjacent to the existing roadway consists of public sidewalks, lawn areas, and paved access roads and driveways. A site location map is enclosed for your reference.

We are currently conducting a Hazardous Waste Site Assessment as part of the design study for this project. In accordance with the Freedom of Information Law (FOIL), we are requesting a review of Department files for information pertinent to the project corridor.

We are interested in being apprised of conditions of environmental concern known to the Department for the properties listed below:

- Westfall Park Medical Center, #2225-2337 South Clinton Avenue, tax #136.19-1-59.11
- Brighton Town Park, #777 Westfall Road, tax #149.07-1-5
- Islamic Center of Rochester, #727 Westfall Road, tax #136.18-1-2.1
- Paychex, #150 Sawgrass Drive, tax #149.06-1-2.303
- VA Clinic, #465 Westfall Road, tax #136.18-1-4
- Property at #435 Westfall Road, tax #136.79-1-4.2
- Property at #375 Westfall Road, tax #150.23-1-1.0
- Citgo Gas Station, #335 East Henrietta Road, tax #136.78-1-13.0

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Telephone: 315-457-5200 • Facsimile: 315-451-0052 • www.BartonandLoguidice.com

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- Monroe Community Hospital, #167 Westfall Road, tax #136.78-2-3.0
- Rochester Highlands Development, #336 Westfall Road, tax #136.78-2-2.0
- Stephen Burgart, DDS, #400 Westfall Road, tax #136.79-1-1.0
- Property at #420 Westfall Road, tax #136.79-1-2.0
- Westfall Heights Development, #454 Westfall Road, tax #136.79-1-3.0
- Monroe Developmental Center, #620 Westfall Road, tax # 136.18-1-1
- Property at #690 Westfall Road, tax #136.19-1-10
- Invisible Fence Company, #720 Westfall Road, tax #136.19-1-11
- Westfall Professional Park, #880,890,900 Westfall Road, tax #s:
  - 136.19-1-47.1 to 136.19-1-47.4
  - 136.19-1-44.1 to 136.19-1-44.5
  - 136.19-1-45.1 to 136.19-1-45.6
- Ambrosia Software Inc., #2220 South Clinton Avenue and #940 Westfall
- Road, tax #s 136.19-1-48 and 136.19-1-50
- Brighton Surgery Campus, #980 Westfall Road, tax #136.19-1-57.1 and 136.19-1-57.2
- Clinton Crossings Medical Center, #919 Westfall Road, tax #s:
  - 136.19-1-61.2, 136.19-1-60.1, 136.19-1-60.4, and 136.19-1-60.5

We appreciate your assistance with this project. Please do not hesitate to contact me at (315) 457-5200 if you have any questions or require additional information.

Very truly yours,

BARTON & LOGUIDICE, P.C.

Johanna E. Duffy
Environmental Scientist III

JED/akg
Enclosure

S:\WPD\TA\1000\1066.005\Correspondence\Letters\1066.005 FOIL-NYSDOH - 012208.doc

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

JED
1066.005-R
JED
MCB

October 11, 2007

Johanna Duffy
Barton & Loguidice
290 Elwood Davis Rd, Bx 3107
Syracuse, NY 13220

Dear Ms. Duffy:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for the proposed Road Improvements, Project 1066.005, - Westfall Road, 1.2 miles, area as indicated on the map you provided, located in the Town of Brighton, Monroe County.

We have no records of <u>known</u> occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,

Tara Seoane

Tara Seoane, Information Services
New York Natural Heritage Program

cc: Reg. 8, Wildlife Mgr.

Barton & Loguidice, P.C.
Engineers • Environmental Scientists • Planners • Landscape Architects
Syracuse • Albany • Rochester

INITIALS: JED	
JN & FILE ID 1066.005-R	
DATE: 10/1/07	
COPY	
JED	
MCB	
ROUTING COPY	

October 1, 2007

Ms. Ruth Pierpont
Historic Preservation Field Services Bureau
NYS Office of Parks, Recreation and Historic Preservation
Peebles Island, P.O. Box 189
Waterford, New York 12188-0189

Subj: Historic/Cultural Information Screening

Re: Westfall Road – Phase III Improvements

File: 1066.005-R

Dear Ms. Pierpont:

We have been retained by the Monroe County Department of Transportation to provide design plans for the improvement of Westfall Road (County Route 239), located in the Town of Brighton, Monroe County, New York. The corridor limits of this project are East Henrietta Road to the west and Lac-de-Ville Boulevard to the east, a total distance of 1.2-miles. The project improvements for Westfall Road include pavement rehabilitation or reconstruction, widening, drainage improvements, and possible minor profile changes. The proposed project corridor travels through urban commercial and residential areas. Most of the land adjacent to the existing roadway consists of public sidewalks, lawn areas, and paved access roads and driveways.

The location of Westfall Road is shown on the enclosed figure 1. The project site can also be found on the USGS 7½-minute Pittsford quadrangle. The western terminus of the project corridor is located at 43° 06' 53" north and 77° 36' 58" west and the eastern terminus of the corridor is located at 43° 06' 55" north and 77° 35' 31" west. These coordinates are in NAD 83/WGS 84 datum.

An online search of the NYSHPO website was conducted. The entire project corridor is identified within the boundaries of an archeologically sensitive area; however, the project area has previously been disturbed by urban development on both sides of the road. The closest mapped historical structure on the National Register is the Timothy Wallace House (94NR00541). This site is located approximately 400 feet north of Westfall Road at 2169 South Clinton Avenue. No impacts to this site will occur.

We request that the OPRHP review this information and concur that the proposed project will not have an impact on historical or cultural resources within the area due to the limited scope of the project and the previous disturbance noted throughout the Westfall Road corridor. Please refer to the enclosed location map and color photographs for site reference.

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Telephone: 315-457-5200 • Facsimile: 315-451-0052 • www.BartonandLoguidice.com

The experience to listen. The power to solve

Should you have any additional questions regarding this request, please contact me at (315) 457-5200. Thank you for your assistance on this project.

Very truly yours,

BARTON & LOGUIDICE, P.C.

Johanna E. Duffy
Environmental Scientist II

JED/akg

Enclosures

Barton & Loguidice, P.C.
Engineers • Environmental Scientists • Planners • Landscape Architects
Syracuse • Albany • Rochester

INITIALS:	
JN & FILE ID	1066.005-R
DATE:	9/26/07
COPY	
JED ✓	
MCB ✓	
ROUTING COPY	

September 26, 2007

Information Services
Natural Heritage Program
New York State Department of Environmental Conservation
625 Broadway, 5th Floor
Albany, New York 12233-4757

Subj: Information Request
Re: Westfall Road – Phase III Improvements
File: 1066.005-R

Dear Information Services:

We have been retained by the Monroe County Department of Transportation to provide design plans for the improvement of Westfall Road (County Route 239), located in the Town of Brighton, Monroe County, New York. The corridor limits of this project are East Henrietta Road to the west and Lac-de-Ville Boulevard to the east, a total distance of 1.2-miles. The project improvements for Westfall Road include pavement rehabilitation or reconstruction, widening, drainage improvements, and possible minor profile changes. The proposed project corridor travels through urban commercial and residential areas. Most of the land adjacent to the existing roadway consists of public sidewalks, lawn areas, and paved access roads and driveways.

We are currently conducting an environmental assessment of the project site and would like to know whether there are any Federal or State listed (or proposed for listing) endangered or threatened species reported to be located within or adjacent to the project corridor. This data will be included in the design reports for this project as well as in any permit applications that may be required.

The location of Westfall Road is shown on the enclosed Figure 1. The project site can also be found on the USGS 7½-minute Pittsford quadrangle. The western terminus of the project corridor is located at 43° 06' 53" north and 77° 36' 58" west and the eastern terminus of the corridor is located at 43° 06' 55" north and 77° 35' 31" west. These coordinates are in NAD 83/WGS 84 datum.

Thank you for your assistance with this project.

Very truly yours,

BARTON & LOGUIDICE, P.C.

Johanna E. Duffy
Environmental Scientist II

JED/akg
Enclosure

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Barton & Loguidice, P.C.
Engineers • Environmental Scientists • Planners • Landscape Designers
Syracuse • Albany • Rochester

August 28, 2007

John Dearstyne
NYS Department of Transportation
50 Wolf Road
Albany, New York 12205

Subj: Accident Data Request

Re: Westfall Road Improvements – Phase III
Town of Brighton/City of Rochester, Monroe County, New York

File: 1066.005

Dear Mr. Dearstyne:

Monroe County has obtained a contract with our consulting engineering firm, Barton & Loguidice, P.C., to prepare alternatives for road improvements to Westfall Road between East Henrietta Road and Lac de Ville Boulevard. The development of proposed alternatives will require the analysis of accident history along the road. We are requesting the most recent three years of accident data along Westfall Road to aid in our analysis. This data should also include 1/10 of a mile outside the project limits on Westfall Road, South Clinton Ave., and East Henrietta Road. The information requested (such as from the Interim Accident Summary Report System or CLASS System) will assist our engineers in the evaluation of roadway deficiencies and project needs. A map of the corridor and a list of corresponding intersections for which accident data are requested are attached.

If you have any questions concerning this request, please call me at 315-457-5200.

Very truly yours,

BARTON & LOGUIDICE, P.C.

Jonathan M. Walczak

Jonathan M. Walczak, I.E.
Engineer I

JMW/akg
Enclosure

S:\WPDATA\1000\1066.005\Correspondence\Letters\1066.005 Accident_Data_Request - 082807.doc

TOWN OF BRIGHTON
MONROE COUNTY, NEW YORK

APR 08 2004

April 7, 2004

Terrence Rice, Director
Monroe Co. Transportation
City Place
50 West Main St.
Rochester, N.Y. 14614

Re: 2005-2010 Capital Improvement Program
Westfall Rd. III

Dear Terry:

I write to expand upon Supervisor Frankel's letter of 2/12/04, as you requested.

The County's 2004-2009 C.I.P. now includes a project entitled "Westfall Rd. III: E. Henrietta Rd./ Clinton ", for construction in 2006. In the letter, we urged (among other things) that the project include the reconstruction of the full intersection with S. Clinton Ave.. This reconstruction was called for in the Central Brighton Transportation Study and confirmed in the Sen. Keating Blvd. Update in 2003. More specifically, the Study recommended that an additional through lane should be considered on Westfall Rd. both east-bound and west-bound at Clinton Ave.. Further, an extended left turn lane and additional right-turn lane was recommended then, and should be budgeted for now, on S. Clinton Ave. south-bound at Westfall Rd..

These improvements provide the foundation for our plans for Sen. Keating Blvd., and our efforts to keep Westfall Rd. east of Lac de Ville as a two-lane road.

Sincerely,

Thomas A. Low
Commissioner of Public Works

cc: Public Works Committee

letters\rice

2300 ELMWOOD AVENUE
ROCHESTER, NEW YORK 14618
(585) 784-5250
FAX: (585) 784-5373
http://www.townofbrighton.org

APPENDIX C

Traffic Analysis

Westfall & East Henrietta Rd. - AM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	92	676	131	131	232	178	383	897	169	52	247	75
Iola Complex Demolition (B&L Counts)	-2	0	0	0	0	0	-7	0	0	0	-5	0
Existing Volume (2007)	**90**	**676**	**131**	**131**	**232**	**178**	**376**	**897**	**169**	**52**	**242**	**75**
Existing LOS (2007)	**B**	**B**	**D**	**C**	**C**	**D**	**C**	**C**	**C**	**D**	**D**	**C**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	0	109	18	39	8	9	15	118	30	15	28	0
Senator Keating Boulevard Site (GTS)	0	0	12	3	4	3	36	0	0	0	23	0
Sawgrass Medical Center (Bergmann)	0	0	21	5	9	7	60	0	0	0	39	0
Clinton Crossings (FRA)	0	0	8	1	3	2	24	0	0	0	15	0
Reserve Residential Community (GTS)	0	0	1	4	8	6	4	0	0	0	3	0
Total Developments	*0*	*109*	*60*	*53*	*31*	*27*	*139*	*118*	*30*	*15*	*108*	*0*
ETC+10 Volume (2019)	**90**	**785**	**191**	**184**	**263**	**205**	**515**	**1015**	**199**	**67**	**350**	**75**
ETC+10 No Build LOS (2019)	**C**	**C**	**F**	**C**	**C**	**D**	**D**	**D**	**D**	**D**	**D**	**C**
ETC+10 Build LOS (2019)	**C**	**C**	**E**	**C**	**C**	**D**	**B**	**C**	**D**	**D**	**D**	**C**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year: 1.00%	9	71	14	14	24	19	39	94	18	5	25	8
ETC+20 Volume (2029)	**100**	**856**	**205**	**198**	**288**	**224**	**554**	**1109**	**217**	**72**	**376**	**83**
ETC+20 No Build LOS (2029)	**C**	**C**	**F**	**C**	**C**	**E**	**E**	**E**	**E**	**D**	**D**	**C**
ETC+20 Build LOS (2029)	**C**	**C**	**F**	**C**	**C**	**E**	**B**	**C**	**E**	**D**	**D**	**C**

Westfall & East Henrietta Rd. - PM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	64	819	179	137	256	323	225	808	97	90	267	108
Iola Complex Demolition (B&L Counts)	-1	0	0	-3	-5	-6	-3	0	0	0	-4	0
Existing Volume (2007)	**63**	**819**	**179**	**134**	**251**	**317**	**222**	**808**	**97**	**90**	**263**	**108**
Existing LOS (2007)	**C**	**C**	**E**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**C**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	0	207	20	15	21	9	10	202	51	45	34	0
Senator Keating Boulevard Site (GTS)	0	0	6	14	26	33	8	0	0	0	10	0
Sawgrass Medical Center (Bergmann)	0	0	4	25	47	60	5	0	0	0	7	0
Clinton Crossings (FRA)	0	0	4	10	19	23	4	0	0	0	5	0
Reserve Residential Community (GTS)	0	0	6	3	6	8	8	0	0	0	10	0
Total Developments	*0*	*207*	*41*	*67*	*119*	*133*	*36*	*202*	*51*	*45*	*65*	*0*
ETC+10 Volume (2019)	**63**	**1026**	**220**	**202**	**370**	**449**	**258**	**1010**	**148**	**135**	**329**	**108**
ETC+10 No Build LOS (2019)	**D**	**D**	**F**	**D**	**D**	**F**	**F**	**F**	**E**	**D**	**D**	**C**
ETC+10 No Build LOS (2019)	**D**	**D**	**F**	**D**	**D**	**F**	**B**	**E**	**E**	**D**	**D**	**C**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year: 1.00%	7	86	19	14	26	33	23	85	10	9	28	11
ETC+20 Volume (2029)	**70**	**1112**	**239**	**216**	**396**	**483**	**281**	**1095**	**158**	**144**	**356**	**119**
ETC+20 No Build LOS (2029)	**E**	**E**	**F**	**D**	**D**	**F**	**F**	**F**	**E**	**D**	**D**	**D**
ETC+20 Build LOS (2029)	**E**	**E**	**F**	**D**	**D**	**F**	**C**	**E**	**E**	**D**	**D**	**D**

Westfall & Sawgrass Dr. - AM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	25	6	6	79	428	284	23	1	36	213	443	124
Iola Complex Demolition (B&L Counts)	0	0	0	0	-11	0	0	0	0	0	-27	0
Existing Volume (2007)	**25**	**6**	**6**	**79**	**417**	**284**	**23**	**1**	**36**	**213**	**416**	**124**
Existing LOS (2007)	**C**	**C**	**C**	**A**	**A**	**A**	**B**	**E**	**E**	**A**	**A**	**A**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	0	0	0	0	87	0	0	0	0	0	101	0
Senator Keating Boulevard Site (GTS)	0	0	1	2	10	6	2	0	0	0	74	0
Sawgrass Medical Center (Bergmann)	0	3	0	0	0	162	7	1	21	61	5	1
Clinton Crossings (FRA)	0	0	1	1	6	4	3	0	0	0	49	0
Reserve Residential Community (GTS)	0	0	0	3	18	12	1	0	0	0	8	0
Total Developments	*0*	*3*	*2*	*6*	*121*	*184*	*12*	*1*	*21*	*61*	*237*	*1*
ETC+10 Volume (2019)	**25**	**9**	**8**	**85**	**538**	**468**	**35**	**2**	**57**	**274**	**653**	**125**
ETC+10 No Build LOS (2019)	**C**	**C**	**C**	**A**	**A**	**F**	**B**	**E**	**E**	**A**	**A**	**A**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year:	3	1	1	8	44	30	2	0	4	22	44	13
ETC+20 Volume (2029)	**28**	**10**	**8**	**93**	**581**	**498**	**38**	**2**	**61**	**296**	**697**	**138**
ETC+20 No Build LOS (2029)	**C**	**C**	**C**	**A**	**A**	**F**	**B**	**E**	**E**	**A**	**A**	**A**

Westfall & Sawgrass Dr. - PM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	93	*0*	66	3	454	16	158	*0*	116	14	574	9
Iola Complex Demolition (B&L Counts)	0	0	0	0	-38	0	0	0	0	0	-36	0
Existing Volume (2007)	**93**	**0**	**66**	**3**	**416**	**16**	**158**	**0**	**116**	**14**	**538**	**9**
Existing LOS (2007)	**D**	**D**	**D**	**A**	**A**	**A**	**A**	**E**	**E**	**A**	**A**	**A**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	0	0	0	0	136	0	0	0	0	0	136	0
Senator Keating Boulevard Site (GTS)	0	0	3	0	75	3	3	0	0	0	28	0
Sawgrass Medical Center (Bergmann)	0	0	0	0	0	19	93	0	135	8	91	1
Clinton Crossings (FRA)	0	0	1	0	53	2	2	0	0	0	15	0
Reserve Residential Community (GTS)	0	0	3	0	17	1	3	0	0	0	28	0
Total Developments	*0*	*0*	*7*	*1*	*281*	*24*	*101*	*0*	*135*	*8*	*297*	*1*
ETC+10 Volume (2019)	**93**	**0**	**73**	**4**	**697**	**40**	**259**	**0**	**251**	**22**	**835**	**10**
ETC+10 No Build LOS (2019)	**F**	**F**	**F**	**A**	**A**	**A**	**C**	**F**	**F**	**A**	**C**	**A**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year:	10	0	7	0	44	2	17	0	12	1	56	1
ETC+20 Volume (2029)	**103**	**0**	**80**	**4**	**740**	**42**	**276**	**0**	**263**	**23**	**891**	**11**
ETC+20 No Build LOS (2029)	**F**	**F**	**F**	**A**	**A**	**A**	**C**	**F**	**F**	**A**	**C**	**A**

Westfall & South Clinton Ave. - AM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	207	446	82	62	543	162	16	297	117	109	168	131
Iola Complex Demolition (B&L Counts)	-3	0	0	0	-5	0	0	0	-1	-7	-11	-9
Existing Volume (2007)	**204**	**446**	**82**	**62**	**538**	**162**	**16**	**297**	**116**	**102**	**157**	**122**
Existing LOS (2007)	**E**	**E**	**B**	**F**	**F**	**C**	**C**	**C**	**D**	**C**	**C**	**C**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	28	0	0	0	48	0	0	0	11	9	51	41
Senator Keating Boulevard Site (GTS)	0	96	0	0	18	0	0	22	0	0	77	0
Sawgrass Medical Center (Bergmann)	39	0	0	0	101	0	0	0	22	3	5	4
Clinton Crossings (FRA)	0	12	19	2	7	1	0	12	4	4	49	0
Reserve Residential Community (GTS)	0	2	0	0	0	9	33	12	33	9	0	0
Total Developments	*67*	*110*	*19*	*2*	*174*	*10*	*33*	*46*	*70*	*25*	*182*	*45*
ETC+10 Volume (2019)	**271**	**556**	**101**	**64**	**712**	**172**	**49**	**343**	**185**	**127**	**339**	**167**
ETC+10 No Build LOS (2019)	**F**	**F**	**B**	**F**	**F**	**C**	**C**	**C**	**F**	**D**	**D**	**C**
ETC+10 Build Option 1 LOS (2019)	**B**	**D**	**B**	**B**	**F**	**C**	**A**	**C**	**D**	**A**	**C**	**C**
ETC+10 Build Option 2 LOS (2019)	**B**	**D**	**B**	**D**	**D**	**C**	**A**	**C**	**D**	**C**	**C**	**C**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year: 1.00%	21	47	9	6	56	17	2	31	12	11	16	13
ETC+20 Volume (2029)	**292**	**603**	**110**	**70**	**768**	**189**	**51**	**374**	**197**	**138**	**355**	**180**
ETC+20 No Build LOS (2029)	**F**	**F**	**B**	**F**	**F**	**D**	**C**	**C**	**F**	**D**	**D**	**C**
ETC+20 Build Option 1 LOS (2019)	**B**	**D**	**B**	**B**	**F**	**C**	**A**	**C**	**F**	**A**	**C**	**C**
ETC+20 Build Option 2 LOS (2019)	**B**	**D**	**B**	**D**	**D**	**C**	**A**	**C**	**F**	**C**	**C**	**C**

Westfall & South Clinton Ave. - PM

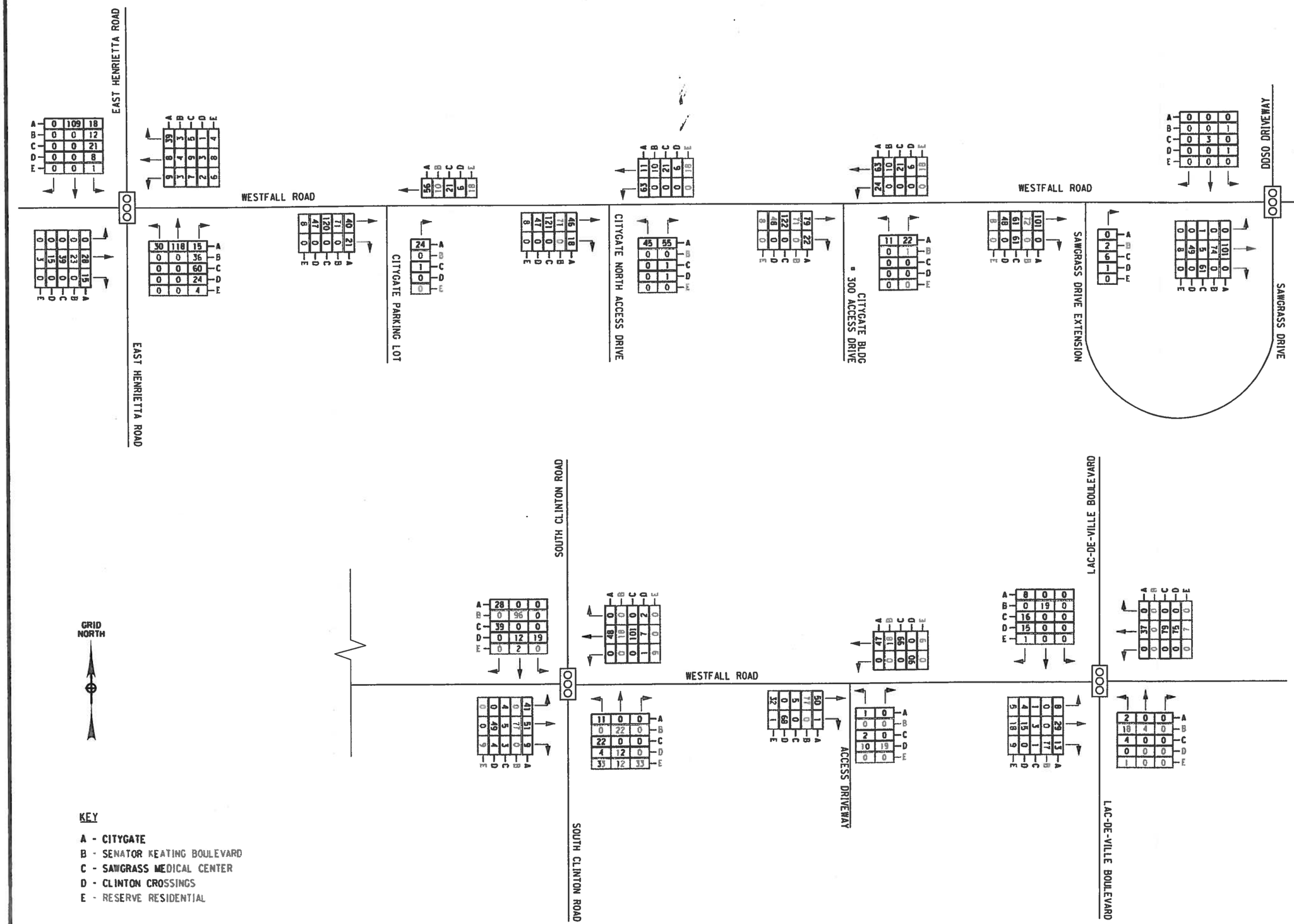
	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	138	495	110	119	252	90	42	535	118	139	455	341
Iola Complex Demolition (B&L Counts)	-10	0	0	0	-11	0	0	0	-9	-5	-18	-13
Existing Volume (2007)	**128**	**495**	**110**	**119**	**241**	**90**	**42**	**535**	**109**	**134**	**437**	**328**
Existing LOS (2007)	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**E**	**E**	**F**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	40	0	0	0	74	0	0	0	22	21	68	47
Senator Keating Boulevard Site (GTS)	0	42	0	0	78	0	0	98	0	0	34	0
Sawgrass Medical Center (Bergmann)	5	0	0	0	10	0	0	0	4	28	89	67
Clinton Crossings (FRA)	0	7	4	29	53	15	0	12	2	2	16	0
Reserve Residential Community (GTS)	0	11	0	0	0	34	18	6	18	34	0	0
Total Developments	*45*	*60*	*4*	*29*	*215*	*49*	*18*	*116*	*46*	*85*	*207*	*114*
ETC+10 Volume (2019)	**173**	**555**	**114**	**148**	**456**	**139**	**60**	**651**	**156**	**219**	**645**	**442**
ETC+10 No Build LOS (2019)	**F**	**F**	**D**	**F**	**F**	**E**	**F**	**F**	**E**	**F**	**F**	**F**
ETC+10 Build Option 1 LOS (2019)	**B**	**D**	**D**	**B**	**E**	**E**	**B**	**E**	**D**	**B**	**E**	**F**
ETC+10 Build Option 2 LOS (2019)	**B**	**D**	**D**	**D**	**D**	**D**	**B**	**E**	**D**	**D**	**D**	**F**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year: 1.00%	13	52	12	12	25	9	4	56	11	14	46	34
ETC+20 Volume (2029)	**186**	**607**	**126**	**160**	**481**	**148**	**64**	**707**	**167**	**233**	**690**	**476**
ETC+20 No Build LOS (2029)	**F**	**F**	**D**	**F**	**F**	**E**	**F**	**F**	**E**	**F**	**F**	**F**
ETC+20 Build Option 1 LOS (2019)	**B**	**D**	**D**	**B**	**F**	**E**	**B**	**F**	**E**	**B**	**F**	**F**
ETC+20 Build Option 2 LOS (2019)	**B**	**D**	**D**	**D**	**D**	**E**	**B**	**F**	**E**	**D**	**D**	**F**

Westfall & Lac De Ville Blvd. - AM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	119	79	75	160	593	204	45	15	30	63	135	38
Iola Complex Demolition (B&L Counts)	-1	0	0	0	-4	0	0	0	0	-3	-6	-2
Existing Volume (2007)	**118**	**79**	**75**	**160**	**589**	**204**	**45**	**15**	**30**	**60**	**129**	**36**
Existing LOS (2007)	**A**	**C**	**C**	**B**	**B**	**A**	**A**	**B**	**B**	**A**	**A**	**B**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	8	0	0	0	37	0	0	0	2	13	29	8
Senator Keating Boulevard Site (GTS)	0	19	0	0	0	0	0	4	18	77	0	0
Sawgrass Medical Center (Bergmann)	16	0	0	0	79	0	0	0	4	1	3	1
Clinton Crossings (FRA)	15	0	0	0	75	0	0	0	0	0	15	4
Reserve Residential Community (GTS)	1	0	0	0	7	0	0	0	1	9	18	5
Total Developments	*40*	*19*	*0*	*0*	*198*	*0*	*0*	*4*	*25*	*100*	*65*	*18*
ETC+10 Volume (2019)	**158**	**98**	**75**	**160**	**787**	**204**	**45**	**19**	**55**	**160**	**193**	**54**
ETC+10 No Build LOS (2019)	**B**	**C**	**C**	**C**	**C**	**B**	**A**	**B**	**B**	**A**	**A**	**B**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year: 1.00%	12	8	8	17	62	21	5	2	3	6	13	4
ETC+20 Volume (2029)	**170**	**106**	**83**	**177**	**849**	**225**	**50**	**21**	**58**	**167**	**207**	**58**
ETC+20 No Build LOS (2029)	**B**	**C**	**C**	**E**	**E**	**B**	**A**	**B**	**B**	**A**	**A**	**C**

Westfall & Lac De Ville Blvd. - PM

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
Existing Conditions: 9/27/2007												
Raw Peak Hour 7:45 AM - 8:45 AM	78	24	129	103	251	26	203	118	73	19	596	46
Iola Complex Demolition (B&L Counts)	-2	0	0	0	-8	0	0	0	-2	-1	-16	-1
Existing Volume (2007)	**76**	**24**	**129**	**103**	**243**	**26**	**203**	**118**	**71**	**18**	**580**	**45**
Existing LOS (2007)	**A**	**C**	**C**	**A**	**A**	**A**	**A**	**C**	**C**	**A**	**A**	**A**
Traffic Growth from 2007-2019												
Citygate (Bergmann)	14	0	0	0	46	0	0	0	13	2	60	5
Senator Keating Boulevard Site (GTS)	0	9	0	0	0	0	0	19	78	34	0	0
Sawgrass Medical Center (Bergmann)	2	0	0	0	6	0	0	0	2	3	78	6
Clinton Crossings (FRA)	9	0	0	0	27	0	0	0	25	0	65	5
Reserve Residential Community (GTS)	6	0	0	0	21	0	0	0	6	1	16	1
Total Developments	*31*	*9*	*0*	*0*	*100*	*0*	*0*	*19*	*124*	*39*	*220*	*17*
ETC+10 Volume (2019)	**107**	**33**	**129**	**103**	**343**	**26**	**203**	**137**	**195**	**57**	**800**	**62**
ETC+10 No Build LOS (2019)	**A**	**C**	**C**	**B**	**B**	**B**	**A**	**D**	**D**	**C**	**C**	**A**
Traffic Growth from 2020-2029												
Background Traffic Growth Per Year: 1.00%	8	3	13	11	25	3	21	12	7	2	61	5
ETC+20 Volume (2029)	**115**	**36**	**142**	**114**	**368**	**29**	**224**	**149**	**202**	**59**	**860**	**66**
ETC+20 No Build LOS (2029)	**A**	**D**	**D**	**B**	**B**	**B**	**B**	**D**	**D**	**D**	**D**	**A**



NO.	DATE	BY:	REVISION

Barton & Loguidice, P.C.

DESIGN BY: XXX
DRAFTED BY: XXX

DEPARTMENT OF TRANSPORTATION
50 WEST MAIN STREET, SUITE 6100
ROCHESTER, NEW YORK 14614-1231

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209

PROJECT NAME: WESTFALL ROAD
LIMITS:
TOWN: BRIGHTON
CAPITAL PROJECT NO.: 4753.77
BRIDGE IDENTIFICATION NO.: N.A.

AM PEAK HOUR
TRIP GENERATION

SCALE: NTS
DATE ISSUED: 6/2008
DRAWING NO.

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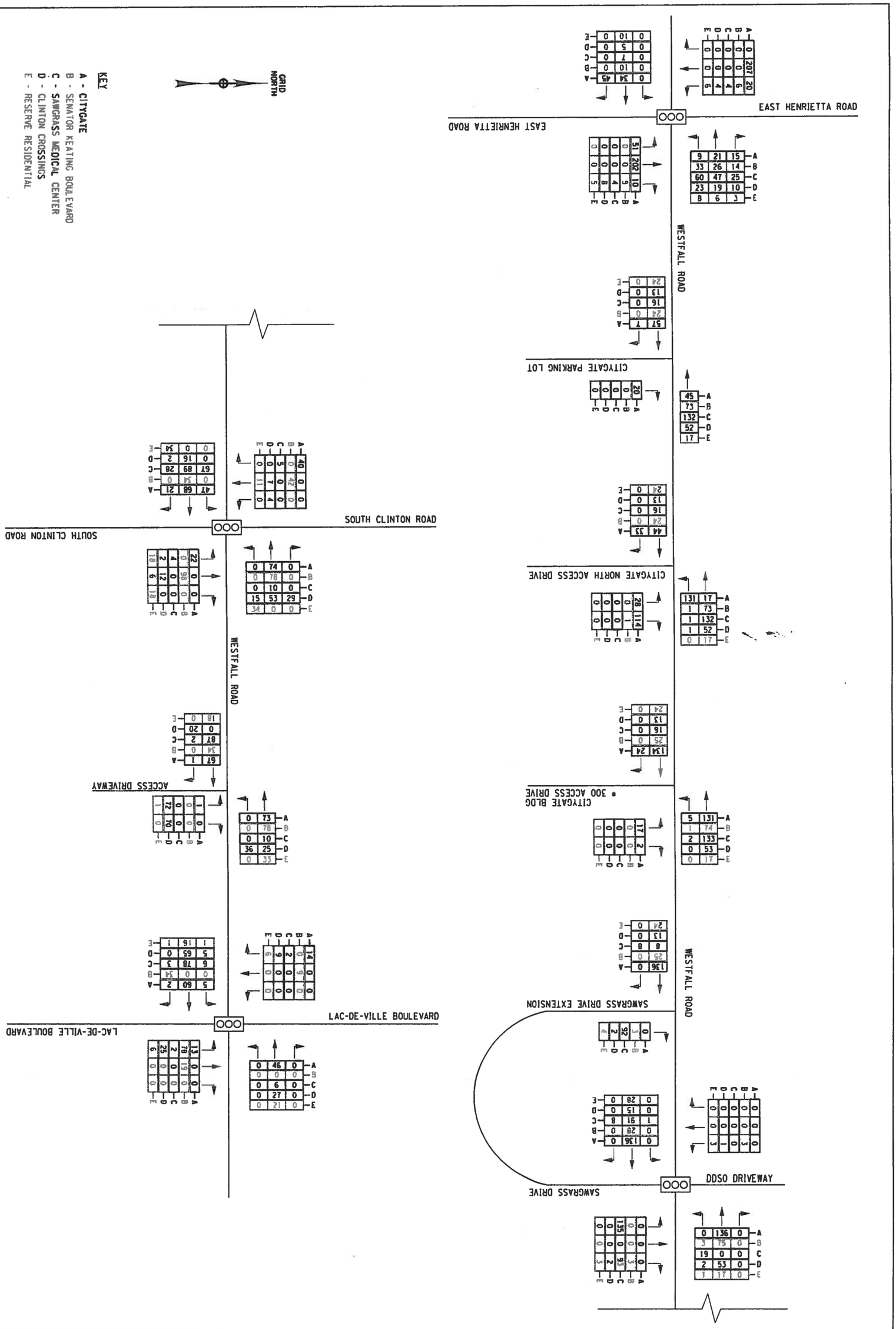
R:\MicroStation\Workspace\Plot\NYSDOT\NYSDOT_pdf.plt
DATE = 6/19/2008
TIME = 4:30:33 PM



PM PEAK HOUR TRIP GENERATION	PROJECT NAME: WESTFALL ROAD	DEPARTMENT OF TRANSPORTATION 50 WEST MAIN STREET, SUITE 6100 ROCHESTER, NEW YORK 14614-1231	Barton & Loguidice, P.C.
	LIMITS	UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209	
	TOWN: BRIGHTON		DESGIN BY: XXX / DRAFTED BY: XXX
	CAPITAL PROJECT NO.: 4753.77 / BRIDGE IDENTIFICATION NO.: N.A.		
SCALE: NTS	DATE ISSUED: 5/2008	DRAWING NO.	

NO.	DATE	BY:	REVISION

160: Westfall & E Henrietta EXISTING AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.974			0.946			0.956			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3447	0	1770	3348	0	1770	3383	0	1770	3476	0
Flt Permitted	0.382			0.433			0.189			0.091		
Satd. Flow (perm)	712	3447	0	807	3348	0	352	3383	0	170	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			106			82			18	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Volume (vph)	75	242	52	178	232	131	169	897	376	131	676	90
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.95	0.95	0.95	0.84	0.84	0.84
Adj. Flow (vph)	88	285	61	196	255	144	178	944	396	156	805	107
Lane Group Flow (vph)	88	346	0	196	399	0	178	1340	0	156	912	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4			8			2			6		
Detector Phases	5	4		1	8		7	2		3	6	
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	10.0	29.0		10.0	29.0		10.0	30.0		10.0	30.0	
Total Split (s)	12.0	29.0	0.0	12.0	29.0	0.0	12.0	47.0	0.0	12.0	47.0	0.0
Total Split (%)	12.0%	29.0%	0.0%	12.0%	29.0%	0.0%	12.0%	47.0%	0.0%	12.0%	47.0%	0.0%
Maximum Green (s)	7.0	24.0		7.0	24.0		7.0	42.0		7.0	42.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0		2.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			16.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.0	17.3		27.0	17.3		61.0	52.4		61.0	52.4	
Actuated g/C Ratio	0.27	0.17		0.27	0.17		0.61	0.52		0.61	0.52	
v/c Ratio	0.30	0.56		0.63	0.60		0.53	0.74		0.65	0.50	
Control Delay	29.4	38.2		41.3	31.2		24.3	21.8		40.7	17.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.4	38.2		41.3	31.2		24.3	21.8		40.7	17.3	
LOS	C	D		D	C		C	C		D	B	

Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

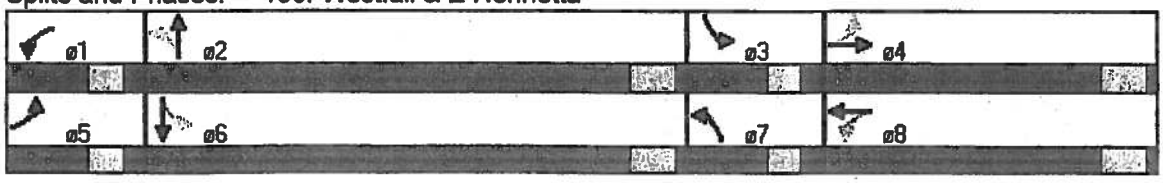
160: Westfall & E Henrietta

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		36.4			34.5			22.1			20.7	
Approach LOS		D			C			C			C	
90th %ile Green (s)	10.9	20.1		10.9	20.1		7.0	42.0		7.0	42.0	
90th %ile Term Code	Hold	Gap		Max	Hold		Max	Coord		Max	Coord	
70th %ile Green (s)	9.6	16.7		9.6	16.7		7.0	46.7		7.0	46.7	
70th %ile Term Code	Hold	Gap		Gap	Hold		Max	Coord		Max	Coord	
50th %ile Green (s)	7.6	15.1		7.6	15.1		7.0	50.3		7.0	50.3	
50th %ile Term Code	Hold	Gap		Gap	Hold		Hold	Coord		Max	Coord	
30th %ile Green (s)	5.7	13.4		5.7	13.4		7.0	53.9		7.0	53.9	
30th %ile Term Code	Hold	Gap		Gap	Hold		Hold	Coord		Max	Coord	
10th %ile Green (s)	0.0	11.1		5.0	11.1		5.0	58.9		5.0	58.9	
10th %ile Term Code	Skip	Gap		Min	Hold		Min	Coord		Min	Coord	
Stops (vph)	52	242		147	240		77	903		65	475	
Fuel Used(gal)	2	8		3	5		2	15		2	10	
CO Emissions (g/hr)	123	534		223	370		130	1061		160	719	
NOx Emissions (g/hr)	24	104		43	72		25	206		31	140	
VOC Emissions (g/hr)	29	124		52	86		30	246		37	167	
Dilemma Vehicles (#)	0	0		0	18		0	0		0	0	
Queue Length 50th (ft)	41	99		98	91		41	314		35	184	
Queue Length 95th (ft)	66	128		141	132		88	481		99	257	
Internal Link Dist (ft)		1671			373			377			752	
Turn Bay Length (ft)	125			125			125			125		
Base Capacity (vph)	308	915		324	949		344	1810		248	1829	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.29	0.38		0.60	0.42		0.52	0.74		0.63	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 63 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 75.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 160: Westfall & E Henrietta



160: Westfall & E Henrietta ETC+10 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.938			0.950			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	1770	3320	0	1770	3362	0	1770	3486	0
Flt Permitted	0.302			0.302			0.140			0.091		
Satd. Flow (perm)	563	3454	0	563	3320	0	261	3362	0	170	3486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			172			114			16	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Volume (vph)	75	350	67	205	263	184	199	1015	515	191	785	90
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.95	0.95	0.95	0.84	0.84	0.84
Adj. Flow (vph)	88	412	79	225	289	202	209	1068	542	227	935	107
Lane Group Flow (vph)	88	491	0	225	491	0	209	1610	0	227	1042	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4			8			2			6		
Detector Phases	5	4		1	8		7	2		3	6	
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	10.0	29.0		10.0	29.0		10.0	30.0		10.0	30.0	
Total Split (s)	12.0	29.0	0.0	12.0	29.0	0.0	12.0	47.0	0.0	12.0	47.0	0.0
Total Split (%)	12.0%	29.0%	0.0%	12.0%	29.0%	0.0%	12.0%	47.0%	0.0%	12.0%	47.0%	0.0%
Maximum Green (s)	7.0	24.0		7.0	24.0		7.0	42.0		7.0	42.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0		2.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			16.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	31.7	21.6		31.8	21.6		56.2	47.2		56.2	47.2	
Actuated g/C Ratio	0.32	0.22		0.32	0.22		0.56	0.47		0.56	0.47	
v/c Ratio	0.29	0.64		0.74	0.58		0.74	0.98		0.95	0.63	
Control Delay	27.6	37.8		49.3	24.7		44.7	43.4		82.3	22.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.6	37.8		49.3	24.7		44.7	43.4		82.3	22.4	
LOS	C	D		D	C		D	D		F	C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		36.3			32.4			43.6			33.1	
Approach LOS		D			C			D			C	
90th %ile Green (s)	7.0	24.0		7.0	24.0		7.0	42.0		7.0	42.0	
90th %ile Term Code	Hold	Max		Max	Hold		Max	Coord		Max	Coord	
70th %ile Green (s)	8.9	22.1		8.9	22.1		7.0	42.0		7.0	42.0	
70th %ile Term Code	Hold	Gap		Max	Hold		Max	Coord		Max	Coord	
50th %ile Green (s)	10.8	20.2		10.8	20.2		7.0	42.0		7.0	42.0	
50th %ile Term Code	Hold	Gap		Max	Hold		Max	Coord		Max	Coord	
30th %ile Green (s)	8.8	17.3		8.8	17.3		7.0	46.9		7.0	46.9	
30th %ile Term Code	Hold	Gap		Gap	Hold		Max	Coord		Max	Coord	
10th %ile Green (s)	0.0	14.4		5.7	14.4		7.0	52.9		7.0	52.9	
10th %ile Term Code	Skip	Gap		Gap	Hold		Hold	Coord		Max	Coord	
Stops (vph)	49	351		166	253		105	1186		100	634	
Fuel Used(gal)	2	11		4	6		3	26		5	13	
CO Emissions (g/hr)	120	758		278	392		217	1785		349	921	
NOx Emissions (g/hr)	23	147		54	76		42	347		68	179	
VOC Emissions (g/hr)	28	176		64	91		50	414		81	213	
Dilemma Vehicles (#)	0	0		0	22		0	0		0	0	
Queue Length 50th (ft)	36	143		100	93		62	~566		94	267	
Queue Length 95th (ft)	66	175		#185	138		#161	#706		#216	306	
Internal Link Dist (ft)		1671			373			377			752	
Turn Bay Length (ft)	125			125			125			125		
Base Capacity (vph)	308	914		308	990		282	1646		239	1653	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.29	0.54		0.73	0.50		0.74	0.98		0.95	0.63	

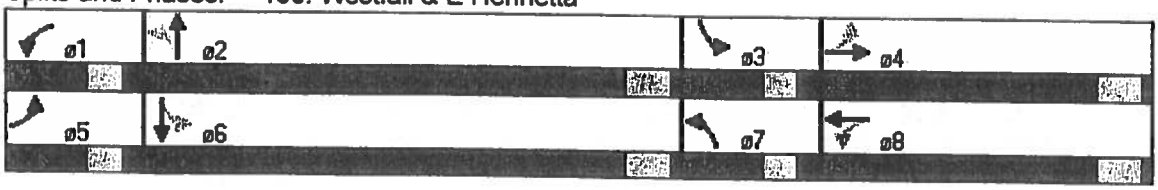
Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 63 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 91.6% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 160: Westfall & E Henrietta



160: Westfall & E Henrietta TTC+20 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.976			0.939			0.950			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	1770	3323	0	1770	3362	0	1770	3483	0
Flt Permitted	0.267			0.272			0.108			0.091		
Satd. Flow (perm)	497	3454	0	507	3323	0	201	3362	0	170	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			168			111			16	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Volume (vph)	83	376	72	224	288	198	217	1109	554	205	856	100
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.95	0.95	0.95	0.84	0.84	0.84
Adj. Flow (vph)	98	442	85	246	316	218	228	1167	583	244	1019	119
Lane Group Flow (vph)	98	527	0	246	534	0	228	1750	0	244	1138	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4			8			2			6		
Detector Phases	5	4		1	8		7	2		3	6	
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	10.0	29.0		10.0	29.0		10.0	30.0		10.0	30.0	
Total Split (s)	12.0	29.0	0.0	12.0	29.0	0.0	12.0	47.0	0.0	12.0	47.0	0.0
Total Split (%)	12.0%	29.0%	0.0%	12.0%	29.0%	0.0%	12.0%	47.0%	0.0%	12.0%	47.0%	0.0%
Maximum Green (s)	7.0	24.0		7.0	24.0		7.0	42.0		7.0	42.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0		2.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			16.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.6	22.3		33.2	22.3		54.8	45.8		54.8	45.8	
Actuated g/C Ratio	0.33	0.22		0.33	0.22		0.55	0.46		0.55	0.46	
v/c Ratio	0.33	0.67		0.81	0.61		0.91	1.09		1.03	0.71	
Control Delay	29.7	38.0		55.8	26.3		71.6	79.2		103.2	24.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.7	38.0		55.8	26.3		71.6	79.2		103.2	24.9	
LOS	C	D		E	C		E	E		F	C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		36.7			35.6			78.4			38.8	
Approach LOS		D			D			E			D	
90th %ile Green (s)	7.0	24.0		7.0	24.0		7.0	42.0		7.0	42.0	
90th %ile Term Code	Hold	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	7.7	23.3		7.7	23.3		7.0	42.0		7.0	42.0	
70th %ile Term Code	Hold	Gap		Max	Hold		Max	Coord		Max	Coord	
50th %ile Green (s)	10.0	21.0		10.0	21.0		7.0	42.0		7.0	42.0	
50th %ile Term Code	Hold	Gap		Max	Hold		Max	Coord		Max	Coord	
30th %ile Green (s)	11.6	18.2		11.6	18.2		7.0	43.2		7.0	43.2	
30th %ile Term Code	Hold	Gap		Gap	Hold		Max	Coord		Max	Coord	
10th %ile Green (s)	0.0	15.2		8.0	15.2		7.0	49.8		7.0	49.8	
10th %ile Term Code	Skip	Gap		Gap	Hold		Max	Coord		Max	Coord	
Stops (vph)	56	379		179	293		113	1304		108	739	
Fuel Used(gal)	2	12		5	6		5	40		6	15	
CO Emissions (g/hr)	136	816		323	447		319	2792		436	1058	
NOx Emissions (g/hr)	26	159		63	87		62	543		85	206	
VOC Emissions (g/hr)	31	189		75	104		74	647		101	245	
Dilemma Vehicles (#)	0	0		0	24		0	0		0	0	
Queue Length 50th (ft)	40	154		111	108		84	~667		~118	303	
Queue Length 95th (ft)	72	188		#232	157		#228	#808		#240	345	
Internal Link Dist (ft)		1671			373			377			752	
Turn Bay Length (ft)	125			125			125			125		
Base Capacity (vph)	300	914		305	988		251	1600		237	1604	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.33	0.58		0.81	0.54		0.91	1.09		1.03	0.71	

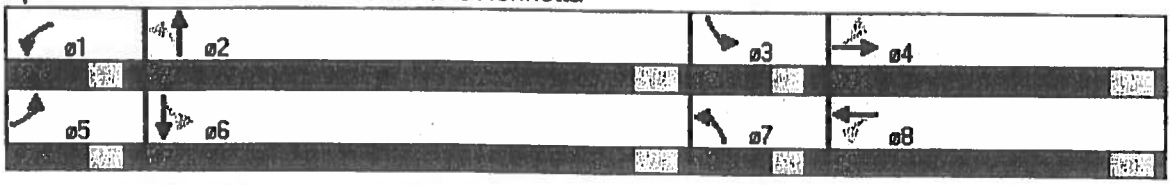
Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 63 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 54.4 Intersection LOS: D
Intersection Capacity Utilization 98.2% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 160: Westfall & E Henrietta



160: Westfall & E Henrietta EXISTING PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.962			0.948			0.968			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3405	0	1770	3355	0	1770	3426	0	1770	3500	0
Flt Permitted	0.339			0.311			0.125			0.095		
Satd. Flow (perm)	631	3405	0	579	3355	0	233	3426	0	177	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			80			32			7	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Volume (vph)	108	263	90	317	251	134	97	808	222	179	819	63
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	146	355	122	364	289	154	115	962	264	185	844	65
Lane Group Flow (vph)	146	477	0	364	443	0	115	1226	0	185	909	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4			8			2			6		
Detector Phases	5	4		1	8		7	2		3	6	
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	10.0	29.0		10.0	29.0		10.0	30.0		10.0	30.0	
Total Split (s)	25.0	35.0	0.0	25.0	35.0	0.0	15.0	45.0	0.0	15.0	45.0	0.0
Total Split (%)	20.8%	29.2%	0.0%	20.8%	29.2%	0.0%	12.5%	37.5%	0.0%	12.5%	37.5%	0.0%
Maximum Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0		2.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			16.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	45.9	23.4		45.9	23.4		62.1	50.8		62.1	50.8	
Actuated g/C Ratio	0.38	0.20		0.38	0.20		0.52	0.42		0.52	0.42	
v/c Ratio	0.32	0.69		0.82	0.62		0.43	0.83		0.76	0.61	
Control Delay	28.4	46.1		53.9	39.3		35.4	37.9		60.3	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.4	46.1		53.9	39.3		35.4	37.9		60.3	30.7	
LOS	C	D		D	D		D	D		E	C	

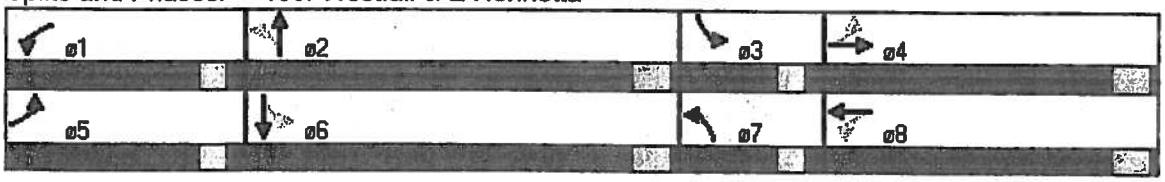
Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		41.9			45.9			37.7			35.7	
Approach LOS		D			D			D			D	
90th %ile Green (s)	22.8	27.2		22.8	27.2		10.0	40.0		10.0	40.0	
90th %ile Term Code	Hold	Gap		Max	Hold		Max	Coord		Max	Coord	
70th %ile Green (s)	25.4	24.2		25.4	24.2		10.0	40.4		10.0	40.4	
70th %ile Term Code	Hold	Gap		Gap	Hold		Hold	Coord		Max	Coord	
50th %ile Green (s)	21.9	21.0		21.9	21.0		10.0	47.1		10.0	47.1	
50th %ile Term Code	Hold	Gap		Gap	Hold		Hold	Coord		Max	Coord	
30th %ile Green (s)	18.3	18.8		18.3	18.8		10.0	52.9		10.0	52.9	
30th %ile Term Code	Hold	Gap		Gap	Hold		Hold	Coord		Max	Coord	
10th %ile Green (s)	14.0	15.7		14.0	15.7		6.7	63.6		6.7	63.6	
10th %ile Term Code	Hold	Gap		Gap	Hold		Hold	Coord		Gap	Coord	
Stops (vph)	68	294		287	282		57	806		104	679	
Fuel Used(gal)	2	10		7	6		1	16		4	15	
CO Emissions (g/hr)	173	682		467	452		95	1123		275	1047	
NOx Emissions (g/hr)	34	133		91	88		19	218		53	204	
VOC Emissions (g/hr)	40	158		108	105		22	260		64	243	
Dilemma Vehicles (#)	0	0		0	16		0	0		0	0	
Queue Length 50th (ft)	71	168		204	136		43	440		79	288	
Queue Length 95th (ft)	84	166		251	172		78	#572		#203	398	
Internal Link Dist (ft)		1671			373			377			752	
Turn Bay Length (ft)	125			125			125			125		
Base Capacity (vph)	477	937		467	953		276	1469		252	1486	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.31	0.51		0.78	0.46		0.42	0.83		0.73	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 39.5 Intersection LOS: D
Intersection Capacity Utilization 80.4% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 160: Westfall & E Henrietta



160: Westfall & E Henrietta RTC+10 PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.956			0.947			0.969			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3383	0	1770	3352	0	1770	3430	0	1770	3507	0
Flt Permitted	0.177			0.197			0.095			0.095		
Satd. Flow (perm)	330	3383	0	367	3352	0	177	3430	0	177	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			83			29			6	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Volume (vph)	108	329	135	449	370	202	148	1010	258	220	1026	63
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	146	445	182	516	425	232	176	1202	307	227	1058	65
Lane Group Flow (vph)	146	627	0	516	657	0	176	1509	0	227	1123	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4			8			2			6		
Detector Phases	5	4		1	8		7	2		3	6	
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	10.0	29.0		10.0	29.0		10.0	30.0		10.0	30.0	
Total Split (s)	25.0	35.0	0.0	25.0	35.0	0.0	15.0	45.0	0.0	15.0	45.0	0.0
Total Split (%)	20.8%	29.2%	0.0%	20.8%	29.2%	0.0%	12.5%	37.5%	0.0%	12.5%	37.5%	0.0%
Maximum Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0		2.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			16.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	54.0	28.4		54.0	28.4		54.0	42.0		54.0	42.0	
Actuated g/C Ratio	0.45	0.24		0.45	0.24		0.45	0.35		0.45	0.35	
v/c Ratio	0.32	0.75		1.11	0.77		0.74	1.24		0.95	0.91	
Control Delay	31.8	44.7		114.9	43.4		61.1	148.4		92.6	49.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.8	44.7		114.9	43.4		61.1	148.4		92.6	49.2	
LOS	C	D		F	D		E	F		F	D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		42.3			74.8			139.3			56.5	
Approach LOS		D			E			F			E	
90th %ile Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
90th %ile Term Code	Hold	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
70th %ile Term Code	Hold	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	22.8	27.2		22.8	27.2		10.0	40.0		10.0	40.0	
50th %ile Term Code	Hold	Hold		Max	Gap		Max	Coord		Max	Coord	
30th %ile Green (s)	25.3	24.7		25.3	24.7		10.0	40.0		10.0	40.0	
30th %ile Term Code	Hold	Hold		Max	Gap		Max	Coord		Max	Coord	
10th %ile Green (s)	30.1	19.9		30.1	19.9		10.0	40.0		10.0	40.0	
10th %ile Term Code	Hold	Gap		Max	Gap		Hold	Coord		Max	Coord	
Stops (vph)	70	388		294	460		100	1026		137	978	
Fuel Used(gal)	3	13		14	10		3	48		6	23	
CO Emissions (g/hr)	179	888		991	726		204	3390		443	1634	
NOx Emissions (g/hr)	35	173		193	141		40	660		86	318	
VOC Emissions (g/hr)	41	206		230	168		47	786		103	379	
Dilemma Vehicles (#)	0	0		0	24		0	0		0	0	
Queue Length 50th (ft)	63	218		~392	219		77	~758		125	432	
Queue Length 95th (ft)	84	212		#594	266		#157	#804		#285	#565	
Internal Link Dist (ft)		1671			373			377			752	
Turn Bay Length (ft)	125			125			125			125		
Base Capacity (vph)	456	939		465	955		239	1219		239	1231	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.32	0.67		1.11	0.69		0.74	1.24		0.95	0.91	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 86.6 Intersection LOS: F
Intersection Capacity Utilization 100.0% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 160: Westfall & E Henrietta

160: Westfall & E Henrietta RTC+20 PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.947			0.969			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3387	0	1770	3352	0	1770	3430	0	1770	3507	0
Flt Permitted	0.147			0.164			0.095			0.095		
Satd. Flow (perm)	274	3387	0	305	3352	0	177	3430	0	177	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			83			29			6	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Volume (vph)	119	356	144	483	396	216	158	1095	281	239	1112	70
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	161	481	195	555	455	248	188	1304	335	246	1146	72
Lane Group Flow (vph)	161	676	0	555	703	0	188	1639	0	246	1218	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4			8			2			6		
Detector Phases	5	4		1	8		7	2		3	6	
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	10.0	29.0		10.0	29.0		10.0	30.0		10.0	30.0	
Total Split (s)	25.0	35.0	0.0	25.0	35.0	0.0	15.0	45.0	0.0	15.0	45.0	0.0
Total Split (%)	20.8%	29.2%	0.0%	20.8%	29.2%	0.0%	12.5%	37.5%	0.0%	12.5%	37.5%	0.0%
Maximum Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0		2.0	1.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			16.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	54.0	29.7		54.0	29.7		54.0	42.0		54.0	42.0	
Actuated g/C Ratio	0.45	0.25		0.45	0.25		0.45	0.35		0.45	0.35	
v/c Ratio	0.38	0.77		1.28	0.79		0.79	1.34		1.03	0.99	
Control Delay	35.4	45.1		178.8	43.8		66.2	193.1		111.7	62.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.4	45.1		178.8	43.8		66.2	193.1		111.7	62.1	
LOS	D	D		F	D		E	F		F	E	

Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

160: Westfall & E Henrietta

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		43.3			103.4			180.0			70.4	
Approach LOS		D			F			F			E	
90th %ile Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
90th %ile Term Code	Hold	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
70th %ile Term Code	Hold	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	20.0	30.0		20.0	30.0		10.0	40.0		10.0	40.0	
50th %ile Term Code	Hold	Hold		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	23.7	26.3		23.7	26.3		10.0	40.0		10.0	40.0	
30th %ile Term Code	Hold	Hold		Max	Gap		Max	Coord		Max	Coord	
10th %ile Green (s)	27.7	22.3		27.7	22.3		10.0	40.0		10.0	40.0	
10th %ile Term Code	Hold	Gap		Max	Gap		Hold	Coord		Max	Coord	
Stops (vph)	83	423		304	500		103	1055		149	1053	
Fuel Used(gal)	3	14		21	11		3	65		8	28	
CO Emissions (g/hr)	206	962		1500	785		228	4534		546	1986	
NOx Emissions (g/hr)	40	187		292	153		44	882		106	386	
VOC Emissions (g/hr)	48	223		348	182		53	1051		126	460	
Dilemma Vehicles (#)	0	0		0	25		0	0		0	0	
Queue Length 50th (ft)	70	233		~504	232		91	~871		~153	488	
Queue Length 95th (ft)	91	231		#687	290		#179	#908		#320	#647	
Internal Link Dist (ft)		1671			373			377			752	
Turn Bay Length (ft)	125			125			125			125		
Base Capacity (vph)	426	940		434	955		239	1219		239	1231	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.38	0.72		1.28	0.74		0.79	1.34		1.03	0.99	

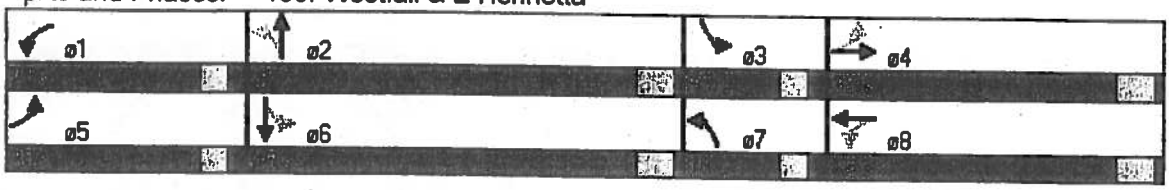
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.34
Intersection Signal Delay: 111.1 Intersection LOS: F
Intersection Capacity Utilization 107.0% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 160: Westfall & E Henrietta



548: Westfall & MDC SANGRASS EXISTING AM

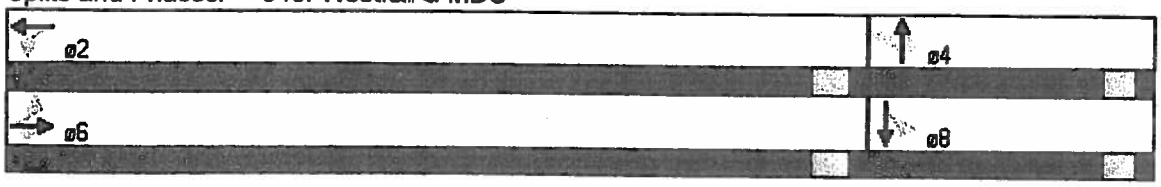
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	0		75	75		0
Storage Lanes	1		1	1		0	0		1	0		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.976				0.850		0.908	
Flt Protected	0.950			0.950				0.954			0.992	
Satd. Flow (prot)	1770	1863	1583	1770	1818	0	0	1777	1583	0	1678	0
Flt Permitted	0.393			0.446				0.774			0.964	
Satd. Flow (perm)	732	1863	1583	831	1818	0	0	1442	1583	0	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239		21				43		38	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			2087			424			399	
Travel Time (s)		28.6			40.7			9.6			9.1	
Volume (vph)	124	416	213	284	417	79	36	1	23	6	6	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.54	0.54	0.54	0.66	0.66	0.66
Adj. Flow (vph)	139	467	239	319	469	89	67	2	43	9	9	38
Lane Group Flow (vph)	139	467	239	319	558	0	0	69	43	0	56	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phases	6	6	6	2	2		4	4	4	8	8	
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	90.0	90.0	90.0	90.0	90.0	0.0	30.0	30.0	30.0	30.0	30.0	0.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	75.0%	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	0.0%
Maximum Green (s)	84.0	84.0	84.0	84.0	84.0		24.5	24.5	24.5	24.5	24.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	
Act Effct Green (s)	102.9	102.9	102.9	102.9	102.9			14.2	14.2		14.1	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.86			0.12	0.12		0.12	
v/c Ratio	0.22	0.29	0.17	0.45	0.36			0.41	0.19		0.25	
Control Delay	3.3	2.9	0.6	2.2	1.4			55.1	15.1		23.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay	3.3	2.9	0.6	2.2	1.4			55.1	15.1		23.6	
LOS	A	A	A	A	A			E	B		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		2.3			1.7			39.8			23.6	
Approach LOS		A			A			D			C	
90th %ile Green (s)	92.2	92.2	92.2	92.2	92.2		16.3	16.3	16.3	16.3	16.3	
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
70th %ile Green (s)	94.9	94.9	94.9	94.9	94.9		13.6	13.6	13.6	13.6	13.6	
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
50th %ile Green (s)	96.8	96.8	96.8	96.8	96.8		11.7	11.7	11.7	11.7	11.7	
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
30th %ile Green (s)	98.7	98.7	98.7	98.7	98.7		9.8	9.8	9.8	9.8	9.8	
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
10th %ile Green (s)	114.0	114.0	114.0	114.0	114.0		0.0	0.0	0.0	0.0	0.0	
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Skip	Skip	Skip	Skip	Skip	
Stops (vph)	24	79	4	37	49			33	6		15	
Fuel Used(gal)	2	5	2	5	8			1	0		0	
CO Emissions (g/hr)	110	367	162	327	559			50	13		26	
NOx Emissions (g/hr)	21	71	31	64	109			10	2		5	
VOC Emissions (g/hr)	26	85	37	76	130			12	3		6	
Dilemma Vehicles (#)	0	15	0	0	13			0	0		0	
Queue Length 50th (ft)	17	61	0	32	48			50	0		13	
Queue Length 95th (ft)	41	113	14	m33	m47			55	8		29	
Internal Link Dist (ft)		1387			2007			344			319	
Turn Bay Length (ft)	125			125					75			
Base Capacity (vph)	628	1598	1392	713	1562			324	390		396	
Starvation Cap Reductn	0	0	0	0	0			0	0		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	0.22	0.29	0.17	0.45	0.36			0.21	0.11		0.14	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 4.9 — Intersection LOS: A
Intersection Capacity Utilization 62.1% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 548: Westfall & MDC



548: Westfall & MDC SANGRASS RTC+10 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	0		75	75		0
Storage Lanes	1		1	1		0	0		1	0		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.979				0.850		0.920	
Flt Protected	0.950			0.950				0.954			0.991	
Satd. Flow (prot)	1770	1863	1583	1770	1824	0	0	1777	1583	0	1698	0
Flt Permitted	0.316			0.299				0.696			0.949	
Satd. Flow (perm)	589	1863	1583	557	1824	0	0	1296	1583	0	1626	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			308		17				65		38	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			2087			424			399	
Travel Time (s)		28.6			40.7			9.6			9.1	
Volume (vph)	125	653	274	468	538	85	57	2	35	8	9	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.54	0.54	0.54	0.66	0.66	0.66
Adj. Flow (vph)	140	734	308	526	604	96	106	4	65	12	14	38
Lane Group Flow (vph)	140	734	308	526	700	0	0	110	65	0	64	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phases	6	6	6	2	2		4	4	4	8	8	
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	90.0	90.0	90.0	90.0	90.0	0.0	30.0	30.0	30.0	30.0	30.0	0.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	75.0%	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	0.0%
Maximum Green (s)	84.0	84.0	84.0	84.0	84.0		24.5	24.5	24.5	24.5	24.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	
Act Effct Green (s)	95.5	95.5	95.5	95.5	95.5			18.5	18.5		18.5	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.80			0.15	0.15		0.15	
v/c Ratio	0.30	0.50	0.23	1.19	0.48			0.55	0.22		0.23	
Control Delay	5.9	6.1	0.9	105.1	2.2			56.2	11.4		22.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay	5.9	6.1	0.9	105.1	2.2			56.2	11.4		22.4	
LOS	A	A	A	F	A			E	B		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		4.7			46.4			39.6			22.4	
Approach LOS		A			D			D			C	
90th %ile Green (s)	85.8	85.8	85.8	85.8	85.8		22.7	22.7	22.7	22.7	22.7	
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
70th %ile Green (s)	89.8	89.8	89.8	89.8	89.8		18.7	18.7	18.7	18.7	18.7	
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
50th %ile Green (s)	92.5	92.5	92.5	92.5	92.5		16.0	16.0	16.0	16.0	16.0	
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
30th %ile Green (s)	95.2	95.2	95.2	95.2	95.2		13.3	13.3	13.3	13.3	13.3	
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
10th %ile Green (s)	99.0	99.0	99.0	99.0	99.0		9.5	9.5	9.5	9.5	9.5	
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
Stops (vph)	36	213	8	238	76			53	7		17	
Fuel Used(gal)	2	9	3	19	10			1	0		0	
CO Emissions (g/hr)	122	652	210	1318	716			81	16		29	
NOx Emissions (g/hr)	24	127	41	256	139			16	3		6	
VOC Emissions (g/hr)	28	151	49	305	166			19	4		7	
Dilemma Vehicles (#)	0	27	0	0	18			0	0		0	
Queue Length 50th (ft)	24	156	0	~497	70			80	0		18	
Queue Length 95th (ft)	62	286	20	m116	m47			74	6		33	
Internal Link Dist (ft)		1387			2007			344			319	
Turn Bay Length (ft)	125			125					75			
Base Capacity (vph)	469	1482	1322	443	1454			292	407		395	
Starvation Cap Reductn	0	0	0	0	0			0	0		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	0.30	0.50	0.23	1.19	0.48			0.38	0.16		0.16	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 26.7 Intersection LOS: C
Intersection Capacity Utilization 80.2% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 548: Westfall & MDC

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	0		75	75		0
Storage Lanes	1		1	1		0	0		1	0		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.979				0.850		0.918	
Flt Protected	0.950			0.950				0.954			0.991	
Satd. Flow (prot)	1770	1863	1583	1770	1824	0	0	1777	1583	0	1695	0
Flt Permitted	0.287			0.274				0.674			0.951	
Satd. Flow (perm)	535	1863	1583	510	1824	0	0	1255	1583	0	1626	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			333		17				70		42	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			2087			424			399	
Travel Time (s)		28.6			40.7			9.6			9.1	
Volume (vph)	138	697	296	498	581	93	61	2	38	8	10	28
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.54	0.54	0.54	0.66	0.66	0.66
Adj. Flow (vph)	155	783	333	560	653	104	113	4	70	12	15	42
Lane Group Flow (vph)	155	783	333	560	757	0	0	117	70	0	69	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phases	6	6	6	2	2		4	4	4	8	8	
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	90.0	90.0	90.0	90.0	90.0	0.0	30.0	30.0	30.0	30.0	30.0	0.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	75.0%	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	0.0%
Maximum Green (s)	84.0	84.0	84.0	84.0	84.0		24.5	24.5	24.5	24.5	24.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	
Act Effct Green (s)	94.5	94.5	94.5	94.5	94.5			19.5	19.5		19.5	
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.79			0.16	0.16		0.16	
v/c Ratio	0.37	0.53	0.25	1.40	0.53			0.57	0.22		0.23	
Control Delay	7.6	7.0	1.0	198.6	2.6			56.4	10.7		21.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay	7.6	7.0	1.0	198.6	2.6			56.4	10.7		21.0	
LOS	A	A	A	F	A			E	B		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.5			85.9			39.3			21.0	
Approach LOS		A			F			D			C	
90th %ile Green (s)	84.2	84.2	84.2	84.2	84.2		24.3	24.3	24.3	24.3	24.3	
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
70th %ile Green (s)	88.6	88.6	88.6	88.6	88.6		19.9	19.9	19.9	19.9	19.9	
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
50th %ile Green (s)	91.6	91.6	91.6	91.6	91.6		16.9	16.9	16.9	16.9	16.9	
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
30th %ile Green (s)	94.4	94.4	94.4	94.4	94.4		14.1	14.1	14.1	14.1	14.1	
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
10th %ile Green (s)	98.5	98.5	98.5	98.5	98.5		10.0	10.0	10.0	10.0	10.0	
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
Stops (vph)	45	250	9	273	88			55	7		18	
Fuel Used(gal)	2	10	3	30	11			1	0		0	
CO Emissions (g/hr)	141	717	228	2076	781			86	17		31	
NOx Emissions (g/hr)	27	139	44	404	152			17	3		6	
VOC Emissions (g/hr)	33	166	53	481	181			20	4		7	
Dilemma Vehicles (#)	0	29	0	0	19			0	0		0	
Queue Length 50th (ft)	29	182	0	~588	77			85	0		18	
Queue Length 95th (ft)	80	339	22	m#330	m47			77	5		33	
Internal Link Dist (ft)		1387			2007			344			319	
Turn Bay Length (ft)	125			125					75			
Base Capacity (vph)	421	1467	1317	401	1439			282	410		398	
Starvation Cap Reductn	0	0	0	0	0			0	0		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	0.37	0.53	0.25	1.40	0.53			0.41	0.17		0.17	

Intersection Summary

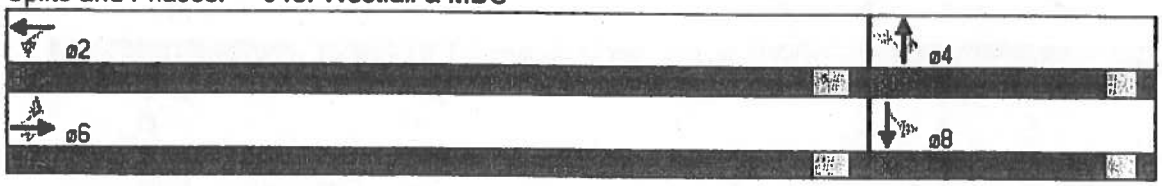
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.40
Intersection Signal Delay: 45.3 Intersection LOS: D
Intersection Capacity Utilization 84.4% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 548: Westfall & MDC



548: Westfall & MDC SAWGRASS EXISTING PM

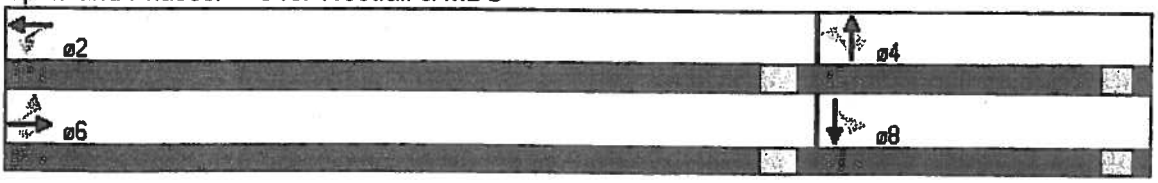
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		200	125		0	0		75	0		0
Storage Lanes	1		1	1		0	0		1	0		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.921	
Flt Protected	0.950			0.950				0.950			0.980	
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	1770	1583	0	1681	0
Flt Permitted	0.434			0.301				0.533			0.728	
Satd. Flow (perm)	808	1863	1583	561	1861	0	0	993	1583	0	1249	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			18		1				208		58	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			2087			424			399	
Travel Time (s)		28.6			40.7			9.6			9.1	
Volume (vph)	9	538	14	16	416	3	116	0	158	66	0	93
Peak Hour Factor	0.78	0.78	0.78	0.90	0.90	0.90	0.76	0.76	0.76	0.69	0.69	0.69
Adj. Flow (vph)	12	690	18	18	462	3	153	0	208	96	0	135
Lane Group Flow (vph)	12	690	18	18	465	0	0	153	208	0	231	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phases	6	6	6	2	2		4	4	4	8	8	
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	85.0	85.0	85.0	85.0	85.0	0.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%	0.0%	29.2%	29.2%	29.2%	29.2%	29.2%	0.0%
Maximum Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	
Act Effct Green (s)	88.5	88.5	88.5	88.5	88.5			25.5	25.5		25.5	
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74			0.21	0.21		0.21	
v/c Ratio	0.02	0.50	0.02	0.04	0.34			0.73	0.42		0.74	
Control Delay	5.8	9.0	2.5	4.4	4.4			62.5	7.3		46.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay	5.8	9.0	2.5	4.4	4.4			62.5	7.3		46.7	
LOS	A	A	A	A	A			E	A		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		8.8			4.4			30.7			46.7	
Approach LOS		A			A			C			D	
90th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
70th %ile Green (s)	80.2	80.2	80.2	80.2	80.2		28.3	28.3	28.3	28.3	28.3	
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
50th %ile Green (s)	84.5	84.5	84.5	84.5	84.5		24.0	24.0	24.0	24.0	24.0	
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
30th %ile Green (s)	88.9	88.9	88.9	88.9	88.9		19.6	19.6	19.6	19.6	19.6	
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
10th %ile Green (s)	94.8	94.8	94.8	94.8	94.8		13.7	13.7	13.7	13.7	13.7	
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Gap	Gap	Gap	Hold	Hold	
Stops (vph)	3	221	2	4	70			106	17		112	
Fuel Used(gal)	0	8	0	0	7			2	1		3	
CO Emissions (g/hr)	9	583	12	20	503			171	59		183	
NOx Emissions (g/hr)	2	113	2	4	98			33	12		36	
VOC Emissions (g/hr)	2	135	3	5	117			40	14		43	
Dilemma Vehicles (#)	0	22	0	0	16			0	0		0	
Queue Length 50th (ft)	2	202	0	3	71			110	0		126	
Queue Length 95th (ft)	8	263	6	m3	m82			144	29		137	
Internal Link Dist (ft)		1387			2007			344			319	
Turn Bay Length (ft)	125		200	125					75			
Base Capacity (vph)	596	1374	1172	414	1372			265	575		376	
Starvation Cap Reductn	0	0	0	0	0			0	0		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	0.02	0.50	0.02	0.04	0.34			0.58	0.36		0.61	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 57.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 548: Westfall & MDC



548: Westfall & MDC SAWGRASS ETC+10 PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		200	125		0	0		75	75		0
Storage Lanes	1		1	1		0	0		1	0		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.924	
Flt Protected	0.950			0.950				0.950			0.978	
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	1770	1583	0	1683	0
Flt Permitted	0.254			0.100				0.536			0.381	
Satd. Flow (perm)	473	1863	1583	186	1861	0	0	998	1583	0	656	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22						138		52	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			2087			424			399	
Travel Time (s)		28.6			40.7			9.6			9.1	
Volume (vph)	10	835	22	40	697	4	251	0	259	73	0	93
Peak Hour Factor	0.78	0.78	0.78	0.90	0.90	0.90	0.76	0.76	0.76	0.69	0.69	0.69
Adj. Flow (vph)	13	1071	28	44	774	4	330	0	341	106	0	135
Lane Group Flow (vph)	13	1071	28	44	778	0	0	330	341	0	241	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phases	6	6	6	2	2		4	4	4	8	8	
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	85.0	85.0	85.0	85.0	85.0	0.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%	0.0%	29.2%	29.2%	29.2%	29.2%	29.2%	0.0%
Maximum Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	
Act Effct Green (s)	82.0	82.0	82.0	82.0	82.0			32.0	32.0		32.0	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68			0.27	0.27		0.27	
v/c Ratio	0.04	0.84	0.03	0.35	0.61			1.24	0.65		1.13	
Control Delay	6.6	22.0	2.9	4.8	4.6			174.1	29.4		134.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay	6.6	22.0	2.9	4.8	4.6			174.1	29.4		134.2	
LOS	A	C	A	A	A			F	C		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		21.4			4.6			100.6			134.2	
Approach LOS		C			A			F			F	
90th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
70th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
50th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
30th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
10th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
Stops (vph)	3	606	3	6	118			198	141		105	
Fuel Used(gal)	0	17	0	1	12			11	3		6	
CO Emissions (g/hr)	10	1198	19	48	845			756	223		394	
NOx Emissions (g/hr)	2	233	4	9	164			147	43		77	
VOC Emissions (g/hr)	2	278	4	11	196			175	52		91	
Dilemma Vehicles (#)	0	35	0	0	21			0	0		0	
Queue Length 50th (ft)	3	560	1	5	97			~317	140		~186	
Queue Length 95th (ft)	8	554	8	m5	m80			#390	178		#222	
Internal Link Dist (ft)		1387			2007			344			319	
Turn Bay Length (ft)	125		200	125					75			
Base Capacity (vph)	323	1273	1089	127	1272			266	523		213	
Starvation Cap Reductn	0	0	0	0	0			0	0		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	0.04	0.84	0.03	0.35	0.61			1.24	0.65		1.13	

Intersection Summary

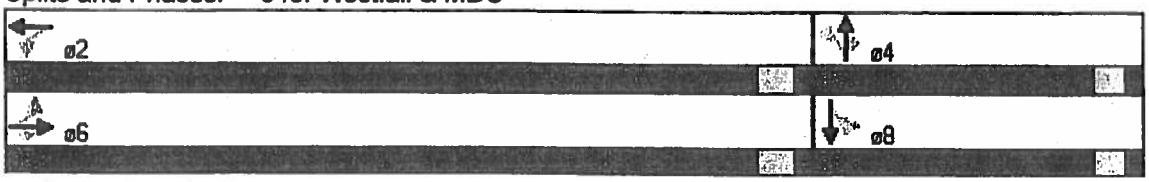
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 44.7 Intersection LOS: D
Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 548: Westfall & MDC



548: Westfall & MDC SAWGRASS RTC+20 PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		200	125		0	0		75	0		0
Storage Lanes	1		1	1		0	0		1	0		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850		0.924	
Flt Protected	0.950			0.950				0.950			0.979	
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	1770	1583	0	1685	0
Flt Permitted	0.228			0.061				0.521			0.338	
Satd. Flow (perm)	425	1863	1583	114	1861	0	0	970	1583	0	582	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22						120		53	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			2087			424			399	
Travel Time (s)		28.6			40.7			9.6			9.1	
Volume (vph)	11	891	23	42	740	4	263	0	276	80	0	103
Peak Hour Factor	0.78	0.78	0.78	0.90	0.90	0.90	0.76	0.76	0.76	0.69	0.69	0.69
Adj. Flow (vph)	14	1142	29	47	822	4	346	0	363	116	0	149
Lane Group Flow (vph)	14	1142	29	47	826	0	0	346	363	0	265	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		
Detector Phases	6	6	6	2	2		4	4	4	8	8	
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	85.0	85.0	85.0	85.0	85.0	0.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%	0.0%	29.2%	29.2%	29.2%	29.2%	29.2%	0.0%
Maximum Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	
Act Effct Green (s)	82.0	82.0	82.0	82.0	82.0			32.0	32.0		32.0	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68			0.27	0.27		0.27	
v/c Ratio	0.05	0.90	0.03	0.60	0.65			1.34	0.71		1.37	
Control Delay	6.8	26.8	3.0	14.9	5.0			211.0	35.0		223.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay	6.8	26.8	3.0	14.9	5.0			211.0	35.0		223.1	
LOS	A	C	A	B	A			F	C		F	

Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		26.0			5.5			120.9			223.1	
Approach LOS		C			A			F			F	
90th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
70th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
50th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
30th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
10th %ile Green (s)	79.0	79.0	79.0	79.0	79.0		29.5	29.5	29.5	29.5	29.5	
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord		Max	Max	Max	Max	Max	
Stops (vph)	5	679	3	23	168			200	173		108	
Fuel Used(gal)	0	19	0	1	13			13	4		9	
CO Emissions (g/hr)	12	1357	20	65	923			928	268		663	
NOx Emissions (g/hr)	2	264	4	13	180			181	52		129	
VOC Emissions (g/hr)	3	314	5	15	214			215	62		154	
Dilemma Vehicles (#)	0	37	0	0	22			0	0		0	
Queue Length 50th (ft)	3	656	2	6	103			~349	173		~240	
Queue Length 95th (ft)	9	636	9	m5	m81			#422	213		#271	
Internal Link Dist (ft)		1387			2007			344			319	
Turn Bay Length (ft)	125		200	125					75			
Base Capacity (vph)	290	1273	1089	78	1272			259	510		194	
Starvation Cap Reductn	0	0	0	0	0			0	0		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	0.05	0.90	0.03	0.60	0.65			1.34	0.71		1.37	

Intersection Summary

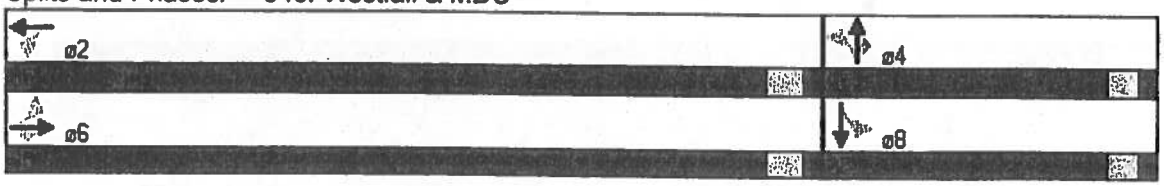
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 59.5 Intersection LOS: E
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 548: Westfall & MDC



509: Westfall & Clinton EXISTING AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.941			0.984			0.992			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1753	0	1770	1833	0	1770	1848	0	1770	1775	0
Flt Permitted	0.100			0.520			0.085			0.404		
Satd. Flow (perm)	186	1753	0	969	1833	0	158	1848	0	753	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			5			3			22	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2087			1371			1347			2030	
Travel Time (s)		40.7			26.7			26.2			39.5	
Volume (vph)	122	157	102	162	538	62	116	297	16	82	446	204
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	127	164	106	191	633	73	125	319	17	85	465	212
Lane Group Flow (vph)	127	270	0	191	706	0	125	336	0	85	677	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	3	8		7	4		5	2		1	6	
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	9.0	32.0		9.0	32.0		9.0	28.0		9.0	28.0	
Total Split (s)	18.0	46.0	0.0	12.0	40.0	0.0	13.0	50.0	0.0	12.0	49.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	10.0%	33.3%	0.0%	10.8%	41.7%	0.0%	10.0%	40.8%	0.0%
Maximum Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	53.8	43.0		49.4	40.4		57.5	49.5		55.0	46.4	
Actuated g/C Ratio	0.45	0.36		0.41	0.34		0.48	0.41		0.46	0.39	
v/c Ratio	0.54	0.42		0.42	1.14		0.61	0.44		0.20	0.97	
Control Delay	26.7	26.9		21.9	114.2		38.7	28.0		17.6	57.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.7	26.9		21.9	114.2		38.7	28.0		17.6	57.8	
LOS	C	C		C	F		D	C		B	E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		26.8			94.6			30.9			53.3	
Approach LOS		C			F			C			D	
90th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
90th %ile Term Code	Max	Hold		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	11.0	40.0		7.0	36.0		8.0	44.0		7.0	43.0	
70th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	9.5	40.0		7.0	37.5		8.0	44.0		7.0	43.0	
50th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	8.2	40.0		7.0	38.8		7.8	44.5		6.5	43.2	
30th %ile Term Code	Gap	Hold		Max	Max		Gap	Coord		Gap	Coord	
10th %ile Green (s)	6.3	40.0		7.0	40.7		6.1	56.0		0.0	44.9	
10th %ile Term Code	Gap	Hold		Max	Max		Gap	Coord		Skip	Coord	
Stops (vph)	70	178		97	503		84	226		42	580	
Fuel Used(gal)	3	7		3	24		3	7		2	23	
CO Emissions (g/hr)	212	465		214	1655		187	455		138	1595	
NOx Emissions (g/hr)	41	91		42	322		36	89		27	310	
VOC Emissions (g/hr)	49	108		50	384		43	106		32	370	
Dilemma Vehicles (#)	0	6		0	6		0	9		0	19	
Queue Length 50th (ft)	56	138		81	~651		52	200		34	287	
Queue Length 95th (ft)	102	221		m112	#856		116	286		m64	#480	
Internal Link Dist (ft)		2007			1291			1267			1950	
Turn Bay Length (ft)	200			125			125			75		
Base Capacity (vph)	283	647		459	621		210	764		424	700	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.45	0.42		0.42	1.14		0.60	0.44		0.20	0.97	

Intersection Summary

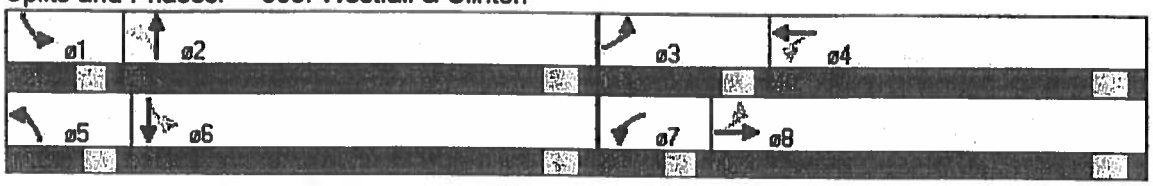
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 59.7 Intersection LOS: E
Intersection Capacity Utilization 94.5% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 509: Westfall & Clinton



509: Westfall & Clinton RTC+10 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.988			0.981			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1786	0	1770	1840	0	1770	1827	0	1770	1771	0
Flt Permitted	0.100			0.232			0.085			0.310		
Satd. Flow (perm)	186	1786	0	432	1840	0	158	1827	0	577	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			4			7			24	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2087			1371			1347			2030	
Travel Time (s)		40.7			26.7			26.2			39.5	
Volume (vph)	167	339	127	172	712	64	185	343	49	101	556	271
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	174	353	132	202	838	75	199	369	53	105	579	282
Lane Group Flow (vph)	174	485	0	202	913	0	199	422	0	105	861	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	3	8		7	4		5	2		1	6	
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	9.0	32.0		9.0	32.0		9.0	28.0		9.0	28.0	
Total Split (s)	18.0	46.0	0.0	12.0	40.0	0.0	13.0	50.0	0.0	12.0	49.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	10.0%	33.3%	0.0%	10.8%	41.7%	0.0%	10.0%	40.8%	0.0%
Maximum Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	54.5	43.0		48.0	39.0		57.3	47.3		54.7	46.0	
Actuated g/C Ratio	0.45	0.36		0.40	0.32		0.48	0.39		0.46	0.38	
v/c Ratio	0.68	0.75		0.74	1.52		0.95	0.58		0.30	1.24	
Control Delay	31.7	36.6		30.4	268.8		83.3	32.1		18.9	150.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.7	36.6		30.4	268.8		83.3	32.1		18.9	150.4	
LOS	C	D		C	F		F	C		B	F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		35.3			225.6			48.5			136.1	
Approach LOS		D			F			D			F	
90th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	11.6	40.0		7.0	35.4		8.0	44.0		7.0	43.0	
50th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	9.9	40.0		7.0	37.1		8.0	44.0		7.0	43.0	
30th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Max	Coord	
10th %ile Green (s)	7.5	40.0		7.0	39.5		8.0	45.4		5.6	43.0	
10th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Gap	Coord	
Stops (vph)	107	391		97	569		134	304		53	625	
Fuel Used(gal)	4	13		3	54		6	9		2	44	
CO Emissions (g/hr)	307	939		244	3804		415	605		172	3059	
NOx Emissions (g/hr)	60	183		48	740		81	118		34	595	
VOC Emissions (g/hr)	71	218		57	882		96	140		40	709	
Dilemma Vehicles (#)	0	11		0	7		0	12		0	21	
Queue Length 50th (ft)	80	316		86	~1017		109	261		43	~833	
Queue Length 95th (ft)	153	452		m98	m#1103		#259	366		76	#1047	
Internal Link Dist (ft)		2007			1291			1267			1950	
Turn Bay Length (ft)	200			125			125			75		
Base Capacity (vph)	283	651		273	601		209	724		354	694	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.61	0.75		0.74	1.52		0.95	0.58		0.30	1.24	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.52
Intersection Signal Delay: 129.9 Intersection LOS: F
Intersection Capacity Utilization 120.0% ICU Level of Service H
Analysis Period (min) 15

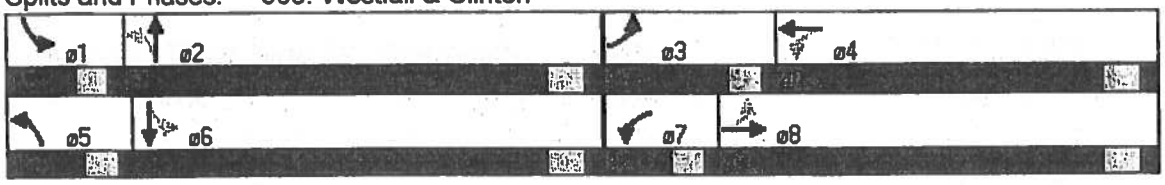
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

509: Westfall & Clinton

Splits and Phases: 509: Westfall & Clinton



509: Westfall & Clinton BTC+20 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.988			0.982			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1785	0	1770	1840	0	1770	1829	0	1770	1771	0
Flt Permitted	0.100			0.195			0.085			0.273		
Satd. Flow (perm)	186	1785	0	363	1840	0	158	1829	0	509	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			4			7			24	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2087			1371			1347			2030	
Travel Time (s)		40.7			26.7			26.2			39.5	
Volume (vph)	180	355	138	189	768	70	197	374	51	110	603	292
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	188	370	144	222	904	82	212	402	55	115	628	304
Lane Group Flow (vph)	188	514	0	222	986	0	212	457	0	115	932	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	3	8		7	4		5	2		1	6	
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	9.0	32.0		9.0	32.0		9.0	28.0		9.0	28.0	
Total Split (s)	18.0	46.0	0.0	12.0	40.0	0.0	13.0	50.0	0.0	12.0	49.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	10.0%	33.3%	0.0%	10.8%	41.7%	0.0%	10.0%	40.8%	0.0%
Maximum Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	54.6	43.0		47.6	38.6		57.2	47.2		54.8	46.0	
Actuated g/C Ratio	0.46	0.36		0.40	0.32		0.48	0.39		0.46	0.38	
v/c Ratio	0.72	0.79		0.89	1.66		1.01	0.63		0.35	1.34	
Control Delay	33.7	38.2		40.7	326.8		98.8	33.7		19.8	193.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.7	38.2		40.7	326.8		98.8	33.7		19.8	193.2	
LOS	C	D		D	F		F	C		B	F	

Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

509: Westfall & Clinton

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		37.0			274.2			54.3			174.1	
Approach LOS		D			F			D			F	
90th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	12.4	40.0		7.0	34.6		8.0	44.0		7.0	43.0	
50th %ile Term Code	Gap	Max		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	10.4	40.0		7.0	36.6		8.0	44.0		7.0	43.0	
30th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Max	Coord	
10th %ile Green (s)	8.0	40.0		7.0	39.0		8.0	45.1		5.9	43.0	
10th %ile Term Code	Gap	Hold		Max	Max		Max	Coord		Gap	Coord	
Stops (vph)	118	419		102	583		139	338		57	659	
Fuel Used(gal)	5	14		4	68		7	10		3	55	
CO Emissions (g/hr)	338	1008		294	4783		484	670		189	3847	
NOx Emissions (g/hr)	66	196		57	931		94	130		37	748	
VOC Emissions (g/hr)	78	234		68	1109		112	155		44	891	
Dilemma Vehicles (#)	0	12		0	8		0	13		0	21	
Queue Length 50th (ft)	87	343		95	~1141		~120	289		47	~950	
Queue Length 95th (ft)	168	488		m101m	#1097		#285	403		83	#1166	
Internal Link Dist (ft)		2007			1291			1267			1950	
Turn Bay Length (ft)	200			125			125			75		
Base Capacity (vph)	283	651		250	595		209	724		328	694	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	0.79		0.89	1.66		1.01	0.63		0.35	1.34	

Intersection Summary

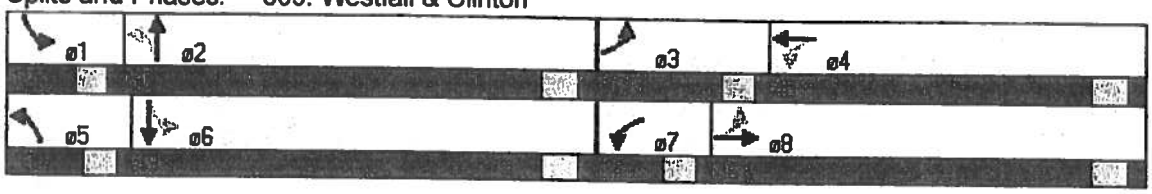
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.66
Intersection Signal Delay: 158.8 Intersection LOS: F
Intersection Capacity Utilization 128.4% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 509: Westfall & Clinton



509: Westfall & Clinton EXISTING PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.950			0.989			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1798	0	1770	1770	0	1770	1842	0	1770	1805	0
Flt Permitted	0.155			0.108			0.085			0.087		
Satd. Flow (perm)	289	1798	0	201	1770	0	158	1842	0	162	1805	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			21			4			13	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2087			1371			1347			2030	
Travel Time (s)		40.7			26.7			26.2			39.5	
Volume (vph)	328	437	134	90	241	119	109	535	42	110	495	128
Peak Hour Factor	0.95	0.95	0.95	0.80	0.80	0.80	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	345	460	141	112	301	149	127	622	49	116	521	135
Lane Group Flow (vph)	345	601	0	112	450	0	127	671	0	116	656	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	3	8		7	4		5	2		1	6	
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	9.0	32.0		9.0	32.0		9.0	28.0		9.0	28.0	
Total Split (s)	18.0	46.0	0.0	12.0	40.0	0.0	13.0	50.0	0.0	12.0	49.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	10.0%	33.3%	0.0%	10.8%	41.7%	0.0%	10.0%	40.8%	0.0%
Maximum Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	54.0	42.1		44.8	36.0		57.8	48.3		56.2	47.5	
Actuated g/C Ratio	0.45	0.35		0.37	0.30		0.48	0.40		0.47	0.40	
v/c Ratio	1.10	0.94		0.59	0.83		0.62	0.90		0.60	0.91	
Control Delay	100.3	59.2		35.6	50.1		38.1	50.8		44.0	47.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	100.3	59.2		35.6	50.1		38.1	50.8		44.0	47.4	
LOS	F	E		D	D		D	D		D	D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		74.2			47.2			48.8			46.9	
Approach LOS		E			D			D			D	
90th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	13.0	40.0		7.0	34.0		7.8	44.0		7.0	43.2	
30th %ile Term Code	Max	Max		Max	Hold		Gap	Coord		Max	Coord	
10th %ile Green (s)	13.0	35.7		6.1	28.8		6.0	50.4		5.8	50.2	
10th %ile Term Code	Max	Gap		Gap	Hold		Gap	Coord		Gap	Coord	
Stops (vph)	201	510		63	305		81	506		90	564	
Fuel Used(gal)	13	19		2	10		3	15		3	21	
CO Emissions (g/hr)	919	1351		141	666		176	1075		244	1441	
NOx Emissions (g/hr)	179	263		27	130		34	209		47	280	
VOC Emissions (g/hr)	213	313		33	154		41	249		57	334	
Dilemma Vehicles (#)	0	16		0	16		0	9		0	19	
Queue Length 50th (ft)	~220	450		48	307		53	518		63	283	
Queue Length 95th (ft)	#413	#672		83	370		110	#668		125	#433	
Internal Link Dist (ft)		2007			1291			1267			1950	
Turn Bay Length (ft)	200			125			125			75		
Base Capacity (vph)	315	653		193	560		211	744		197	722	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	1.10	0.92		0.58	0.80		0.60	0.90		0.59	0.91	

Intersection Summary

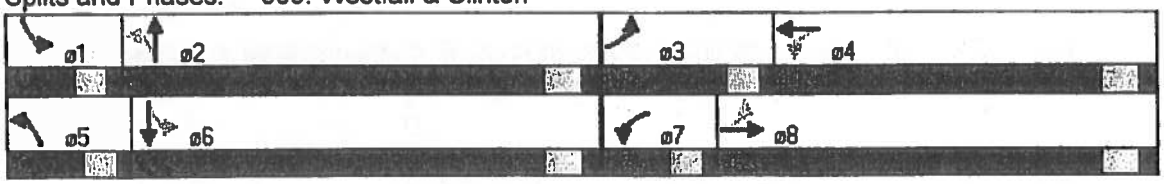
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 55.8 Intersection LOS: E
Intersection Capacity Utilization 91.3% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

509: Westfall & Clinton

Splits and Phases: 509: Westfall & Clinton



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.963			0.987			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1794	0	1770	1839	0	1770	1796	0
Flt Permitted	0.100			0.108			0.085			0.087		
Satd. Flow (perm)	186	1792	0	201	1794	0	158	1839	0	162	1796	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			14			5			15	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2087			1371			1347			2030	
Travel Time (s)		40.7			26.7			26.2			39.5	
Volume (vph)	442	645	219	139	456	148	156	651	60	114	555	173
Peak Hour Factor	0.95	0.95	0.95	0.80	0.80	0.80	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	465	679	231	174	570	185	181	757	70	120	584	182
Lane Group Flow (vph)	465	910	0	174	755	0	181	827	0	120	766	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	3	8		7	4		5	2		1	6	
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	9.0	32.0		9.0	32.0		9.0	28.0		9.0	28.0	
Total Split (s)	18.0	46.0	0.0	12.0	40.0	0.0	13.0	50.0	0.0	12.0	49.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	10.0%	33.3%	0.0%	10.8%	41.7%	0.0%	10.0%	40.8%	0.0%
Maximum Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	55.0	43.0		46.0	37.0		57.2	47.2		54.8	46.0	
Actuated g/C Ratio	0.46	0.36		0.38	0.31		0.48	0.39		0.46	0.38	
v/c Ratio	1.64	1.40		0.89	1.34		0.87	1.14		0.62	1.10	
Control Delay	322.7	214.6		66.4	197.7		65.2	113.0		46.3	95.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	322.7	214.6		66.4	197.7		65.2	113.0		46.3	95.1	
LOS	F	F		E	F		E	F		D	F	

Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

509: Westfall & Clinton

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		251.1			173.1			104.5			88.5	
Approach LOS		F			F			F			F	
90th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
30th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
10th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	45.0		6.0	43.0	
10th %ile Term Code	Max	Max		Max	Max		Max	Coord		Gap	Coord	
Stops (vph)	276	662		93	458		115	597		96	693	
Fuel Used(gal)	38	56		4	34		4	28		4	31	
CO Emissions (g/hr)	2640	3896		276	2358		311	1941		258	2195	
NOx Emissions (g/hr)	514	758		54	459		61	378		50	427	
VOC Emissions (g/hr)	612	903		64	546		72	450		60	509	
Dilemma Vehicles (#)	0	18		0	22		0	14		0	20	
Queue Length 50th (ft)	~470	~956		85	~757		91	~764		66	~680	
Queue Length 95th (ft)	m#614	m#1176		m#156	#839		#205	#924		#129	#605	
Internal Link Dist (ft)		2007			1291			1267			1950	
Turn Bay Length (ft)	200			125			125			75		
Base Capacity (vph)	283	652		195	563		209	726		195	698	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	1.64	1.40		0.89	1.34		0.87	1.14		0.62	1.10	

Intersection Summary

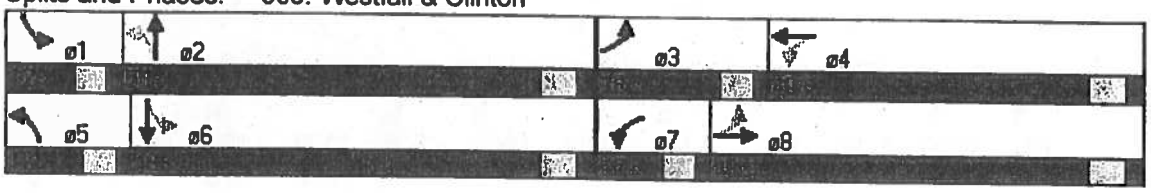
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.64
Intersection Signal Delay: 164.3 Intersection LOS: F
Intersection Capacity Utilization 119.2% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 509: Westfall & Clinton



509: Westfall & Clinton ETC+20 PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.963			0.988			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	0	1770	1794	0	1770	1840	0	1770	1798	0
Flt Permitted	0.100			0.108			0.085			0.087		
Satd. Flow (perm)	186	1792	0	201	1794	0	158	1840	0	162	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			14			4			15	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2087			1371			1347			2030	
Travel Time (s)		40.7			26.7			26.2			39.5	
Volume (vph)	476	690	233	148	481	160	167	707	64	126	607	186
Peak Hour Factor	0.95	0.95	0.95	0.80	0.80	0.80	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	501	726	245	185	601	200	194	822	74	133	639	196
Lane Group Flow (vph)	501	971	0	185	801	0	194	896	0	133	835	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	3	8		7	4		5	2		1	6	
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	9.0	32.0		9.0	32.0		9.0	28.0		9.0	28.0	
Total Split (s)	18.0	46.0	0.0	12.0	40.0	0.0	13.0	50.0	0.0	12.0	49.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	10.0%	33.3%	0.0%	10.8%	41.7%	0.0%	10.0%	40.8%	0.0%
Maximum Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	55.0	43.0		46.0	37.0		57.1	47.1		54.9	46.0	
Actuated g/C Ratio	0.46	0.36		0.38	0.31		0.48	0.39		0.46	0.38	
v/c Ratio	1.77	1.49		0.95	1.42		0.93	1.24		0.69	1.20	
Control Delay	376.9	253.8		77.0	231.5		77.2	151.5		50.4	132.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	376.9	253.8		77.0	231.5		77.2	151.5		50.4	132.7	
LOS	F	F		E	F		E	F		D	F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		295.7			202.5			138.3			121.4	
Approach LOS		F			F			F			F	
90th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
70th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
50th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
50th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
30th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.0		7.0	43.0	
30th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	
10th %ile Green (s)	13.0	40.0		7.0	34.0		8.0	44.4		6.6	43.0	
10th %ile Term Code	Max	Max		Max	Max		Max	Coord		Gap	Coord	
Stops (vph)	292	680		97	473		120	626		102	613	
Fuel Used(gal)	46	67		5	40		5	36		4	39	
CO Emissions (g/hr)	3208	4659		316	2804		360	2516		290	2741	
NOx Emissions (g/hr)	624	906		61	546		70	489		56	533	
VOC Emissions (g/hr)	743	1080		73	650		83	583		67	635	
Dilemma Vehicles (#)	0	17		0	20		0	15		0	20	
Queue Length 50th (ft)	~530	~1056		92	~836		101	~876		75	~792	
Queue Length 95th (ft)	m#629	m#1210		m#169	#909		#226	#1038		#156	#1005	
Internal Link Dist (ft)		2007			1291			1267			1950	
Turn Bay Length (ft)	200			125			125			75		
Base Capacity (vph)	283	652		195	563		209	724		195	698	
Starvation Cap Reductn	0	0		0	0		0	0		0	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	1.77	1.49		0.95	1.42		0.93	1.24		0.68	1.20	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.77
Intersection Signal Delay: 200.0 Intersection LOS: F
Intersection Capacity Utilization 127.3% ICU Level of Service H
Analysis Period (min) 15

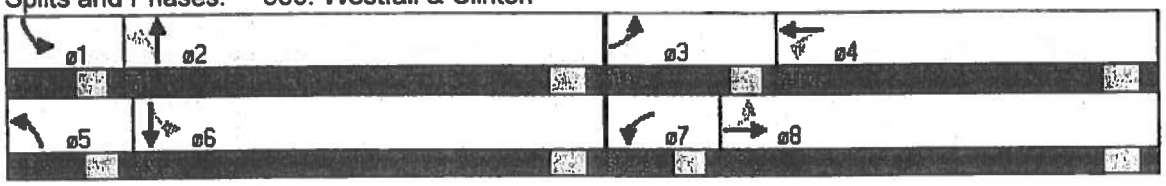
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

509: Westfall & Clinton

Splits and Phases: 509: Westfall & Clinton



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952			0.968				0.850			0.850
Flt Protected	0.950			0.950				0.968			0.976	
Satd. Flow (prot)	1770	1773	0	1770	1803	0	0	1803	1583	0	1818	1583
Flt Permitted	0.133			0.568				0.796			0.844	
Satd. Flow (perm)	248	1773	0	1058	1803	0	0	1483	1583	0	1572	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			33				50			166
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1371			1770			371			330	
Travel Time (s)		26.7			34.5			8.4			7.5	
Volume (vph)	36	129	60	204	589	160	30	15	45	75	79	118
Peak Hour Factor	0.76	0.76	0.76	0.87	0.87	0.87	0.90	0.90	0.90	0.71	0.71	0.71
Adj. Flow (vph)	47	170	79	234	677	184	33	17	50	106	111	166
Lane Group Flow (vph)	47	249	0	234	861	0	0	50	50	0	217	166
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phases	2	2		2	2		4	4	4	4	4	4
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	38.1	38.1		38.1	38.1			15.9	15.9		15.9	15.9
Actuated g/C Ratio	0.64	0.64		0.64	0.64			0.26	0.26		0.26	0.26
v/c Ratio	0.30	0.22		0.35	0.74			0.13	0.11		0.52	0.31
Control Delay	12.1	4.1		7.3	11.8			15.5	5.3		22.5	4.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	12.1	4.1		7.3	11.8			15.5	5.3		22.5	4.4
LOS	B	A		A	B			B	A		C	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.3			10.8			10.4			14.6	
Approach LOS		A			B			B			B	
90th %ile Green (s)	28.7	28.7		28.7	28.7		19.8	19.8	19.8	19.8	19.8	19.8
90th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
70th %ile Green (s)	32.6	32.6		32.6	32.6		15.9	15.9	15.9	15.9	15.9	15.9
70th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	35.7	35.7		35.7	35.7		12.8	12.8	12.8	12.8	12.8	12.8
50th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	37.9	37.9		37.9	37.9		10.6	10.6	10.6	10.6	10.6	10.6
30th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	40.8	40.8		40.8	40.8		7.7	7.7	7.7	7.7	7.7	7.7
10th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
Stops (vph)	17	69		80	331			32	12		122	17
Fuel Used(gal)	1	3		4	14			0	0		2	1
CO_2 Emissions (g/hr)	40	178		246	969			31	17		124	35
NOx Emissions (g/hr)	8	35		48	189			6	3		24	7
VOC Emissions (g/hr)	9	41		57	225			7	4		29	8
Dilemma Vehicles (#)	0	10		0	65			0	0		0	0
Queue Length 50th (ft)	8	32		23	118			14	0		68	0
Queue Length 95th (ft)	35	45		m60	#443			30	18		78	16
Internal Link Dist (ft)		1291			1690			291			250	
Turn Bay Length (ft)	75			75					75			75
Base Capacity (vph)	158	1147		672	1158			593	663		629	733
Starvation Cap Reductn	0	0		0	0			0	0		0	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	0.30	0.22		0.35	0.74			0.08	0.08		0.34	0.23

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 82.4% ICU Level of Service E
Analysis Period (min) 15

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

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

Splits and Phases: 547: Westfall & Lac De Ville

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.975				0.850			0.850
Flt Protected	0.950			0.950				0.964			0.979	
Satd. Flow (prot)	1770	1736	0	1770	1816	0	0	1796	1583	0	1824	1583
Flt Permitted	0.133			0.373				0.726			0.846	
Satd. Flow (perm)	248	1736	0	695	1816	0	0	1352	1583	0	1576	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100			24				50			99
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1371			1770			371			330	
Travel Time (s)		26.7			34.5			8.4			7.5	
Volume (vph)	54	193	160	204	787	160	55	19	45	75	98	158
Peak Hour Factor	0.76	0.76	0.76	0.87	0.87	0.87	0.90	0.90	0.90	0.71	0.71	0.71
Adj. Flow (vph)	71	254	211	234	905	184	61	21	50	106	138	223
Lane Group Flow (vph)	71	465	0	234	1089	0	0	82	50	0	244	223
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phases	2	2		2	2		4	4	4	4	4	4
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	37.1	37.1		37.1	37.1			16.9	16.9		16.9	16.9
Actuated g/C Ratio	0.62	0.62		0.62	0.62			0.28	0.28		0.28	0.28
v/c Ratio	0.46	0.42		0.54	0.96			0.22	0.10		0.55	0.43
Control Delay	18.3	3.9		13.0	28.3			16.0	4.9		22.2	11.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	18.3	3.9		13.0	28.3			16.0	4.9		22.2	11.4
LOS	B	A		B	C			B	A		C	B

Baseline
Timing Plan: DEFAULT
Barton & Loguidice, P.C.

547: Westfall & Lac De Ville

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.8			25.6			11.8			17.0	
Approach LOS		A			C			B			B	
90th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
90th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
70th %ile Green (s)	31.5	31.5		31.5	31.5		17.0	17.0	17.0	17.0	17.0	17.0
70th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	34.8	34.8		34.8	34.8		13.7	13.7	13.7	13.7	13.7	13.7
50th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	37.1	37.1		37.1	37.1		11.4	11.4	11.4	11.4	11.4	11.4
30th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	40.2	40.2		40.2	40.2		8.3	8.3	8.3	8.3	8.3	8.3
10th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
Stops (vph)	34	106		101	447			51	11		135	67
Fuel Used(gal)	1	5		4	21			1	0		2	1
CO Emissions (g/hr)	69	320		273	1462			51	16		138	80
NOx Emissions (g/hr)	13	62		53	284			10	3		27	16
VOC Emissions (g/hr)	16	74		63	339			12	4		32	19
Dilemma Vehicles (#)	0	21		0	73			0	0		0	0
Queue Length 50th (ft)	8	0		32	164			23	0		76	35
Queue Length 95th (ft)	m32	58		m66	#656			42	17		82	46
Internal Link Dist (ft)		1291			1690			291			250	
Turn Bay Length (ft)	75			75					75			75
Base Capacity (vph)	154	1112		430	1133			541	663		630	693
Starvation Cap Reductn	0	0		0	0			0	0		0	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	0.46	0.42		0.54	0.96			0.15	0.08		0.39	0.32

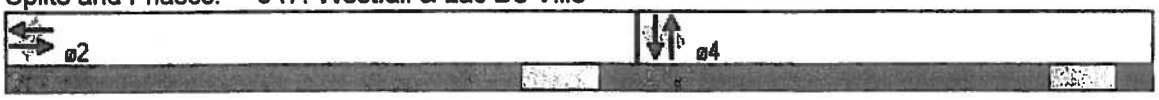
Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 93.8% ICU Level of Service F
Analysis Period (min) 15

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

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

Splits and Phases: 547: Westfall & Lac De Ville



547: Westfall & Lac De Ville BTC +20 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.974				0.850			0.850
Flt Protected	0.950			0.950				0.965			0.978	
Satd. Flow (prot)	1770	1738	0	1770	1814	0	0	1798	1583	0	1822	1583
Flt Permitted	0.133			0.350				0.715			0.838	
Satd. Flow (perm)	248	1738	0	652	1814	0	0	1332	1583	0	1561	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97			25				56			81
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1371			1770			371			330	
Travel Time (s)		26.7			34.5			8.4			7.5	
Volume (vph)	58	207	167	225	849	177	58	21	50	83	106	170
Peak Hour Factor	0.76	0.76	0.76	0.87	0.87	0.87	0.90	0.90	0.90	0.71	0.71	0.71
Adj. Flow (vph)	76	272	220	259	976	203	64	23	56	117	149	239
Lane Group Flow (vph)	76	492	0	259	1179	0	0	87	56	0	266	239
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phases	2	2		2	2		4	4	4	4	4	4
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	36.2	36.2		36.2	36.2			17.8	17.8		17.8	17.8
Actuated g/C Ratio	0.60	0.60		0.60	0.60			0.30	0.30		0.30	0.30
v/c Ratio	0.51	0.45		0.66	1.07			0.22	0.11		0.57	0.45
Control Delay	20.6	4.5		18.6	59.5			15.4	4.6		22.1	12.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	20.6	4.5		18.6	59.5			15.4	4.6		22.1	12.8
LOS	C	A		B	E			B	A		C	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.7			52.1			11.2			17.7	
Approach LOS		A			D			B			B	
90th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
90th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
70th %ile Green (s)	30.0	30.0		30.0	30.0		18.5	18.5	18.5	18.5	18.5	18.5
70th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	33.0	33.0		33.0	33.0		15.5	15.5	15.5	15.5	15.5	15.5
50th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	36.3	36.3		36.3	36.3		12.2	12.2	12.2	12.2	12.2	12.2
30th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	39.7	39.7		39.7	39.7		8.8	8.8	8.8	8.8	8.8	8.8
10th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
Stops (vph)	40	135		116	561			53	12		148	83
Fuel Used(gal)	1	5		5	30			1	0		2	1
CO Emissions (g/hr)	78	354		321	2080			53	18		150	94
NOx Emissions (g/hr)	15	69		63	405			10	4		29	18
VOC Emissions (g/hr)	18	82		74	482			12	4		35	22
Dilemma Vehicles (#)	0	22		0	75			0	0		0	0
Queue Length 50th (ft)	10	48		39	~488			23	0		80	44
Queue Length 95th (ft)	m32	75		m#115	#731			45	18		90	56
Internal Link Dist (ft)		1291			1690			291			250	
Turn Bay Length (ft)	75			75					75			75
Base Capacity (vph)	149	1087		393	1104			533	667		624	682
Starvation Cap Reductn	0	0		0	0			0	0		0	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	0.51	0.45		0.66	1.07			0.16	0.08		0.43	0.35

Intersection Summary

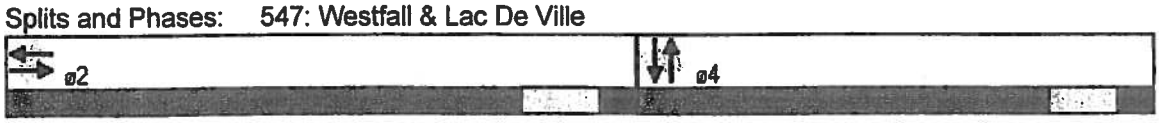
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 33.6 Intersection LOS: C
Intersection Capacity Utilization 98.9% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 547: Westfall & Lac De Ville



547: Westfall & Lac De Ville EXISTING PM

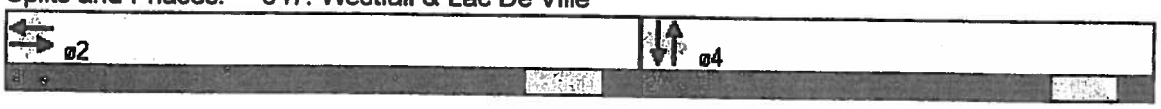
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.955				0.850			0.850
Flt Protected	0.950			0.950				0.982			0.959	
Satd. Flow (prot)	1770	1855	0	1770	1779	0	0	1829	1583	0	1786	1583
Flt Permitted	0.405			0.234				0.834			0.610	
Satd. Flow (perm)	754	1855	0	436	1779	0	0	1554	1583	0	1136	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			51				218			89
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1371			1770			371			330	
Travel Time (s)		26.7			34.5			8.4			7.5	
Volume (vph)	45	580	18	26	243	103	71	118	203	129	24	76
Peak Hour Factor	0.94	0.94	0.94	0.81	0.81	0.81	0.79	0.79	0.79	0.85	0.85	0.85
Adj. Flow (vph)	48	617	19	32	300	127	90	149	257	152	28	89
Lane Group Flow (vph)	48	636	0	32	427	0	0	239	257	0	180	89
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phases	2	2		2	2		4	4	4	4	4	4
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	36.7	36.7		36.7	36.7			17.3	17.3		17.3	17.3
Actuated g/C Ratio	0.61	0.61		0.61	0.61			0.29	0.29		0.29	0.29
v/c Ratio	0.10	0.56		0.12	0.39			0.53	0.42		0.55	0.17
Control Delay	5.1	8.3		6.8	6.6			21.3	5.7		23.4	4.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	5.1	8.3		6.8	6.6			21.3	5.7		23.4	4.2
LOS	A	A		A	A			C	A		C	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		8.1			6.6			13.2			17.0	
Approach LOS		A			A			B			B	
90th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
90th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
70th %ile Green (s)	30.4	30.4		30.4	30.4		18.1	18.1	18.1	18.1	18.1	18.1
70th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
50th %ile Green (s)	33.6	33.6		33.6	33.6		14.9	14.9	14.9	14.9	14.9	14.9
50th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
30th %ile Green (s)	37.1	37.1		37.1	37.1		11.4	11.4	11.4	11.4	11.4	11.4
30th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
10th %ile Green (s)	40.3	40.3		40.3	40.3		8.2	8.2	8.2	8.2	8.2	8.2
10th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
Stops (vph)	14	304		12	153			146	36		120	14
Fuel Used(gal)	1	9		0	6			2	1		2	0
CO Emissions (g/hr)	42	644		32	422			152	71		125	24
NOx Emissions (g/hr)	8	125		6	82			30	14		24	5
VOC Emissions (g/hr)	10	149		7	98			35	17		29	5
Dilemma Vehicles (#)	0	49		0	28			0	0		0	0
Queue Length 50th (ft)	6	80		4	62			72	10		55	0
Queue Length 95th (ft)	m11	m191		9	75			92	34		84	20
Internal Link Dist (ft)		1291			1690			291			250	
Turn Bay Length (ft)	75			75					75			75
Base Capacity (vph)	461	1136		267	1107			622	764		454	687
Starvation Cap Reductn	0	0		0	0			0	0		0	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	0.10	0.56		0.12	0.39			0.38	0.34		0.40	0.13

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 62.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 547: Westfall & Lac De Ville



547: Westfall & Lac De Ville BTC+10 PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.965				0.850			0.850
Flt Protected	0.950			0.950				0.971			0.962	
Satd. Flow (prot)	1770	1844	0	1770	1798	0	0	1809	1583	0	1792	1583
Flt Permitted	0.303			0.133				0.676			0.419	
Satd. Flow (perm)	564	1844	0	248	1798	0	0	1259	1583	0	780	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			36				115			126
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1371			1770			371			330	
Travel Time (s)		26.7			34.5			8.4			7.5	
Volume (vph)	62	800	57	26	343	103	195	137	203	129	33	107
Peak Hour Factor	0.94	0.94	0.94	0.81	0.81	0.81	0.79	0.79	0.79	0.85	0.85	0.85
Adj. Flow (vph)	66	851	61	32	423	127	247	173	257	152	39	126
Lane Group Flow (vph)	66	912	0	32	550	0	0	420	257	0	191	126
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phases	2	2		2	2		4	4	4	4	4	4
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	30.9	30.9		30.9	30.9			23.1	23.1		23.1	23.1
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.38	0.38		0.38	0.38
v/c Ratio	0.23	0.95		0.25	0.58			0.87	0.38		0.64	0.18
Control Delay	6.5	24.5		13.8	12.1			37.9	8.8		26.4	3.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	6.5	24.5		13.8	12.1			37.9	8.8		26.4	3.5
LOS	A	C		B	B			D	A		C	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		23.3			12.2			26.9			17.3	
Approach LOS		C			B			C			B	
90th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
90th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
70th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
70th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
50th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
50th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
30th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
30th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
10th %ile Green (s)	31.7	31.7		31.7	31.7		16.8	16.8	16.8	16.8	16.8	16.8
10th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
Stops (vph)	24	938		19	277			273	77		128	15
Fuel Used(gal)	1	20		1	9			5	1		2	0
CO Emissions (g/hr)	61	1385		38	621			352	96		140	30
NOx Emissions (g/hr)	12	269		7	121			68	19		27	6
VOC Emissions (g/hr)	14	321		9	144			82	22		32	7
Dilemma Vehicles (#)	0	82		0	36			0	0		0	0
Queue Length 50th (ft)	10	651		6	125			131	33		53	0
Queue Length 95th (ft)	m10	m340		22	180			#223	62		108	23
Internal Link Dist (ft)		1291			1690			291			250	
Turn Bay Length (ft)	75			75					75			75
Base Capacity (vph)	291	956		128	945			504	702		312	709
Starvation Cap Reductn	0	0		0	0			0	0		0	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	0.23	0.95		0.25	0.58			0.83	0.37		0.61	0.18

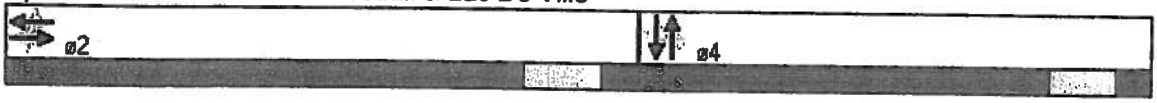
Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 88.4% ICU Level of Service E
Analysis Period (min) 15

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

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

Splits and Phases: 547: Westfall & Lac De Ville



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.964				0.850			0.850
Flt Protected	0.950			0.950				0.972			0.962	
Satd. Flow (prot)	1770	1844	0	1770	1796	0	0	1811	1583	0	1792	1583
Flt Permitted	0.267			0.133				0.658			0.375	
Satd. Flow (perm)	497	1844	0	248	1796	0	0	1226	1583	0	699	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			37				96			135
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1371			1770			371			330	
Travel Time (s)		26.7			34.5			8.4			7.5	
Volume (vph)	66	860	59	29	368	114	202	149	224	142	36	115
Peak Hour Factor	0.94	0.94	0.94	0.81	0.81	0.81	0.79	0.79	0.79	0.85	0.85	0.85
Adj. Flow (vph)	70	915	63	36	454	141	256	189	284	167	42	135
Lane Group Flow (vph)	70	978	0	36	595	0	0	445	284	0	209	135
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phases	2	2		2	2		4	4	4	4	4	4
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	30.3	30.3		30.3	30.3			23.7	23.7		23.7	23.7
Actuated g/C Ratio	0.50	0.50		0.50	0.50			0.40	0.40		0.40	0.40
v/c Ratio	0.28	1.05		0.29	0.64			0.92	0.42		0.75	0.19
Control Delay	6.9	47.5		15.3	13.6			45.8	10.6		36.7	3.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	6.9	47.5		15.3	13.6			45.8	10.6		36.7	3.4
LOS	A	D		B	B			D	B		D	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		44.8			13.7			32.1			23.6	
Approach LOS		D			B			C			C	
90th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
90th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
70th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
70th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
50th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
50th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
30th %ile Green (s)	27.0	27.0		27.0	27.0		21.5	21.5	21.5	21.5	21.5	21.5
30th %ile Term Code	Coord	Coord		Coord	Coord		Max	Max	Max	Max	Max	Max
10th %ile Green (s)	28.4	28.4		28.4	28.4		20.1	20.1	20.1	20.1	20.1	20.1
10th %ile Term Code	Coord	Coord		Coord	Coord		Gap	Gap	Gap	Gap	Gap	Gap
Stops (vph)	29	1061		21	326			282	101		141	16
Fuel Used(gal)	1	26		1	10			6	2		3	0
CO Emissions (g/hr)	67	1814		43	695			409	118		180	32
NOx Emissions (g/hr)	13	353		8	135			80	23		35	6
VOC Emissions (g/hr)	16	421		10	161			95	27		42	8
Dilemma Vehicles (#)	0	85		0	39			0	0		0	0
Queue Length 50th (ft)	11	~754		7	140			146	44		62	0
Queue Length 95th (ft)	m10	m384		25	200			#248	77		#151	24
Internal Link Dist (ft)		1291			1690			291			250	
Turn Bay Length (ft)	75			75					75			75
Base Capacity (vph)	251	935		125	925			490	691		280	714
Starvation Cap Reductn	0	0		0	0			0	0		0	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	0.28	1.05		0.29	0.64			0.91	0.41		0.75	0.19

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 31.6 Intersection LOS: C
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 547: Westfall & Lac De Ville

Lanes, Volumes, Timings
160: Westfall & E Henrietta ETC+10 AM BUILD

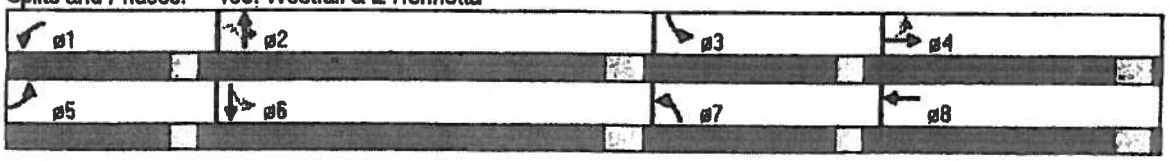
11/6/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	350	67	205	263	184	199	1015	515	191	785	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.976			0.938				0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	3433	3320	0	1770	3539	1583	1770	3486	0
Flt Permitted	0.213			0.950			0.139			0.130		
Satd. Flow (perm)	397	3454	0	3433	3320	0	259	3539	1583	242	3486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			136				436		11	
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.95	0.95	0.95	0.84	0.84	0.84
Adj. Flow (vph)	88	412	79	225	289	202	209	1068	542	227	935	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	491	0	225	491	0	209	1068	542	227	1042	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt			Prot			pm+pt		Perm	pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4						2		2	6		
Detector Phase	5	4		1	8		7	2	2	3	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	12.0	29.0		12.0	29.0		12.0	30.0	30.0	12.0	30.0	
Total Split (s)	22.0	29.0	0.0	22.0	29.0	0.0	24.0	45.0	45.0	24.0	45.0	0.0
Total Split (%)	18.3%	24.2%	0.0%	18.3%	24.2%	0.0%	20.0%	37.5%	37.5%	20.0%	37.5%	0.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	17.0	24.0		17.0	24.0		19.0	40.0	40.0	19.0	40.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0	4.0	2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		16.0			16.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	38.1	23.9		14.2	23.9		69.9	53.1	52.1	69.9	53.1	
Actuated g/C Ratio	0.32	0.20		0.12	0.20		0.58	0.44	0.43	0.58	0.44	
v/c Ratio	0.30	0.70		0.55	0.64		0.58	0.68	0.58	0.64	0.67	
Control Delay	36.3	48.6		54.9	35.2		36.2	31.4	8.8	40.4	30.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.3	48.6		54.9	35.2		36.2	31.4	8.8	40.4	30.8	
LOS	D	D		D	D		D	C	A	D	C	
Approach Delay		46.7			41.4			25.2			32.6	
Approach LOS		D			D			C			C	

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 32.8 Intersection LOS: C
Intersection Capacity Utilization 69.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 160: Westfall & E Henrietta



Lanes, Volumes, Timings
160: Westfall & E Henrietta ETC+20 AM BUILD

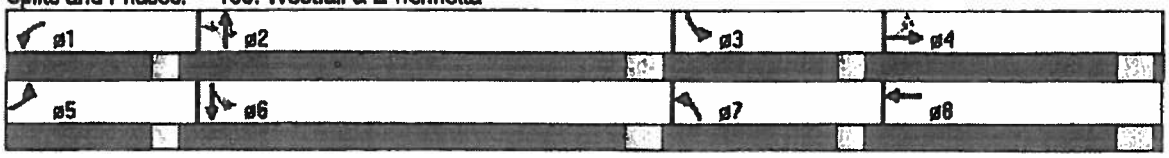
11/6/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	376	72	224	288	198	217	1109	554	205	856	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.976			0.939				0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3454	0	3433	3323	0	1770	3539	1583	1770	3483	0
Flt Permitted	0.180			0.950			0.087			0.087		
Satd. Flow (perm)	335	3454	0	3433	3323	0	162	3539	1583	162	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			133				386		12	
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.95	0.95	0.95	0.84	0.84	0.84
Adj. Flow (vph)	98	442	85	246	316	218	228	1167	583	244	1019	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	527	0	246	534	0	228	1167	583	244	1138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt			Prot			pm+pt		Perm	pm+pt		
Protected Phases	5	4		1	8		7	2		3	6	
Permitted Phases	4						2		2	6		
Detector Phase	5	4		1	8		7	2	2	3	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	12.0	29.0		12.0	29.0		12.0	30.0	30.0	12.0	30.0	
Total Split (s)	20.0	29.0	0.0	20.0	29.0	0.0	22.0	49.0	49.0	22.0	49.0	0.0
Total Split (%)	16.7%	24.2%	0.0%	16.7%	24.2%	0.0%	18.3%	40.8%	40.8%	18.3%	40.8%	0.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	15.0	24.0		15.0	24.0		17.0	44.0	44.0	17.0	44.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0	4.0	2.0	4.0	
Recall Mode	None	None		Max	None		Max	C-Max	C-Max	Max	C-Max	
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		16.0			16.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	43.0	24.4		18.6	24.4		65.0	46.0	45.0	65.0	46.0	
Actuated g/C Ratio	0.36	0.20		0.16	0.20		0.54	0.38	0.38	0.54	0.38	
v/c Ratio	0.29	0.74		0.46	0.68		0.67	0.86	0.70	0.71	0.85	
Control Delay	36.4	50.0		49.9	37.6		48.9	41.8	15.1	52.0	40.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.4	50.0		49.9	37.6		48.9	41.8	15.1	52.0	40.7	
LOS	D	D		D	D		D	D	B	D	D	
Approach Delay		47.8			41.5			34.8			42.7	
Approach LOS		D			D			C			D	

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 39.9 Intersection LOS: D
Intersection Capacity Utilization 74.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 160: Westfall & E Henrietta



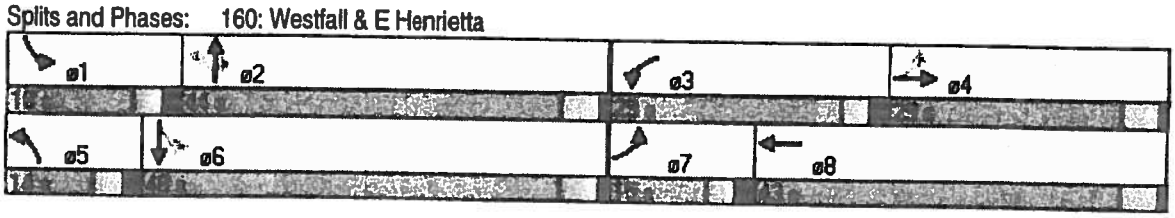
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	329	135	449	370	202	148	1010	258	220	1026	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.956			0.947				0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3383	0	3433	3352	0	1770	3539	1583	1770	3507	0
Flt Permitted	0.336			0.950			0.090			0.085		
Satd. Flow (perm)	626	3383	0	3433	3352	0	168	3539	1583	158	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			92				240		6	
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	146	445	182	516	425	232	176	1202	307	227	1058	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	627	0	516	657	0	176	1202	307	227	1123	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt			Prot			pm+pt		Perm	pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4						2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	10.0	28.0		10.0	29.0		10.0	29.0	29.0	10.0	29.0	
Total Split (s)	15.0	29.0	0.0	29.0	43.0	0.0	14.0	44.0	44.0	18.0	48.0	0.0
Total Split (%)	12.5%	24.2%	0.0%	24.2%	35.8%	0.0%	11.7%	36.7%	36.7%	15.0%	40.0%	0.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	10.0	24.0		24.0	38.0		9.0	39.0	39.0	13.0	43.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0	4.0	2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		16.0			16.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	37.2	26.0		23.4	38.2		55.3	44.3	43.3	61.3	47.6	
Actuated g/C Ratio	0.31	0.22		0.20	0.32		0.46	0.37	0.36	0.51	0.40	
v/c Ratio	0.49	0.81		0.77	0.58		0.79	0.92	0.42	0.83	0.81	
Control Delay	27.2	50.7		53.9	31.1		51.1	49.2	9.4	54.1	38.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	27.2	50.7		53.9	31.1		51.1	49.2	9.4	54.1	38.1	
LOS	C	D		D	C		D	D	A	D	D	
Approach Delay		46.3			41.1			42.2			40.8	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 42.2 — Intersection LOS: D
Intersection Capacity Utilization 79.7% — **ICU Level of Service D**
Analysis Period (min) 15

Splits and Phases: 160: Westfall & E Henrietta



Lanes, Volumes, Timings
160: Westfall & E Henrietta PM RTC +20 BUILD

11/10/2008

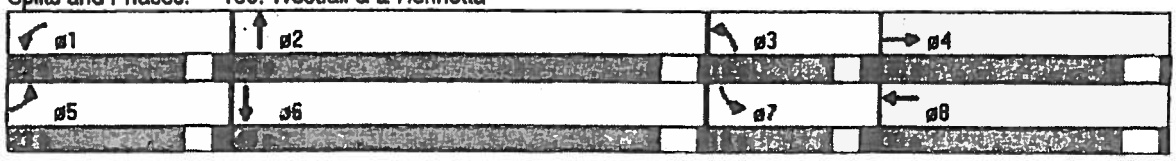
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	356	144	483	396	216	158	1095	281	239	1112	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	125		0	125		0	125		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.957			0.947				0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3387	0	3433	3352	0	1770	3539	1583	1770	3507	0
Flt Permitted	0.150			0.950			0.087			0.087		
Satd. Flow (perm)	279	3387	0	3433	3352	0	162	3539	1583	162	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			79				258		6	
Link Speed (mph)		30			35			30			30	
Link Distance (ft)		1751			453			457			832	
Travel Time (s)		39.8			8.8			10.4			18.9	
Peak Hour Factor	0.74	0.74	0.74	0.87	0.87	0.87	0.84	0.84	0.84	0.97	0.97	0.97
Adj. Flow (vph)	161	481	195	555	455	248	188	1304	335	246	1146	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	676	0	555	703	0	188	1304	335	246	1218	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt			Prot			pm+pt		Perm	pm+pt		
Protected Phases	5	4		1	8		3	2		7	6	
Permitted Phases	4						2		2	6		
Detector Phase	5	4		1	8		3	2	2	7	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	12.0	29.0		12.0	29.0		12.0	30.0	30.0	12.0	30.0	
Total Split (s)	23.0	30.0	0.0	23.0	30.0	0.0	18.0	49.0	49.0	18.0	49.0	0.0
Total Split (%)	19.2%	25.0%	0.0%	19.2%	25.0%	0.0%	15.0%	40.8%	40.8%	15.0%	40.8%	0.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	18.0	25.0		18.0	25.0		13.0	44.0	44.0	13.0	44.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0	4.0	2.0	4.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		16.0			16.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	47.4	26.7		20.6	26.7		60.6	46.0	45.0	60.6	46.0	
Actuated g/C Ratio	0.40	0.22		0.17	0.22		0.50	0.38	0.38	0.50	0.38	
v/c Ratio	0.44	0.85		0.94	0.87		0.68	0.96	0.44	0.88	0.90	
Control Delay	40.7	53.3		74.4	52.5		52.9	53.2	8.8	75.2	45.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	40.7	53.3		74.4	52.5		52.9	53.2	8.8	75.2	45.3	
LOS	D	D		E	D		D	D	A	E	D	
Approach Delay		50.9			62.2			45.1			50.3	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 51.4 Intersection LOS: D
Intersection Capacity Utilization 85.1% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 160: Westfall & E Henrietta



Lanes, Volumes, Timings

548: Westfall & MDC SANGRASS AM ETC+10 BUILD

11/10/2008

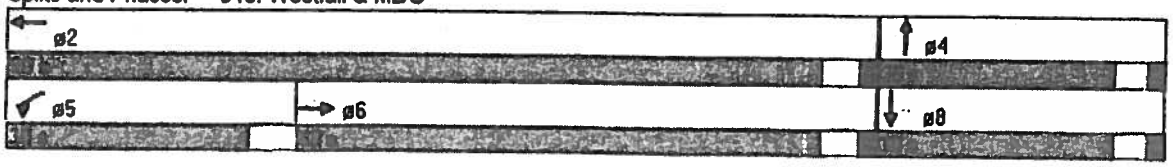
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	653	274	468	538	85	57	2	35	8	9	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		300	125		0	0		75	75		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.979				0.850			0.850
Flt Protected	0.950			0.950				0.954			0.977	
Satd. Flow (prot)	1770	1863	1583	1770	1824	0	0	1777	1583	0	1820	1583
Flt Permitted	0.399			0.117				0.715			0.873	
Satd. Flow (perm)	743	1863	1583	218	1824	0	0	1332	1583	0	1626	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			308		17				65			38
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			1146			424			399	
Travel Time (s)		28.6			22.3			9.6			9.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.54	0.54	0.54	0.66	0.66	0.66
Adj. Flow (vph)	140	734	308	526	604	96	106	4	65	12	14	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	734	308	526	700	0	0	110	65	0	26	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm		Perm	pm+pt			Perm		Perm	Perm		Perm
Protected Phases		6		5	2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Detector Phase	6	6	6	5	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	3.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0	32.0	12.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	60.0	60.0	60.0	30.0	90.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	50.0%	50.0%	50.0%	25.0%	75.0%	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	54.0	54.0	54.0	25.0	84.0		24.5	24.5	24.5	24.5	24.5	24.5
Yellow Time (s)	4.0	4.0	4.0	5.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	3.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0		19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0		0		0	0	0	0	0	0
Act Effct Green (s)	57.9	57.9	57.9	96.5	95.5			18.5	18.5		18.5	17.0
Actuated g/C Ratio	0.48	0.48	0.48	0.80	0.80			0.15	0.15		0.15	0.14
v/c Ratio	0.39	0.82	0.33	0.83	0.48			0.54	0.22		0.10	0.15
Control Delay	24.3	35.8	3.0	47.2	1.8			55.5	11.5		42.1	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	24.3	35.8	3.0	47.2	1.8			55.5	11.5		42.1	14.0
LOS	C	D	A	D	A			E	B		D	B
Approach Delay		25.9			21.3			39.2			25.4	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 24.6 — Intersection LOS: C
Intersection Capacity Utilization 80.2% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 548: Westfall & MDC



Lanes, Volumes, Timings

548: Westfall & MDC SAWGRASS AM RTC+20 BUILD

11/10/2008

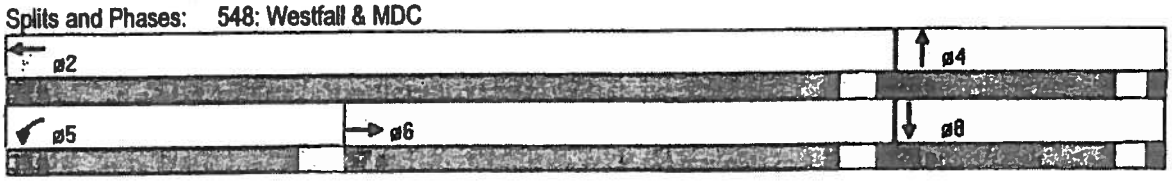
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	697	296	498	581	93	61	2	38	8	10	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		300	125		0	0		75	75		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.979				0.850			0.850
Flt Protected	0.950			0.950				0.954			0.978	
Satd. Flow (prot)	1770	1863	1583	1770	1824	0	0	1777	1583	0	1822	1583
Flt Permitted	0.378			0.071				0.714			0.876	
Satd. Flow (perm)	704	1863	1583	132	1824	0	0	1330	1583	0	1632	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			302		18				70			42
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			1382			424			399	
Travel Time (s)		28.6			26.9			9.6			9.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.54	0.54	0.54	0.66	0.66	0.66
Adj. Flow (vph)	155	783	333	560	653	104	113	4	70	12	15	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	783	333	560	757	0	0	117	70	0	27	42
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm		Perm	pm+pt			Perm		Perm	Perm		Perm
Protected Phases		6		5	2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Detector Phase	6	6	6	5	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	3.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0	32.0	12.0	32.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	57.0	57.0	57.0	35.0	92.0	0.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	47.5%	47.5%	47.5%	29.2%	76.7%	0.0%	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	51.0	51.0	51.0	30.0	86.0		22.5	22.5	22.5	22.5	22.5	22.5
Yellow Time (s)	4.0	4.0	4.0	5.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	3.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0		19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0		0		0	0	0	0	0	0
Act Effct Green (s)	54.4	54.4	54.4	96.0	95.0			19.0	19.0		19.0	17.5
Actuated g/C Ratio	0.45	0.45	0.45	0.80	0.79			0.16	0.16		0.16	0.15
v/c Ratio	0.49	0.93	0.38	0.89	0.52			0.55	0.23		0.10	0.16
Control Delay	29.6	49.6	4.5	53.6	2.4			55.8	11.1		41.7	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	29.6	49.6	4.5	53.6	2.4			55.8	11.1		41.7	13.6
LOS	C	D	A	D	A			E	B		D	B
Approach Delay		35.4			24.2			39.1			24.6	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 30.2 — Intersection LOS: C
Intersection Capacity Utilization 84.4% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 548: Westfall & MDC



Lanes, Volumes, Timings

548: Westfall & MDC SAWGRASS PM RTC+10 BUILD

11/10/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	835	22	40	697	4	251	0	259	73	0	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		300	125		0	0		75	0		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	1770	1583	0	1770	1583
Flt Permitted	0.233			0.070				0.645			0.314	
Satd. Flow (perm)	434	1863	1583	130	1861	0	0	1201	1583	0	585	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			28						120			135
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			1237			424			399	
Travel Time (s)		28.6			24.1			9.6			9.1	
Peak Hour Factor	0.78	0.78	0.78	0.90	0.90	0.90	0.76	0.76	0.76	0.69	0.69	0.69
Adj. Flow (vph)	13	1071	28	44	774	4	330	0	341	106	0	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	1071	28	44	778	0	0	330	341	0	106	135
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Detector Phase	6	6	6	2	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	80.0	80.0	80.0	80.0	80.0	0.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	66.7%	0.0%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	74.0	74.0	74.0	74.0	74.0		34.5	34.5	34.5	34.5	34.5	34.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effct Green (s)	78.0	78.0	78.0	78.0	78.0			36.0	36.0		36.0	34.5
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65			0.30	0.30		0.30	0.29
v/c Ratio	0.05	0.88	0.03	0.52	0.64			0.92	0.61		0.61	0.25
Control Delay	8.5	28.3	2.8	28.6	11.3			71.8	27.8		52.0	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	8.5	28.3	2.8	28.6	11.3			71.8	27.8		52.0	6.4
LOS	A	C	A	C	B			E	C		D	A
Approach Delay		27.4			12.2			49.4			26.4	
Approach LOS		C			B			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 28.1 — Intersection LOS: C
Intersection Capacity Utilization 75.0% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 548: Westfall & MDC

Lanes, Volumes, Timings

548: Westfall & MDC SAWGRASS PM RTC+20 BUILD

11/10/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	891	23	42	740	4	263	0	276	80	0	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		300	125		0	0		75	0		0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.999				0.850		0.976	0.850
Flt Protected	0.950			0.950				0.950			0.960	
Satd. Flow (prot)	1770	1863	1583	1770	1861	0	0	1770	1583	0	1658	1504
Flt Permitted	0.188			0.053				0.594			0.369	
Satd. Flow (perm)	350	1863	1583	99	1861	0	0	1106	1583	0	637	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			26						97		8	127
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		1467			1510			424			399	
Travel Time (s)		28.6			29.4			9.6			9.1	
Peak Hour Factor	0.78	0.78	0.78	0.90	0.90	0.90	0.76	0.76	0.76	0.69	0.69	0.69
Adj. Flow (vph)	14	1142	29	47	822	4	346	0	363	116	0	149
Shared Lane Traffic (%)												15%
Lane Group Flow (vph)	14	1142	29	47	826	0	0	346	363	0	138	127
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Detector Phase	6	6	6	2	2		4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	78.0	78.0	78.0	78.0	78.0	0.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%	0.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	72.0	72.0	72.0	72.0	72.0		36.5	36.5	36.5	36.5	36.5	36.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effct Green (s)	75.0	75.0	75.0	75.0	75.0			39.0	39.0		39.0	37.5
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62			0.32	0.32		0.32	0.31
v/c Ratio	0.06	0.98	0.03	0.76	0.71			0.96	0.63		0.65	0.23
Control Delay	9.8	44.9	3.5	62.1	14.0			79.9	30.2		49.0	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	9.8	44.9	3.5	62.1	14.0			79.9	30.2		49.0	6.2
LOS	A	D	A	E	B			E	C		D	A
Approach Delay		43.5			16.6			54.5			28.4	
Approach LOS		D			B			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 37.0 Intersection LOS: D
Intersection Capacity Utilization 80.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 548: Westfall & MDC

Lanes, Volumes, Timings
509: Westfall & Clinton AM RTC+10 BUILD

11/10/2008

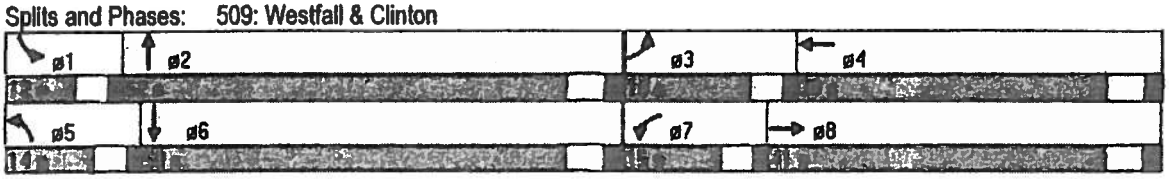
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	339	127	172	712	64	185	343	49	101	556	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.988			0.981				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3394	0	1770	3497	0	1770	1827	0	1770	1863	1583
Flt Permitted	0.110			0.348			0.145			0.339		
Satd. Flow (perm)	205	3394	0	648	3497	0	270	1827	0	631	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			8			7				257
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		942			610			1347			2030	
Travel Time (s)		18.4			11.9			26.2			39.5	
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	174	353	132	202	838	75	199	369	53	105	579	282
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	485	0	202	913	0	199	422	0	105	579	282
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	6.0
Minimum Split (s)	12.0	32.0		12.0	32.0		12.0	28.0		12.0	28.0	28.0
Total Split (s)	18.0	41.0	0.0	15.0	38.0	0.0	14.0	52.0	0.0	12.0	50.0	50.0
Total Split (%)	15.0%	34.2%	0.0%	12.5%	31.7%	0.0%	11.7%	43.3%	0.0%	10.0%	41.7%	41.7%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	13.0	35.0		10.0	32.0		9.0	46.0		7.0	44.0	44.0
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	2.0
Lost Time Adjust (s)	-2.0	-3.0	-1.0	-2.0	-3.0	-3.0	-2.0	-3.0	-1.0	-2.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	4.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	50.3	37.2		47.6	35.8		61.2	50.3		56.9	48.2	46.2
Actuated g/C Ratio	0.42	0.31		0.40	0.30		0.51	0.42		0.47	0.40	0.38
v/c Ratio	0.68	0.45		0.55	0.87		0.73	0.55		0.27	0.77	0.37
Control Delay	30.7	9.8		21.7	43.7		35.9	28.5		24.8	54.7	16.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	30.7	9.8		21.7	43.7		35.9	28.5		24.8	54.7	16.8
LOS	C	A		C	D		D	C		C	D	B
Approach Delay		15.3			39.7			30.9			40.4	
Approach LOS		B			D			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 83.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 509: Westfall & Clinton



Lanes, Volumes, Timings
509: Westfall & Clinton AM RTC+20 BUILD

11/10/2008

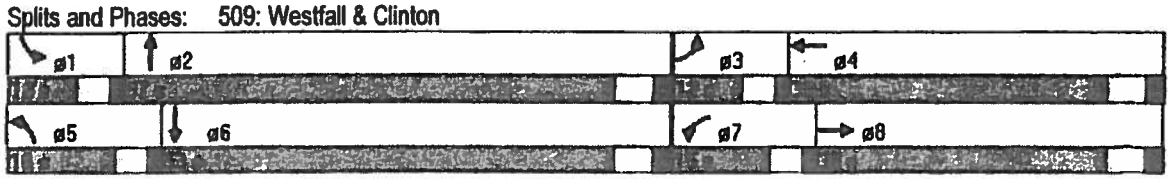
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	355	138	189	768	70	197	374	51	110	603	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.988			0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3391	0	1770	3497	0	1770	1829	0	1770	1863	1583
Flt Permitted	0.125			0.261			0.125			0.342		
Satd. Flow (perm)	233	3391	0	486	3497	0	233	1829	0	637	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			8			7				219
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		705			625			1347			2030	
Travel Time (s)		13.7			12.2			26.2			39.5	
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.93	0.93	0.93	0.96	0.96	0.96
Adj. Flow (vph)	188	370	144	222	904	82	212	402	55	115	628	304
Shared Lane Traffic (%)												
Lane Group Flow (vph)	188	514	0	222	986	0	212	457	0	115	628	304
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	6.0
Minimum Split (s)	12.0	32.0		12.0	32.0		12.0	28.0		12.0	28.0	28.0
Total Split (s)	12.0	36.0	0.0	15.0	39.0	0.0	16.0	57.0	0.0	12.0	53.0	53.0
Total Split (%)	10.0%	30.0%	0.0%	12.5%	32.5%	0.0%	13.3%	47.5%	0.0%	10.0%	44.2%	44.2%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	7.0	30.0		10.0	33.0		11.0	51.0		7.0	47.0	47.0
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	2.0
Lost Time Adjust (s)	-2.0	-3.0	-1.0	-2.0	-3.0	-3.0	-2.0	-3.0	-1.0	-2.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	4.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	42.1	33.1		47.9	36.0		66.0	54.3		59.3	50.6	48.6
Actuated g/C Ratio	0.35	0.28		0.40	0.30		0.55	0.45		0.49	0.42	0.40
v/c Ratio	0.95	0.53		0.69	0.93		0.74	0.55		0.29	0.80	0.39
Control Delay	64.5	11.7		30.1	49.2		34.4	25.9		23.0	54.7	20.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.5	11.7		30.1	49.2		34.4	25.9		23.0	54.7	20.0
LOS	E	B		C	D		C	C		C	D	C
Approach Delay		25.8			45.7			28.6			41.1	
Approach LOS		C			D			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 37.4 Intersection LOS: D
Intersection Capacity Utilization 89.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 509: Westfall & Clinton



Lanes, Volumes, Timings
509: Westfall & Clinton PM BTC+10 BUILD

11/10/2008

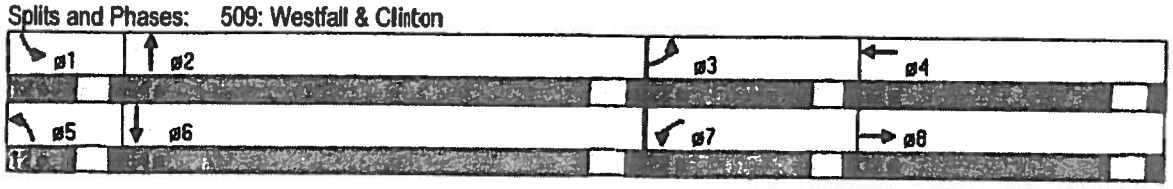
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	442	645	219	139	456	148	156	651	60	114	555	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.963			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3405	0	1770	3408	0	1770	1839	0	1770	1863	1583
Flt Permitted	0.129			0.143			0.176			0.080		
Satd. Flow (perm)	240	3405	0	266	3408	0	328	1839	0	149	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			35			5				174
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		850			666			1347			2030	
Travel Time (s)		16.6			13.0			26.2			39.5	
Peak Hour Factor	0.95	0.95	0.95	0.80	0.80	0.80	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	465	679	231	174	570	185	181	757	70	120	584	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	465	910	0	174	755	0	181	827	0	120	584	182
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	6.0
Minimum Split (s)	12.0	32.0		12.0	32.0		12.0	28.0		12.0	28.0	28.0
Total Split (s)	22.0	32.0	0.0	22.0	32.0	0.0	12.0	54.0	0.0	12.0	54.0	54.0
Total Split (%)	18.3%	26.7%	0.0%	18.3%	26.7%	0.0%	10.0%	45.0%	0.0%	10.0%	45.0%	45.0%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	17.0	26.0		17.0	26.0		7.0	48.0		7.0	48.0	48.0
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	2.0
Lost Time Adjust (s)	-2.0	-3.0	-3.0	-2.0	-3.0	-1.0	-2.0	-3.0	-1.0	-2.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	4.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	50.3	33.7		43.3	29.0		60.2	51.2		59.8	51.0	49.0
Actuated g/C Ratio	0.42	0.28		0.36	0.24		0.50	0.43		0.50	0.42	0.41
v/c Ratio	1.36	0.92		0.63	0.89		0.66	1.05		0.62	0.74	0.24
Control Delay	200.6	47.2		33.4	56.2		28.3	78.1		40.7	53.9	16.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	200.6	47.2		33.4	56.2		28.3	78.1		40.7	53.9	16.2
LOS	F	D		C	E		C	E		D	D	B
Approach Delay		99.1			51.9			69.2			44.4	
Approach LOS		F			D			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.36
Intersection Signal Delay: 69.9 Intersection LOS: E
Intersection Capacity Utilization 99.4% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 509: Westfall & Clinton



Lanes, Volumes, Timings
509: Westfall & Clinton PM RTC+20 BUILD

11/10/2008

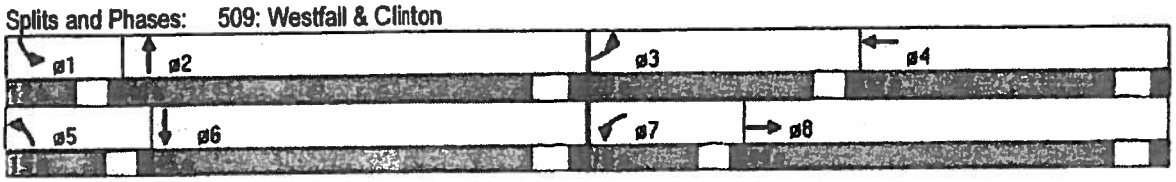
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	476	690	233	148	481	160	167	707	64	126	607	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	125		0	125		0	75		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.963			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3405	0	1770	3408	0	1770	1840	0	1770	1863	1583
Flt Permitted	0.129			0.143			0.091			0.097		
Satd. Flow (perm)	240	3405	0	266	3408	0	170	1840	0	181	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			36			4				152
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		577			516			1347			2030	
Travel Time (s)		11.2			10.1			26.2			39.5	
Peak Hour Factor	0.95	0.95	0.95	0.80	0.80	0.80	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	501	726	245	185	601	200	194	822	74	133	639	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	501	971	0	185	801	0	194	896	0	133	639	196
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8			4			2			6		6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		4.0	6.0		4.0	6.0	6.0
Minimum Split (s)	12.0	32.0		12.0	32.0		12.0	28.0		12.0	28.0	28.0
Total Split (s)	28.0	44.0	0.0	16.0	32.0	0.0	15.0	48.0	0.0	12.0	45.0	45.0
Total Split (%)	23.3%	36.7%	0.0%	13.3%	26.7%	0.0%	12.5%	40.0%	0.0%	10.0%	37.5%	37.5%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	23.0	38.0		11.0	26.0		10.0	42.0		7.0	39.0	39.0
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	4.0		3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	2.0
Lost Time Adjust (s)	-2.0	-3.0	-3.0	-2.0	-3.0	-1.0	-2.0	-3.0	-1.0	-2.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	4.0		2.0	4.0	4.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		19.0			19.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	57.0	41.6		41.4	29.0		56.9	45.1		51.1	42.2	40.2
Actuated g/C Ratio	0.48	0.35		0.34	0.24		0.47	0.38		0.43	0.35	0.34
v/c Ratio	1.16	0.80		0.75	0.94		0.82	1.29		0.68	0.98	0.31
Control Delay	116.4	32.8		40.1	63.0		51.0	173.9		43.5	79.2	19.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	116.4	32.8		40.1	63.0		51.0	173.9		43.5	79.2	19.1
LOS	F	C		D	E		D	F		D	E	B
Approach Delay		61.2			58.7			152.1			62.1	
Approach LOS		E			E			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 82.8 — Intersection LOS: F
Intersection Capacity Utilization 106.2% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 509: Westfall & Clinton



Lanes, Volumes, Timings
547: Westfall & Lac De Ville AM RTC+10 BUILD

11/10/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	193	160	204	787	160	55	19	45	75	98	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.975				0.850			0.850
Flt Protected	0.950			0.950				0.964			0.979	
Satd. Flow (prot)	1770	1736	0	1770	1816	0	0	1796	1583	0	1824	1583
Flt Permitted	0.126			0.447				0.487			0.802	
Satd. Flow (perm)	235	1736	0	833	1816	0	0	907	1583	0	1494	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71			17				50			157
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		762			1770			371			330	
Travel Time (s)		14.8			34.5			8.4			7.5	
Peak Hour Factor	0.76	0.76	0.76	0.87	0.87	0.87	0.90	0.90	0.90	0.71	0.71	0.71
Adj. Flow (vph)	71	254	211	234	905	184	61	21	50	106	138	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	465	0	234	1089	0	0	82	50	0	244	223
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3		3	3		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	6	6		6	6		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	97	97		97	97							
Detector 2 Size(ft)	6	6		6	6							
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0							
Detector 3 Position(ft)	194	194		194	194							
Detector 3 Size(ft)	6	6		6	6							
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 3 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Extend (s)	0.0	0.0		0.0	0.0							
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phase	2	2		2	2		4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	81.0	81.0	0.0	81.0	81.0	0.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	67.5%	67.5%	0.0%	67.5%	67.5%	0.0%	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Maximum Green (s)	75.0	75.0		75.0	75.0		33.5	33.5	33.5	33.5	33.5	33.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	87.0	87.0		87.0	87.0			27.0	27.0		27.0	27.0
Actuated g/C Ratio	0.72	0.72		0.72	0.72			0.22	0.22		0.22	0.22
v/c Ratio	0.42	0.36		0.39	0.82			0.40	0.13		0.73	0.47
Control Delay	28.1	13.8		11.3	21.2			43.7	9.4		54.9	14.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	28.1	13.8		11.3	21.2			43.7	9.4		54.9	14.9
LOS	C	B		B	C			D	A		D	B
Approach Delay		15.7			19.5			30.7			35.8	
Approach LOS		B			B			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 22.4 Intersection LOS: C
Intersection Capacity Utilization 93.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 547: Westfall & Lac De Ville

Lanes, Volumes, Timings
547: Westfall & Lac De Ville AM RTC+20 BUILD

11/10/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	207	167	225	849	177	58	21	50	83	106	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.974				0.850			0.850
Flt Protected	0.950			0.950				0.965			0.978	
Satd. Flow (prot)	1770	1738	0	1770	1814	0	0	1798	1583	0	1822	1583
Flt Permitted	0.088			0.434				0.414			0.764	
Satd. Flow (perm)	164	1738	0	808	1814	0	0	771	1583	0	1423	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			23				56			139
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		747			1770			371			330	
Travel Time (s)		14.6			34.5			8.4			7.5	
Peak Hour Factor	0.76	0.76	0.76	0.87	0.87	0.87	0.90	0.90	0.90	0.71	0.71	0.71
Adj. Flow (vph)	76	272	220	259	976	203	64	23	56	117	149	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	492	0	259	1179	0	0	87	56	0	266	239
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3		3	3		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	6	6		6	6		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	97	97		97	97							
Detector 2 Size(ft)	6	6		6	6							
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0							
Detector 3 Position(ft)	194	194		194	194							
Detector 3 Size(ft)	6	6		6	6							
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 3 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Extend (s)	0.0	0.0		0.0	0.0							
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phase	2	2		2	2		4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	90.0	90.0	0.0	90.0	90.0	0.0	30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	75.0%	75.0%	0.0%	75.0%	75.0%	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	84.0	84.0		84.0	84.0		24.5	24.5	24.5	24.5	24.5	24.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	88.1	88.1		88.1	88.1			25.9	25.9		25.9	25.9
Actuated g/C Ratio	0.73	0.73		0.73	0.73			0.22	0.22		0.22	0.22
v/c Ratio	0.63	0.38		0.44	0.88			0.52	0.15		0.87	0.53
Control Delay	53.6	17.1		9.6	21.6			53.7	10.7		72.1	21.6
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	53.6	17.1		9.6	21.6			53.7	10.7		72.1	21.6
LOS	D	B		A	C			D	B		E	C
Approach Delay		22.0			19.4			36.8			48.2	
Approach LOS		C			B			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 26.4 Intersection LOS: C
Intersection Capacity Utilization 98.9% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 547: Westfall & Lac De Ville

Lanes, Volumes, Timings

547: Westfall & Lac De Ville PM BTC+10 BUILD

11/10/2008

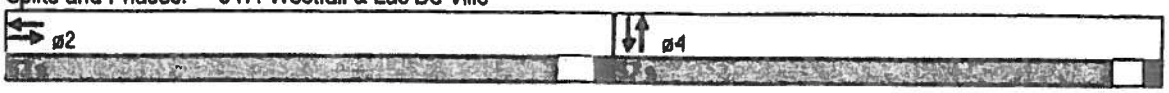
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	800	57	26	343	103	195	137	203	129	33	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.965				0.850			0.850
Flt Protected	0.950			0.950				0.971			0.962	
Satd. Flow (prot)	1770	1844	0	1770	1798	0	0	1809	1583	0	1792	1583
Flt Permitted	0.312			0.063				0.633			0.348	
Satd. Flow (perm)	581	1844	0	117	1798	0	0	1179	1583	0	648	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			18				115			126
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		706			1770			371			330	
Travel Time (s)		13.8			34.5			8.4			7.5	
Peak Hour Factor	0.94	0.94	0.94	0.81	0.81	0.81	0.79	0.79	0.79	0.85	0.85	0.85
Adj. Flow (vph)	66	851	61	32	423	127	247	173	257	152	39	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	912	0	32	550	0	0	420	257	0	191	126
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3		3	3		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	6	6		6	6		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	97	97		97	97							
Detector 2 Size(ft)	6	6		6	6							
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0							
Detector 3 Position(ft)	194	194		194	194							
Detector 3 Size(ft)	6	6		6	6							
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 3 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Extend (s)	0.0	0.0		0.0	0.0							
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phase	2	2		2	2		4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	63.0	63.0	0.0	63.0	63.0	0.0	57.0	57.0	57.0	57.0	57.0	57.0
Total Split (%)	52.5%	52.5%	0.0%	52.5%	52.5%	0.0%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%
Maximum Green (s)	57.0	57.0		57.0	57.0		51.5	51.5	51.5	51.5	51.5	51.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	65.6	65.6		65.6	65.6			48.4	48.4		48.4	48.4
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.40	0.40		0.40	0.40
v/c Ratio	0.21	0.90		0.50	0.55			0.88	0.36		0.73	0.18
Control Delay	12.1	35.0		54.0	22.1			53.6	13.7		46.7	3.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	12.1	35.0		54.0	22.1			53.6	13.7		46.7	3.9
LOS	B	D		D	C			D	B		D	A
Approach Delay		33.5			23.9			38.4			29.7	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 88.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 547: Westfall & Lac De Ville



Lanes, Volumes, Timings
547: Westfall & Lac De Ville PM RTC+20 BUILD

11/10/2008

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	860	59	29	368	114	202	149	224	142	36	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	75		0	0		75	0		75
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.964				0.850			0.850
Flt Protected	0.950			0.950				0.972			0.962	
Satd. Flow (prot)	1770	1844	0	1770	1796	0	0	1811	1583	0	1792	1583
Flt Permitted	0.282			0.061				0.613			0.307	
Satd. Flow (perm)	525	1844	0	114	1796	0	0	1142	1583	0	572	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			21				121			129
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		856			1770			371			330	
Travel Time (s)		16.7			34.5			8.4			7.5	
Peak Hour Factor	0.94	0.94	0.94	0.81	0.81	0.81	0.79	0.79	0.79	0.85	0.85	0.85
Adj. Flow (vph)	70	915	63	36	454	141	256	189	284	167	42	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	978	0	36	595	0	0	445	284	0	209	135
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3		3	3		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	200	200		200	200		50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	6	6		6	6		50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	97	97		97	97							
Detector 2 Size(ft)	6	6		6	6							
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0							
Detector 3 Position(ft)	194	194		194	194							
Detector 3 Size(ft)	6	6		6	6							
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 3 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Extend (s)	0.0	0.0		0.0	0.0							
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		4
Detector Phase	2	2		2	2		4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	32.0	32.0		32.0	32.0		26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	69.0	69.0	0.0	69.0	69.0	0.0	51.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%
Maximum Green (s)	63.0	63.0		63.0	63.0		45.5	45.5	45.5	45.5	45.5	45.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	66.0	66.0		66.0	66.0			48.0	48.0		48.0	48.0
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.40	0.40		0.40	0.40
v/c Ratio	0.24	0.96		0.57	0.60			0.97	0.40		0.91	0.19
Control Delay	18.7	51.3		62.1	23.4			72.4	16.1		76.6	5.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	18.7	51.3		62.1	23.4			72.4	16.1		76.6	5.1
LOS	B	D		E	C			E	B		E	A
Approach Delay		49.1			25.7			50.5			48.5	
Approach LOS		D			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 44.0 Intersection LOS: D
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 547: Westfall & Lac De Ville

Forecasted Volumes (Existing+20):

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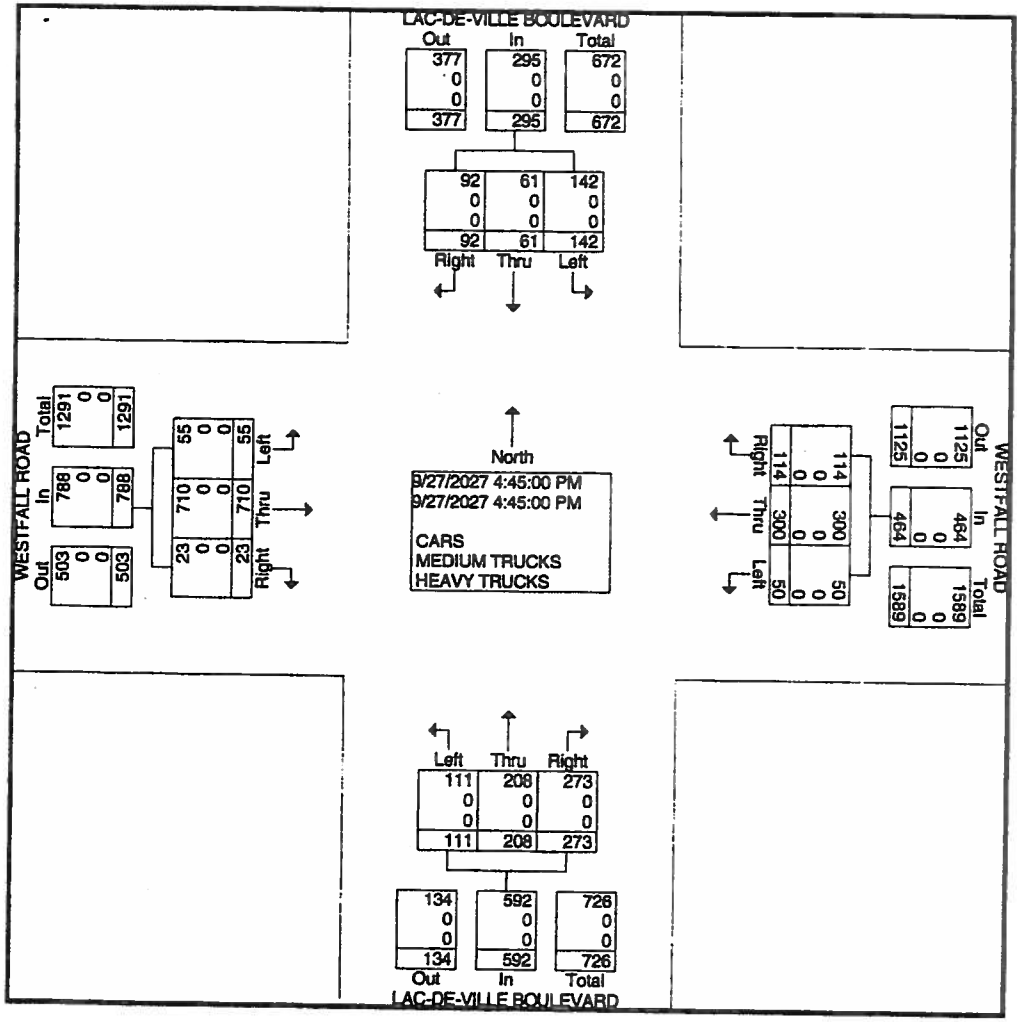
1 South Washington Street, Suite 520
Rochester, NY 14614

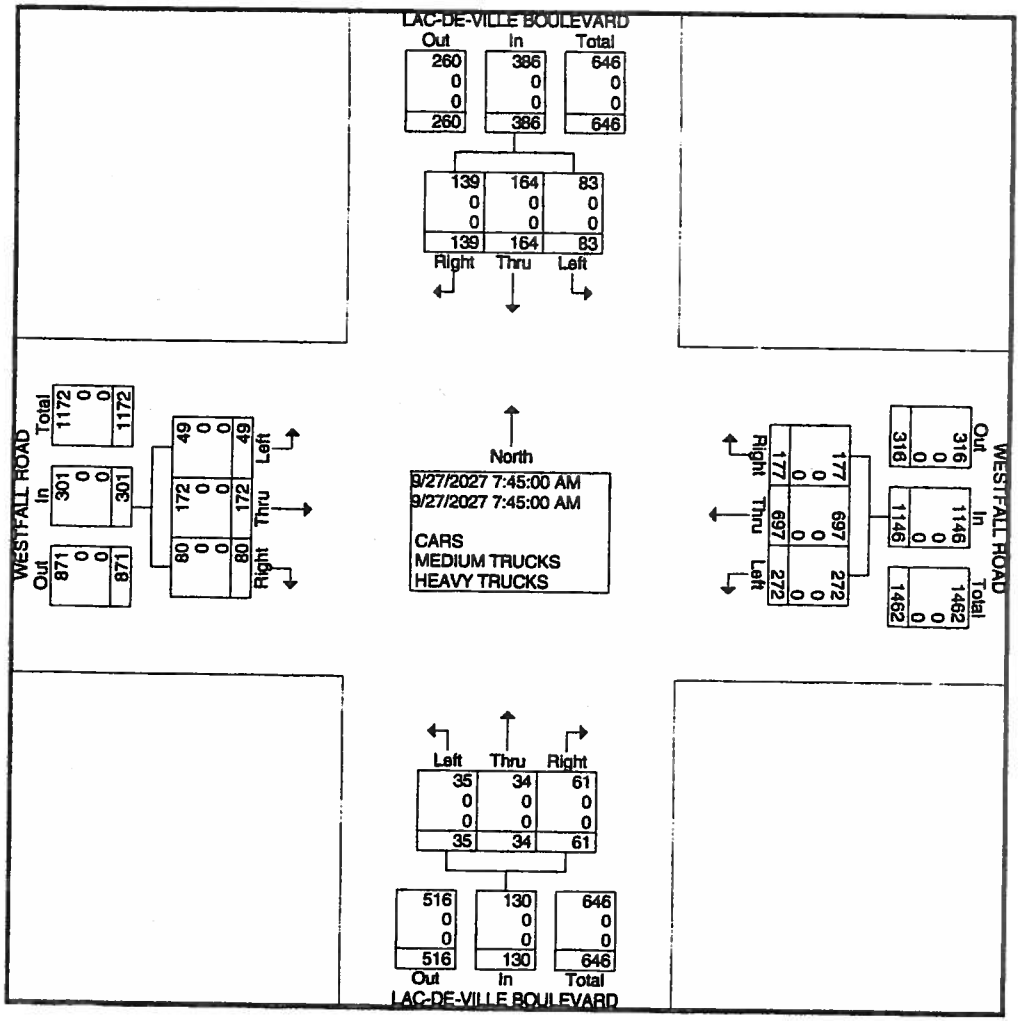
File Name : Lac de Ville + 20 PM
Site Code : 00000032
Start Date : 9/27/2027
Page No : 1



Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

Forecasted Volumes (Existing+20):

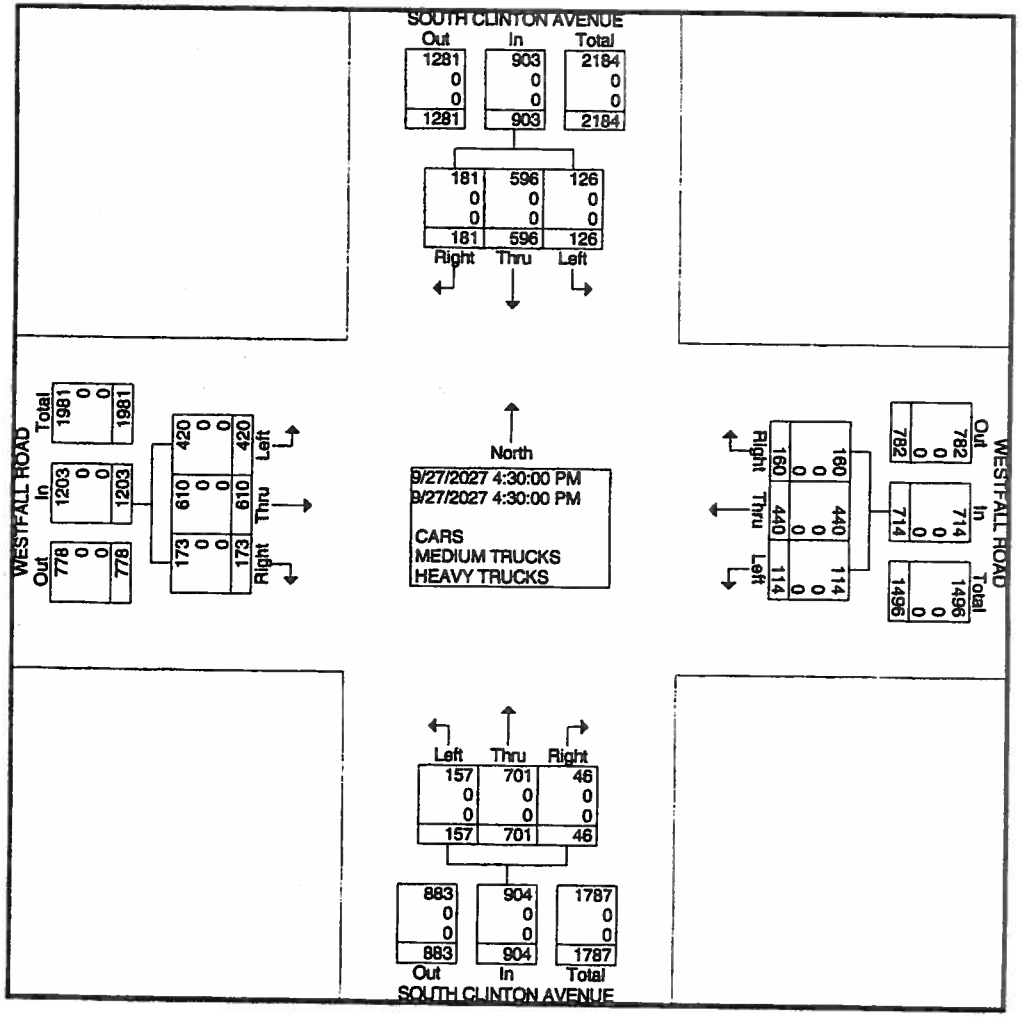
File Name : Lac de Ville + 20 AM
Site Code : 00000031
Start Date : 9/27/2027
Page No : 1



Forecasted Volumes (Existing+20):

Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

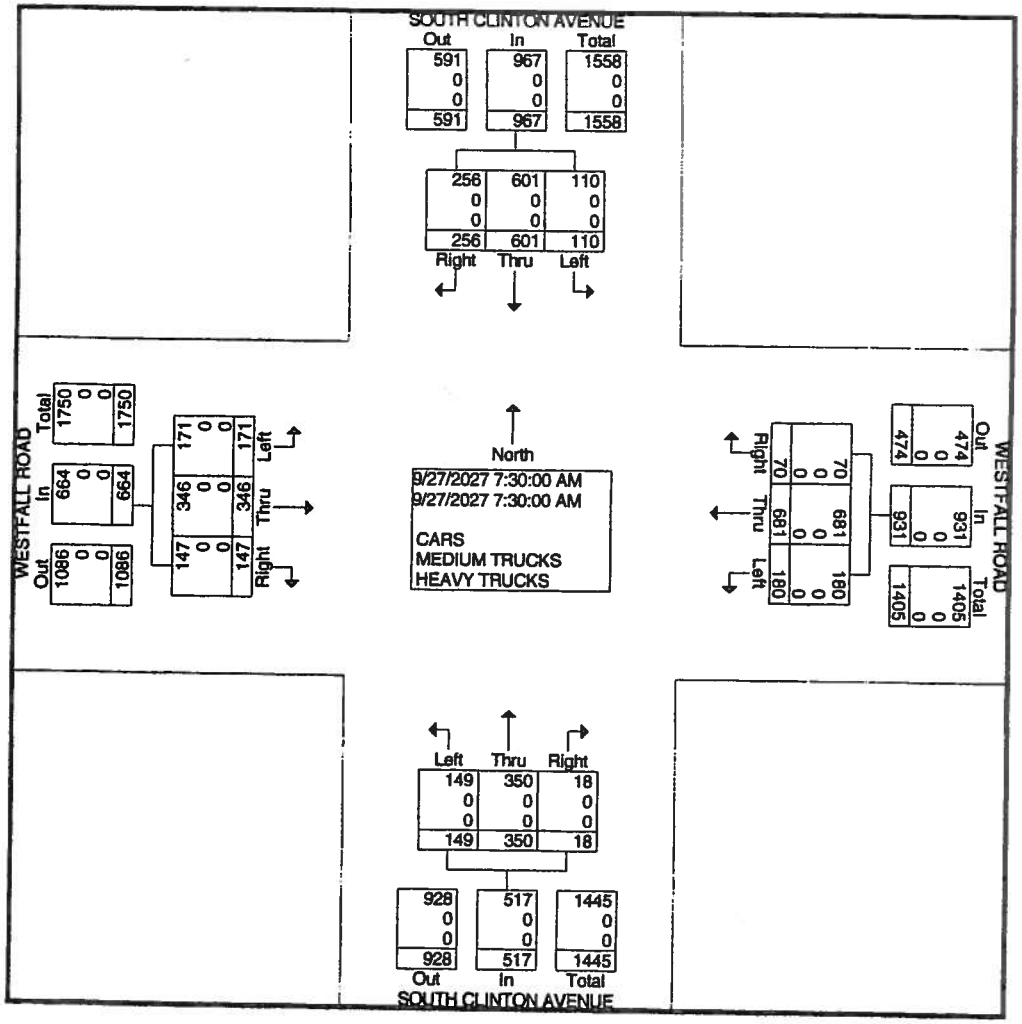
File Name : S. Clinton + 20 PM
Site Code : 00000062
Start Date : 9/27/2027
Page No : 1



Forecasted Volumes (Existing+20):

Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

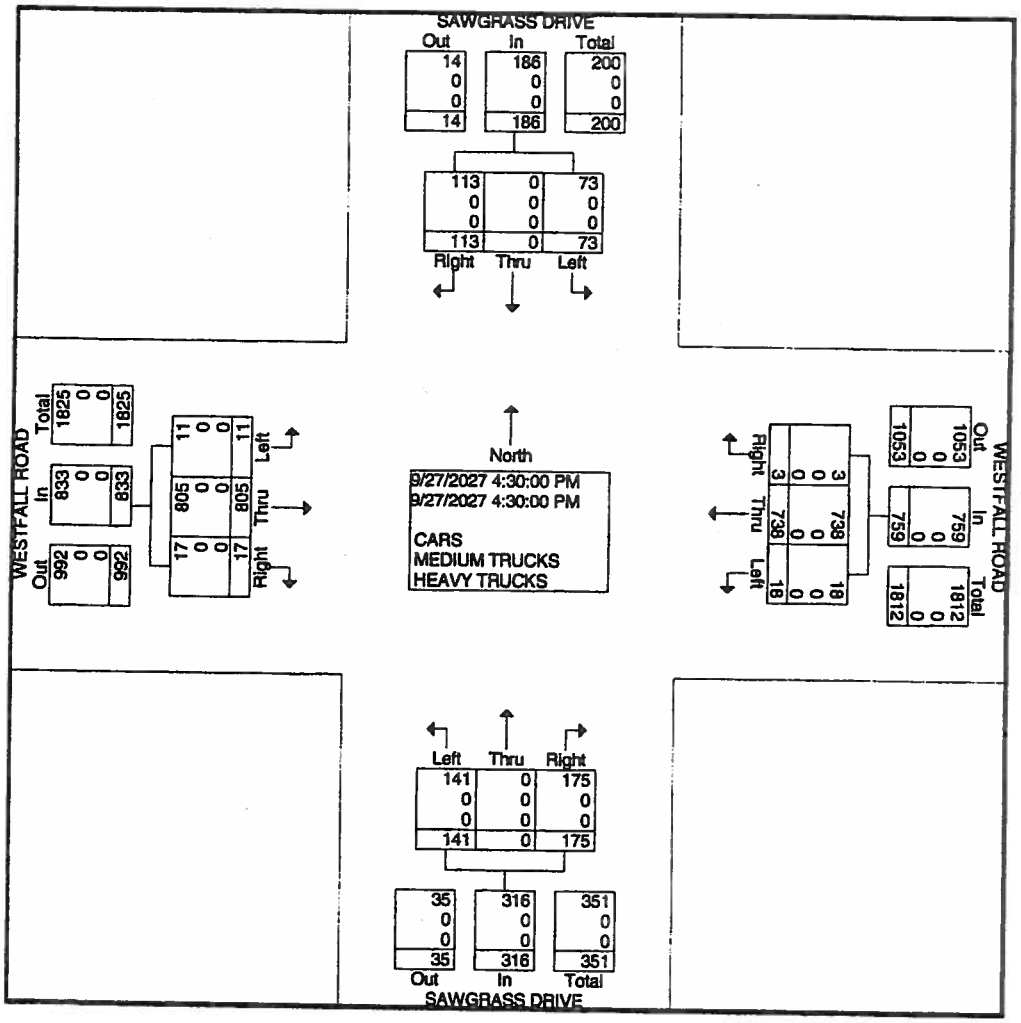
File Name : S. Clinton + 20 AM
Site Code : 00000061
Start Date : 9/27/2027
Page No : 1



Forecasted Volumes (Existing+20):

Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : Sawgrass + 20 PM
Site Code : 00000042
Start Date : 9/27/2027
Page No : 1



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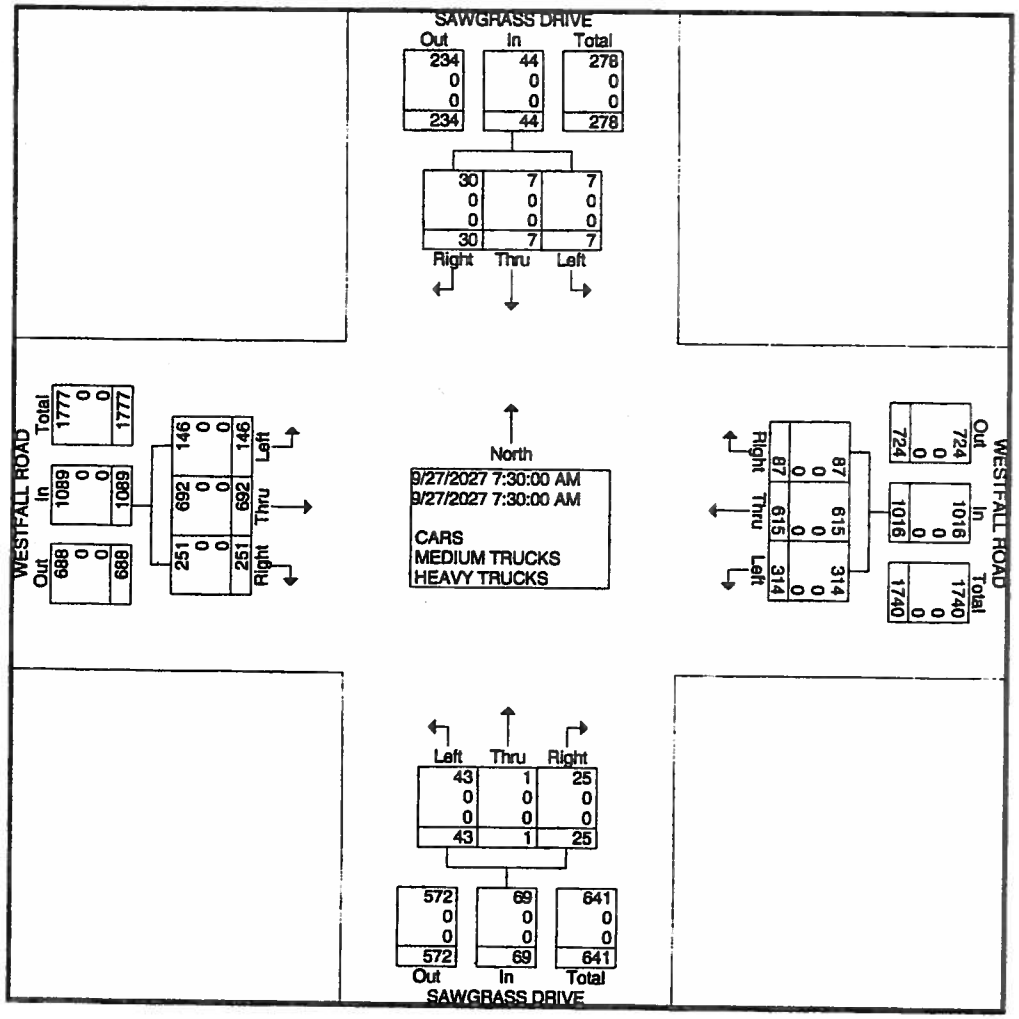
Rochester, NY 14614

Forecasted Volumes (Existing+20):

File Name : Sawgrass + 20 AM
Site Code : 00000041
Start Date : 9/27/2027
Page No : 1



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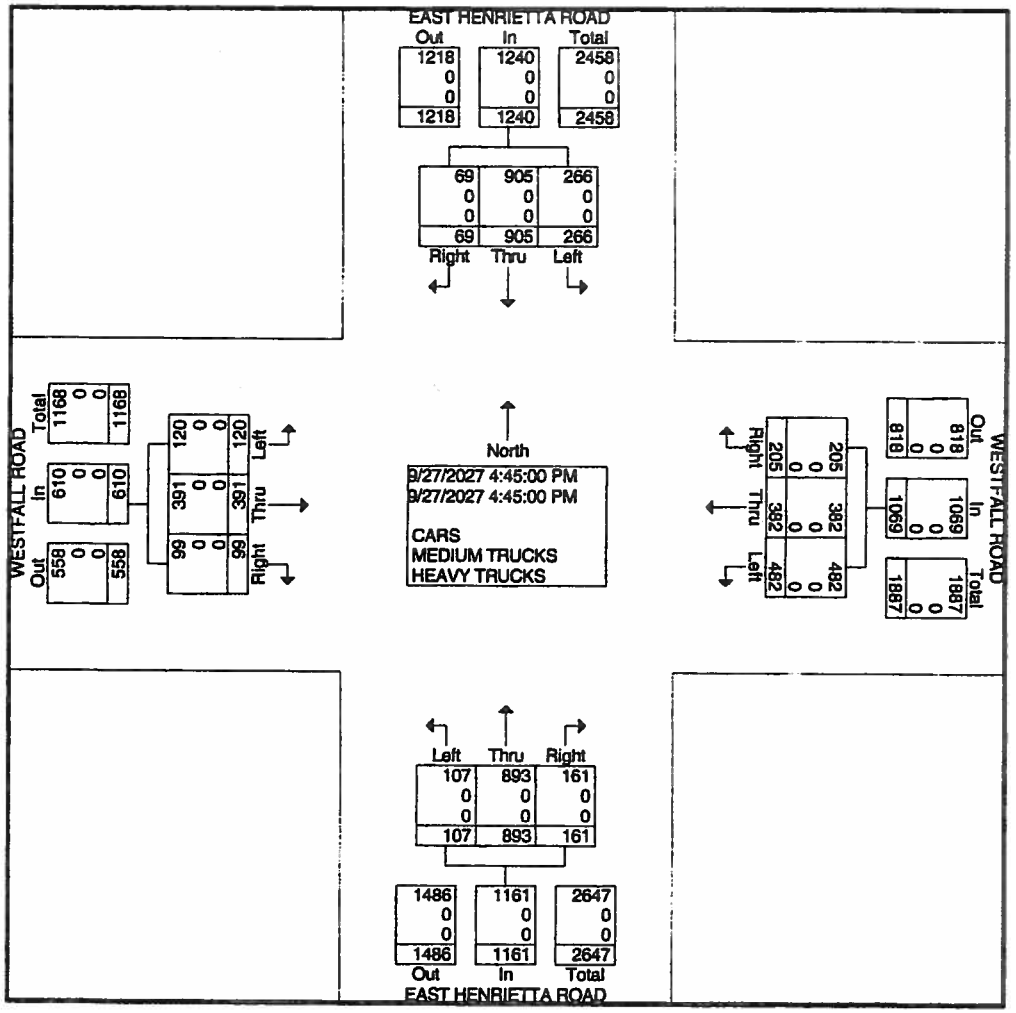
Rochester, NY 14614

Forecasted Volumes (Existing+20):

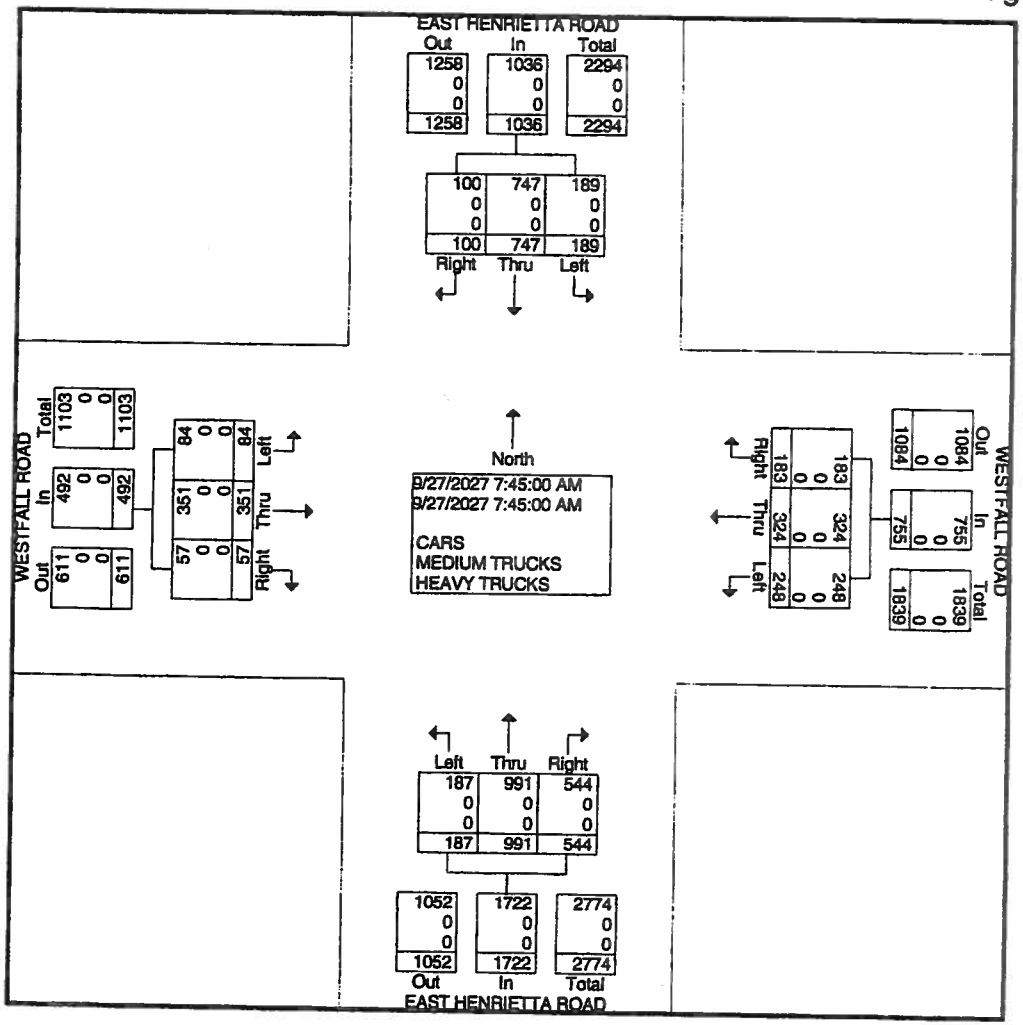
File Name : East Henrietta + 20 PM
Site Code : 00000052
Start Date : 9/27/2027
Page No : 1



Forecasted Volumes (Existing+20):

Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : East Henrietta + 20 AM
Site Code : 00000051
Start Date : 9/27/2027
Page No : 1



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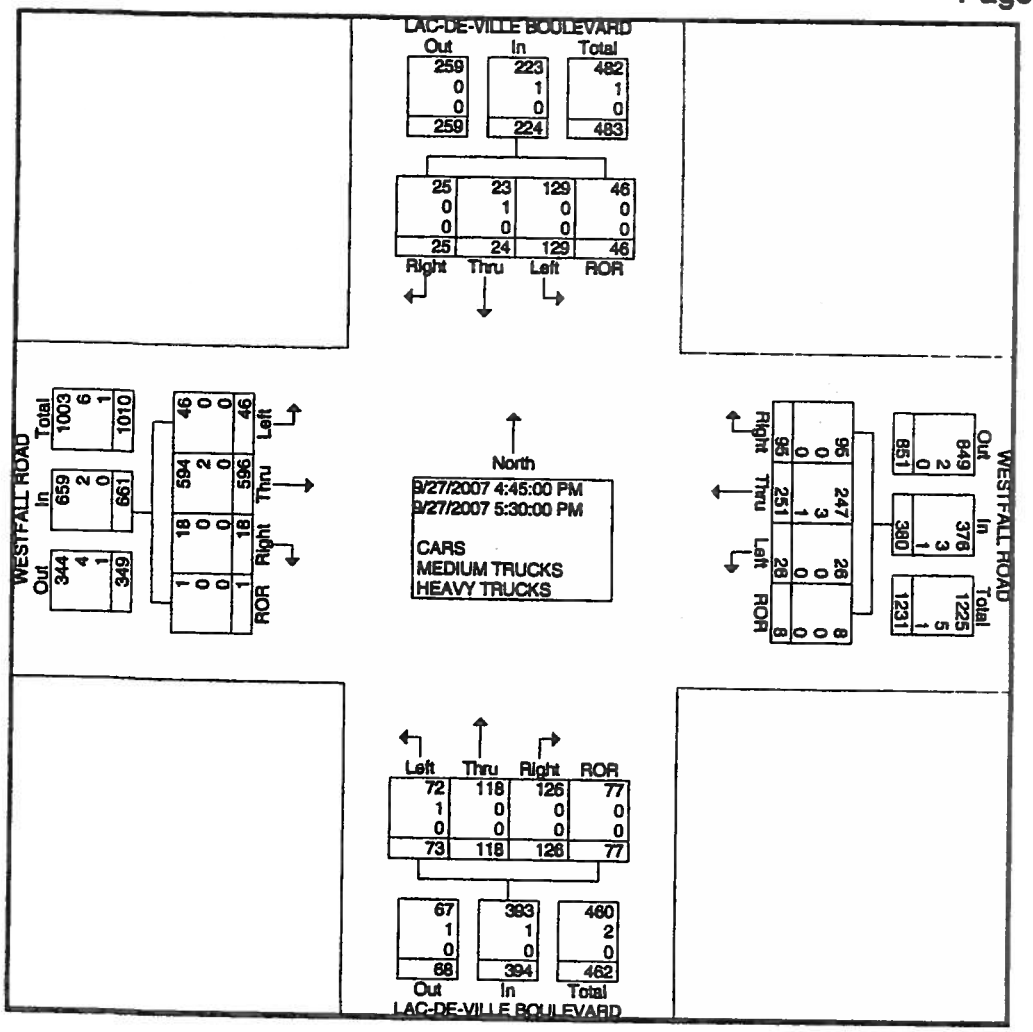
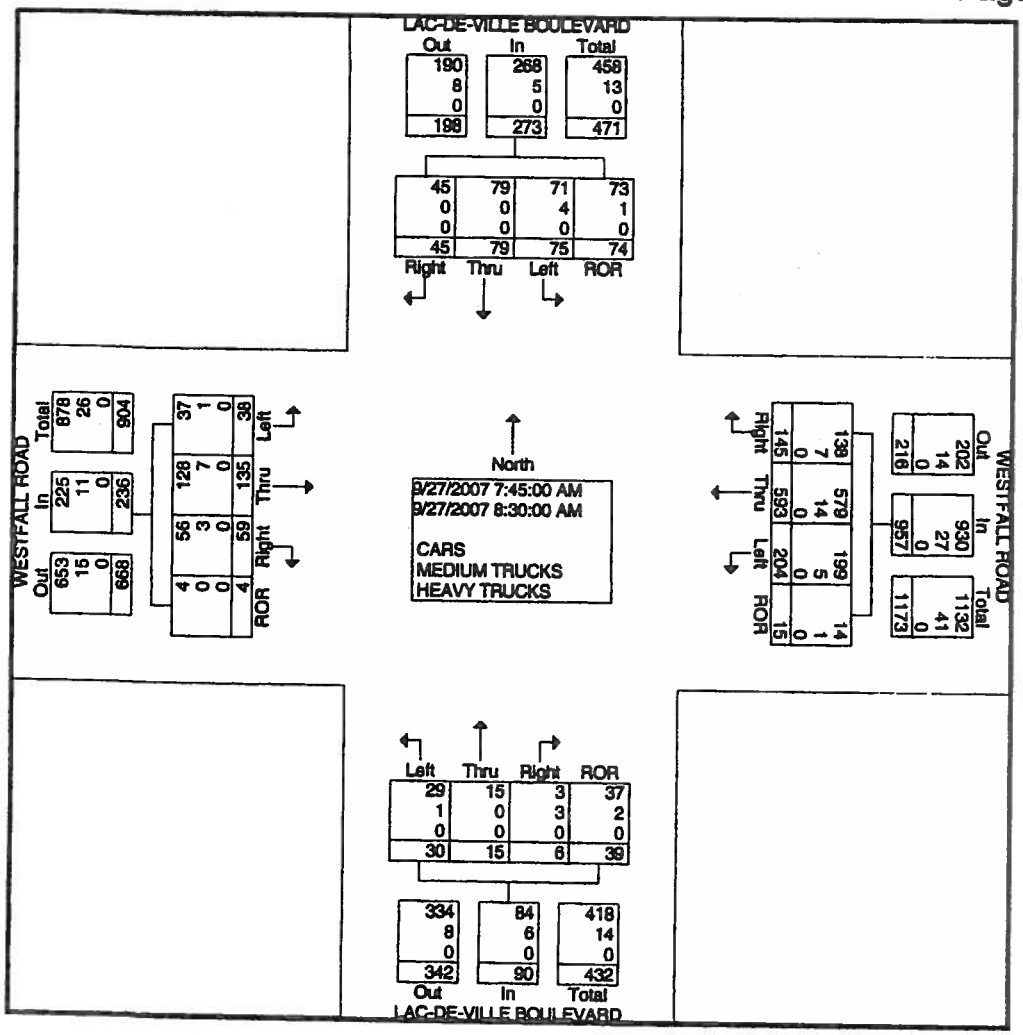
File Name : Lac de Ville - PM
Site Code : 00000032
Start Date : 9/27/2007
Page No : 2



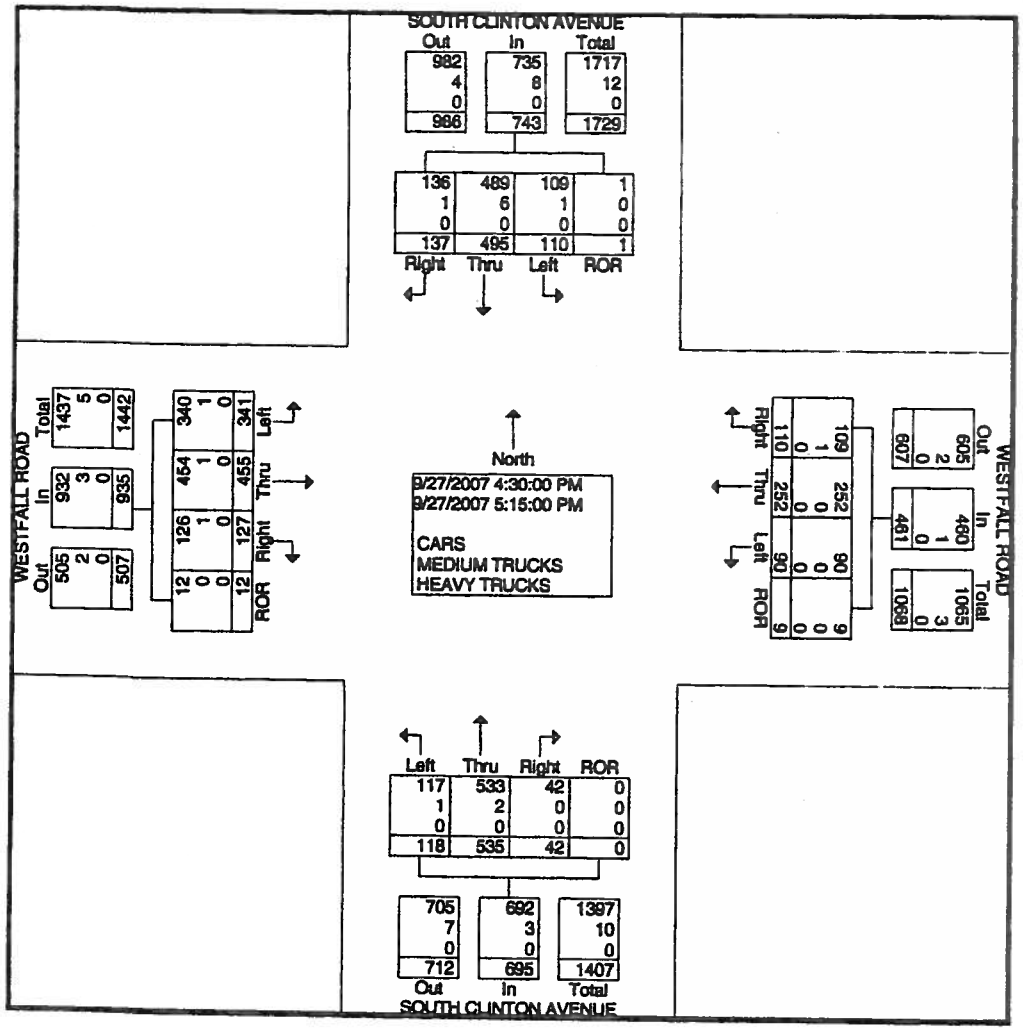
Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : Lac de Ville - AM
Site Code : 00000031
Start Date : 9/27/2007
Page No : 2



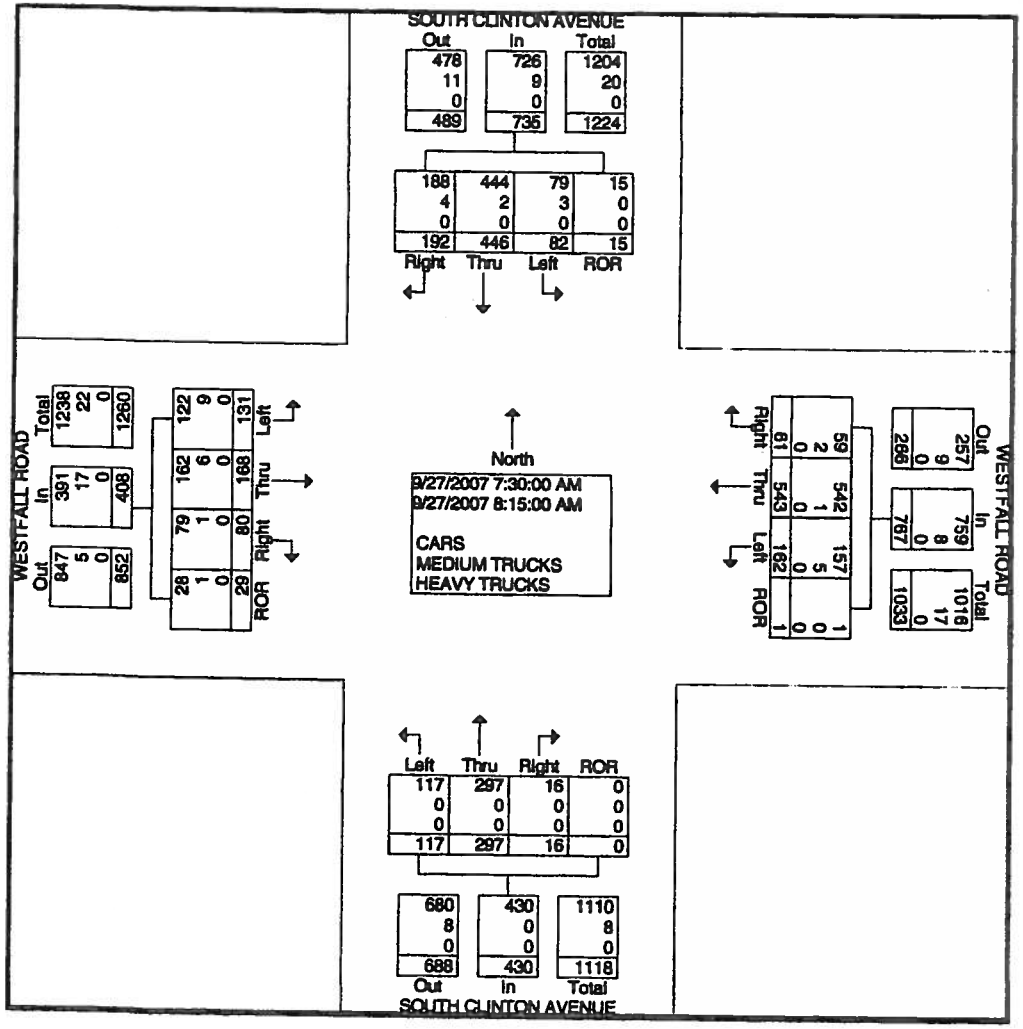
Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : S. Clinton - PM
Site Code : 00000062
Start Date : 9/27/2007
Page No : 2



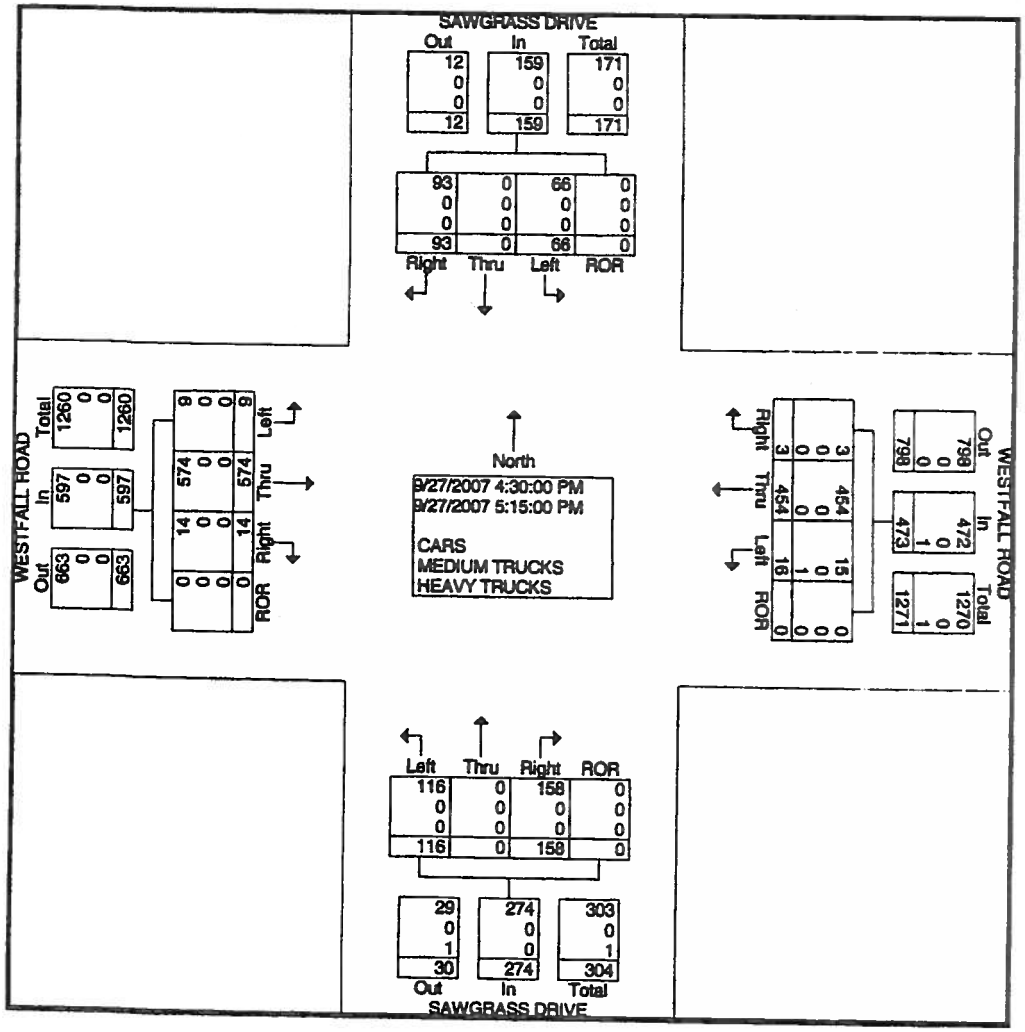
Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : S. Clinton - AM
Site Code : 00000061
Start Date : 9/27/2007
Page No : 2



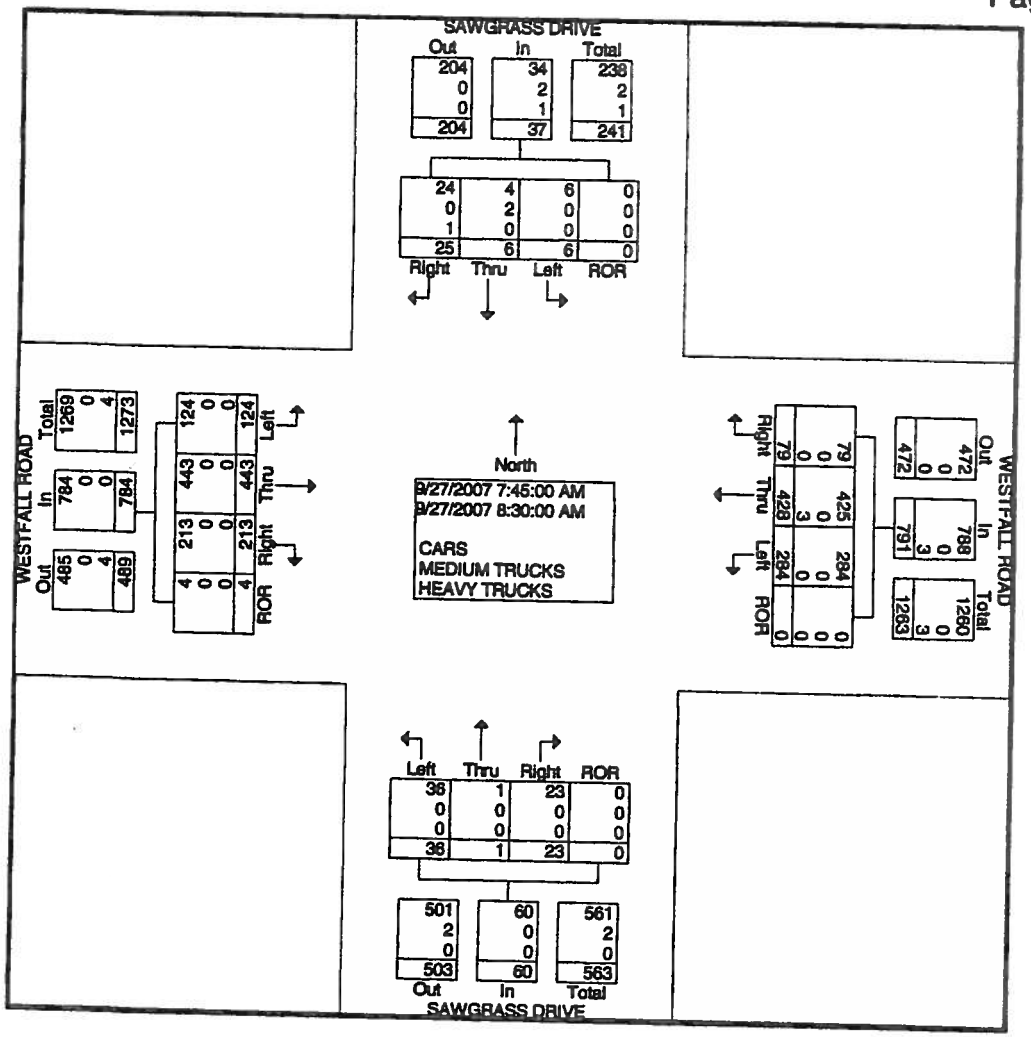
Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : Sawgrass - PM
Site Code : 00000042
Start Date : 9/27/2007
Page No : 2



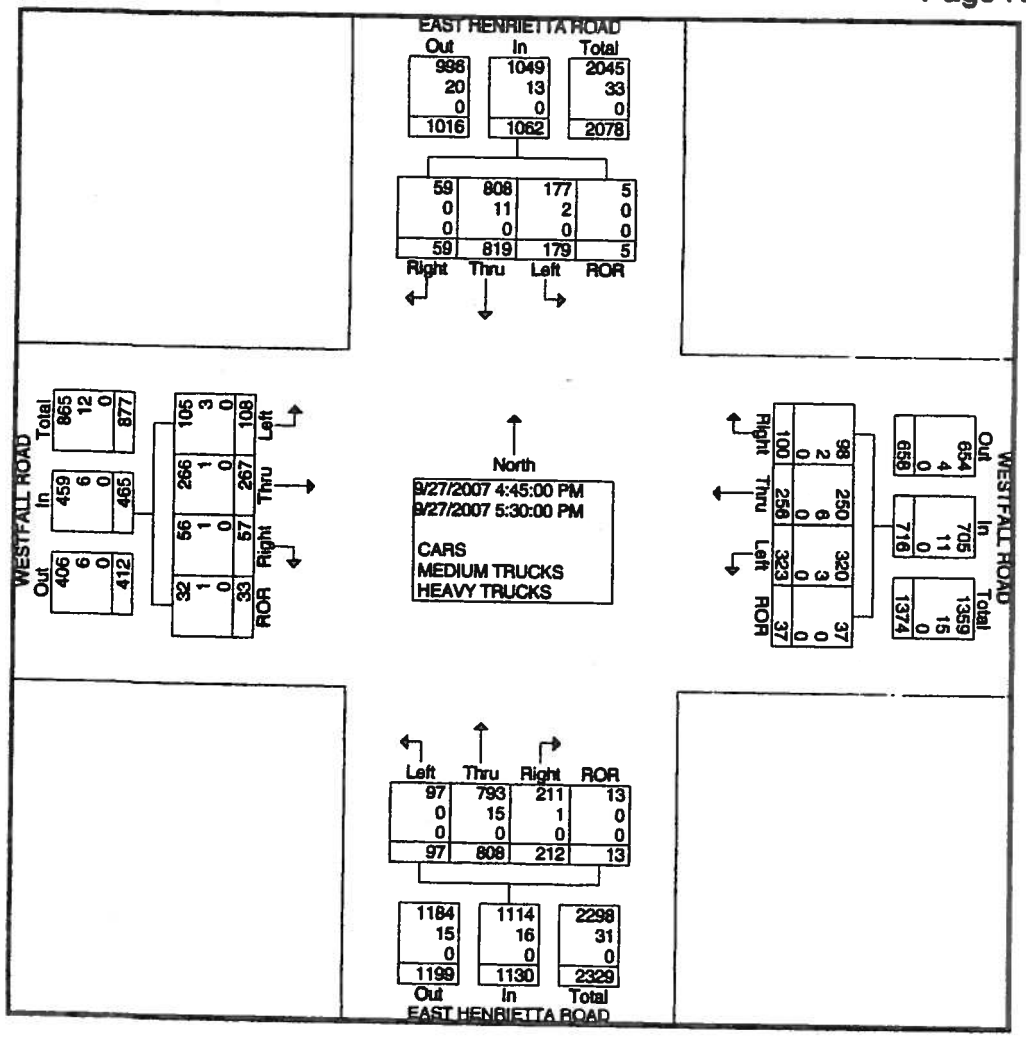
Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : Sawgrass - AM
Site Code : 00000041
Start Date : 9/27/2007
Page No : 2



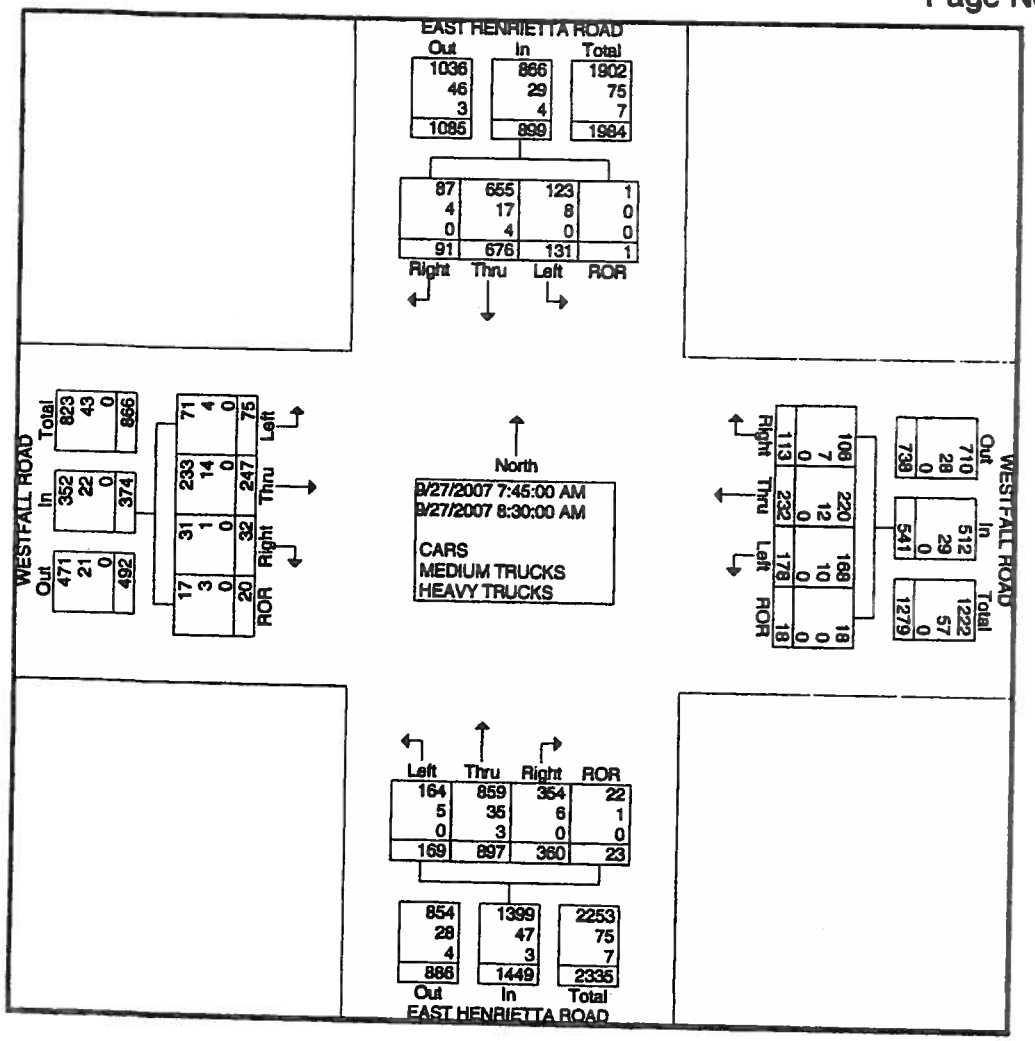
Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : East Henrietta - PM
Site Code : 00000052
Start Date : 9/27/2007
Page No : 2



Barton & Loguidice, P.C.
1 South Washington Street, Suite 520
Rochester, NY 14614

File Name : East Henrietta - AM
Site Code : 00000051
Start Date : 9/27/2007
Page No : 2



12/27/2007

ADT=Average Daily Traffic
K Factor=2 Way Peak/ADT

Monroe County D.O.T.
Traffic Summary Report 2007

DENUMBER	DATEOFREN	COMMENTS	TOWNORCITY	ROADNAME	CROSSROAD	ONEWAYPEAK	TWOWAYPEAK	ADT	PHF	DOW	DFACTOR	KFACTOR
653	4/28/1987		BRIGHTON	W. HENRIETTA RD.	E. RIVER RD. S OF	1229	2133	26010	0.97		0.58	0.0800
653	10/1/1981		BRIGHTON	W. HENRIETTA RD.	E. RIVER RD. S OF	1323	2227	23076	0.00		0.59	0.1000
342	9/26/1987	4	BRIGHTON	WARREN AVE.	EDGEWOOD AVE. E OF	90	177	1728	0.88		0.51	0.1000
342	9/25/1987		BRIGHTON	WARREN AVE.	EDGEWOOD AVE. E OF	84	165	1821	0.88		0.51	0.0900
142	9/20/1995		BRIGHTON	WESTFALL RD.	CLINTON AVE. E OF	781	1104	10765	0.92		0.71	0.1025
142	9/22/1987		BRIGHTON	WESTFALL RD.	CLINTON AVE. E OF	638	933	9225	0.93		0.68	0.1000
142	6/1/1985		BRIGHTON	WESTFALL RD.	CLINTON AVE. E OF	685	966	9092	0.97		0.71	0.1100
142	10/1/1981		BRIGHTON	WESTFALL RD.	CLINTON AVE. E OF	589	786	6794	0.00		0.75	0.1200
144	9/21/2004		BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	742	1325	14858	0.93		0.58	0.0892
144	8/15/2000	5	BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	823	1337	14152	0.92	Tue	0.62	0.0945
144	8/15/2000	5	BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	823	1337	14152	0.92	Tue	0.62	0.0945
144	9/20/1995		BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	791	1248	12480	0.95		0.63	0.1002
144	9/22/1987		BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	678	959	10093	0.94		0.71	0.1000
144	6/1/1985		BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	842	1035	10002	0.91		0.81	0.1000
144	6/1/1983		BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	546	719	7628	0.87		0.76	0.0900
144	10/1/1981		BRIGHTON	WESTFALL RD.	CLINTON AVE. W OF	545	788	7171	0.00		0.69	0.1100
52	4/5/1988		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. E OF	400	680	7048	0.89		0.59	0.1000
52	6/1/1985		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. E OF	386	576	6374	0.86		0.67	0.0900
52	6/1/1978		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. E OF	476	693	6604	0.00		0.69	0.1000
54	9/21/2004		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	660	975	10226	0.91		0.68	0.0954
54	8/22/2000		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	802	1078	10419	0.93		0.74	0.1034
54	7/17/1996		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	485	818	8183	0.93		0.59	0.0999
54	10/6/1992		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	585	917	8962	0.93		0.64	0.1024
54	4/5/1988		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	480	754	7339	0.91		0.64	0.1000
54	6/1/1985		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	565	878	9418	0.94		0.64	0.0900
54	6/1/1978		BRIGHTON	WESTFALL RD.	EDGEWOOD AVE. W OF	586	785	8849	0.00		0.75	0.0900
	9/1/1999	7	BRIGHTON	WESTFALL RD.	LACDEVILLE BLVD. E OF	693	1005	11197			0.69	0.0897
	4/7/1998	7	BRIGHTON	WESTFALL RD.	LACDEVILLE BLVD. E OF	751	1112	11868			0.68	0.0937
	9/20/1995		BRIGHTON	WESTFALL RD.	LACDEVILLE BLVD. E OF	853	1198	11651	0.92		0.71	0.1028
82	9/8/1999	7	BRIGHTON	WESTFALL RD.	WINTON RD. E OF	614	928	10051			0.66	0.0923
82	11/1/1988		BRIGHTON	WESTFALL RD.	WINTON RD. E OF	692	874	7857	0.86		0.79	0.1100
82	4/5/1988	6	BRIGHTON	WESTFALL RD.	WINTON RD. E OF			8889	0.00			0.0000
82	6/1/1985		BRIGHTON	WESTFALL RD.	WINTON RD. E OF	721	1038	11217	0.92		0.69	0.0900
82	6/1/1983		BRIGHTON	WESTFALL RD.	WINTON RD. E OF	576	819	8744	0.95		0.70	0.0900
82	8/1/1980		BRIGHTON	WESTFALL RD.	WINTON RD. E OF	634	915	9324	0.00		0.69	0.1000
84	9/21/2004		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	949	1399	14740	0.95		0.68	0.0949
84	8/22/2000		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	759	1271	12458	0.94		0.60	0.1020
84	7/16/1996		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	765	1141	12193	0.96		0.67	0.0936
84	10/6/1992		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	946	1318	12414	0.93		0.72	0.1061
84	4/7/1988	5	BRIGHTON	WESTFALL RD.	WINTON RD. W OF	626	911	9038	0.89		0.69	0.1000
84	6/1/1985		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	783	1027	9855	0.94		0.76	0.1000
84	6/1/1983		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	532	691	7387	0.94		0.77	0.0900
84	8/1/1980		BRIGHTON	WESTFALL RD.	WINTON RD. W OF	787	1071	10022	0.00		0.73	0.1100
3	9/1/1984		BRIGHTON	WHITE SPRUCE BLVD.	CRITTENDEN RD. S OF	165	261	2983	0.94		0.63	0.0900
	8/1/1985		BRIGHTON	WINTON PLACE	EDGEWOOD AVE. W OF	320	415	3765	0.79		0.77	0.1100
2	8/1/1985		BRIGHTON	WINTON PLACE	WINTON RD. E OF	668	927	9285	0.79		0.72	0.1000
1	4/28/1987		BRIGHTON	WINTON RD.	BRI-HEN T.L. RD N OF	1227	2241	22938	0.91		0.55	0.1000
1	10/1/1982		BRIGHTON	WINTON RD.	BRI-HEN T.L. RD N OF	1047	1824	18989	0.92		0.57	0.1000
3	9/21/2004		BRIGHTON	WINTON RD.	ELMWOOD AVE. S OF	897	1290	13015	0.90		0.69	0.0991
3	8/22/2000		BRIGHTON	WINTON RD.	ELMWOOD AVE. S OF	491	960	11437	0.94		0.51	0.0839
3	8/27/1996		BRIGHTON	WINTON RD.	ELMWOOD AVE. S OF	467	863	10782	0.92		0.54	0.0800
3	10/6/1992		BRIGHTON	WINTON RD.	ELMWOOD AVE. S OF	521	922	10837	0.91		0.57	0.0851
3	10/1/1982		BRIGHTON	WINTON RD.	ELMWOOD AVE. S OF	673	1111	12655	0.95		0.61	0.0900

Comments:
0)1 Way
1)Construction
2)Detour
3)Special Event
4)Wkend/Holiday
5)1 Day Count....
6)ADT use only..
7)No PHF.....
D)NYSDOT Count

Speed In MPH	Freq.	Total	Speed In MPH	Freq.	Total
11			41	II	2
12			42	~~IIII~~ II	7
13			43	IIII	4
14			44	IIII	4
15			45	III	3
16			46	I	1
17			47		
18			48		
19			49		
20			50		
21			51		
22			52		
23			53		
24			54		
25			55		
26			56		
27	I	1	57		
28	I	1	58		
29	II	2	59		
30	II	2	60		
31	IIII	4	61		
32	IIII	4	62		
33	~~IIII~~ I	6	63		
34	~~IIII~~ II	7	64		
35	~~IIII~~ IIII	9	65		
36	~~IIII~~ ~~III~~ II	12	66		
37	~~IIII~~ ~~III~~ IIII	14	67		
38	~~IIII~~ IIII	9	68		
39	~~IIII~~ III	8	69		
40	~~IIII~~ I	6			

TOWN: Brighton

LOCATION: WestFall Rd, 275' W/O Lac De Ville

POSTED SPEED: 35 MPH

OBSERVERS NAME: PBM

DIRECTION OF TRAVEL: EB

DATE: 4/20/07

TIME: FROM: 11:00 AM TO: 12:05 PM

MEDIAN SPEED:

PROPOSED SPEED:

85% speed = 42 MPH

REMARKS: My vehicle positioned ± 275' W/O Lac De Ville. Targeted vehicles to the W/O this position

106 vehicles

DIVISION OF TRAFFIC ENGINEERING

ANALYSIS SECTION

SPEED DATA SHEET

OUTLIERS

SPEED	FREQUENCY	SPEED	FREQUENCY

Speed In MPH	Freq.	Total	Speed In MPH	Freq.	Total
11			41	II	2
12			42	~~IIII~~	5
13			43	II	2
14			44		
15			45	III	3
16			46	I	1
17			47	II	2
18			48	I	1
19			49		
20			50	I	1
21			51		
22			52		
23			53		
24			54		
25			55		
26			56		
27			57		
28	I	1	58		
29	III	3	59		
30	IIII	4	60		
31	~~IIII~~ I	6	61		
32	~~IIII~~	5	62		
33	~~IIII~~ IIII	9	63		
34	~~IIII~~ III	8	64		
35	~~IIII~~ ~~IIII~~ IIII	14	65		
36	~~IIII~~ ~~IIII~~ III	13	66		
37	~~IIII~~ ~~IIII~~ II	12	67		
38	~~IIII~~ IIII	9	68		
39	~~IIII~~ II	7	69		
40	III	3			

TOWN: Brighton

LOCATION: Westfall Rd, 275' W/O Lac De Ville

POSTED SPEED: 35 MPH

OBSERVERS NAME: PBM

DIRECTION OF TRAVEL: WB

DATE: 4/20/07

TIME: FROM: 11:00 AM TO: 11:45 AM

MEDIAN SPEED:

PROPOSED SPEED:

85 % speed = 40 MPH

REMARKS: My vehicle positioned ± 275' W/O Lac De Ville: Targeted vehicles to the west of this position

III vehicles

DIVISION OF TRAFFIC ENGINEERING

ANALYSIS SECTION

SPEED DATA SHEET

OUTLIERS

SPEED	FREQUENCY	SPEED	FREQUENCY

In MPH		Total	In MPH		Total
11			41	~~IIII~~ III	8
12			42	~~IIII~~ IIII	9
13			43	I	1
14			44	~~IIII~~ ~~IIII~~	10
15			45	~~IIII~~	5
16			46	IIII	4
17			47	IIII	4
18			48	III	3
19			49	II	2
20			50		
21			51		
22			52		
23			53		
24			54		
25			55		
26			56		
27			57		
28			58		
29	I	1	59		
30			60		
31	III	3	61		
32	IIII	4	62		
33	~~IIII~~	5	63		
34	~~IIII~~ I	6	64		
35	IIII	4	65		
36	IIII	4	66		
37	~~IIII~~ I	6	67		
38	~~IIII~~ III	8	68		
39	~~IIII~~ III	8	69		
40	~~IIII~~ ~~IIII~~	10			

TOWN: Brighton

LOCATION: Westfall Rd, 410' E/o Sawgrass

POSTED SPEED: 35 MPH

OBSERVERS NAME:

DIRECTION OF TRAVEL: EB

DATE: 4/20/07

TIME: FROM: 9:55 AM TO: 10:45 AM

MEDIAN SPEED:

PROPOSED SPEED:

85th Speed 45 MPH

REMARKS: My vehicle located ± 410' E/o Sawgrass. Targeted vehicles to the east of this position.

106 vehicles

DIVISION OF TRAFFIC ENGINEERING

ANALYSIS SECTION

SPEED DATA SHEET

OUTLIERS

SPEED	FREQUENCY	SPEED	FREQUENCY

Speed In MPH	Freq.	Total	Speed In MPH	Freq.	Total
11			41	卌 II	7
12			42	卌	5
13			43	卌 I	6
14			44	I	1
15			45	卌	4
16			46		
17			47		
18			48	I	1
19			49		
20			50		
21			51		
22			52		
23			53		
24			54		
25			55		
26	I	1	56		
27	I	1	57		
28	I	1	58		
29			59		
30	I	1	60		
31	I	1	61		
32	IIII	4	62		
33	III	3	63		
34	IIII	4	64		
35	卌 II 卌	12	65		
36	卌 I 卌	11	66		
37	卌 II 卌	12	67		
38	卌 卌	10	68		
39	卌 I 卌	11	69		
40	卌 III	8			

TOWN: Brighton

LOCATION: West Fall Rd, 410' E/o Sawgrass

POSTED SPEED: 35 MPH

OBSERVERS NAME: PBM

DIRECTION OF TRAVEL: WB

DATE: 4/20/07

TIME: FROM: 9:55 AM TO: 10:55 AM

MEDIAN SPEED:

PROPOSED SPEED:

85% speed = 42 MPH

REMARKS: My vehicle located ± 410' E/o Sawgrass. Targeted vehicles to the east of this position

DIVISION OF TRAFFIC ENGINEERING

ANALYSIS SECTION

SPEED DATA SHEET

OUTLIERS

SPEED	FREQUENCY	SPEED	FREQUENCY

APPENDIX D

Accident History

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
133	8/10/2004	13:10	2	INJ	1	1	1	2			VEH 1 - WEST, VEH 2 - WEST	2
135	11/4/2004	9:32	2	INJ	1	1	1	2	4		VEH 1 - NORTHWEST, VEH 2 - SOUTH	2
155	7/31/2006	9:35	2	PDO	1	1	1	1			VEH 1 - WEST, VEH 2 - SOUTH	2
147	2/8/2007	11:54	2	PDO	1	1	2	4	26 7	HdOn	VEH 1 - EAST, VEH 2 - WEST	2
100	1/1/2005	17:52	2	PDO	4	1	1	2	7 4	Ltrn	VEH 1 - SOUTHWEST, VEH 2 - EAST	2
104	3/7/2005	12:55	2	INJ	1	1	2	3	7	Ltrn	VEH 1 - SOUTHWEST, VEH 2 - EAST	2
127	5/15/2007	15:37	2	INJ	1	1	1	1	17	Ltrn	VEH 1 - WEST, VEH 2 - EAST	2
136	6/17/2005	9:30	2	PDO	1	1	1	2		Ltrn	VEH 1 - EAST, VEH 2 - SOUTH	2
137	8/20/2005	9:01	2	INJ	4	1	2	3	4	Ltrn	VEH 1 - SOUTH, VEH 2 - NORTH	2
146	9/30/2006	8:54	2	PDO	1	1	1	1	7	Ltrn	VEH 1 - WEST, VEH 2 - SOUTH	2
132	5/18/2004	7:01	3	INJ	1	1	1	1	7	Othr	VEH 1 - EAST, VEH 2 - WEST	2
134	10/26/2004	22:00	3	INJ	4	1	1	1	4	Othr	VEH 1 - NORTH, VEH 2 - NORTH, VEH 3 -UNKNOWN	2
148	3/8/2007	14:46	2	PDO	1	1	1	1		Othr	VEH 1 - WEST, VEH 2 - EAST	2
138	10/27/2005	14:30	2	PDO	0	1	1	1		Ovtk	VEH 1 - SOUTH, VEH 2 - SOUTH	2
141	2/13/2006	14:40	2	PDO	1	1	1	1		Ovtk	VEH 1 - NORTH, VEH 2 - NORTH	2
107	5/18/2005	14:38	1	INJ	1	1	1	1	7 5	Ped	VEH 1 - WEST, VEH 2 - EAST	2
108	6/17/2005	9:23	2	PDO	1	1	1	2	18 7	Rang	VEH 1 - EAST, VEH 2 - SOUTH	2
111	8/11/2005	15:25	2	PDO	1	1	1	1	7	Rang	VEH 1 - WEST, VEH 2 - SOUTH	2
124	2/23/2007	16:56	2	PDO	1	1	4	1	7	Rang	VEH 1 - WEST, VEH 2 - NORTHWEST	2
126	3/27/2007	18:46	2	INJ	1	1	1	1	17	Rang	VEH 1 - NORTH, VEH 2 - WEST	2
143	2/22/2006	12:53	2	INJ	0					Rang	DIRECTION UNKNOWN	2
149	3/20/2007	15:21	2	INJ	1	1	1	1	7	Rang	VEH 1 - SOUTH, VEH 2 - WEST	2

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
101	2/12/2005	16:58	2	INJ	1	1	2	2	7	Rend	VEH 1 - WEST, VEH 2 - WEST	2
102	2/22/2005	16:51	2	PDO	1	1	2	2	4 9	Rend	VEH 1 - WEST, VEH 2 - WEST	2
103	2/25/2005	16:30	2	PDO	1	1	1	1	9	Rend	VEH 1 - WEST, VEH 2 - WEST	2
106	5/9/2005	13:00	2	INJ	1	1	1	1	4	Rend	VEH 1 - EAST, VEH 2 - WEST	2
114	5/30/2006	9:15	2	PDO	1	1	1	1	4	Rend	VEH 1 - WEST, VEH 2 - WEST	2
116	8/8/2006	11:40	2	PDO	1	1	1	1	4	Rend	VEH 1 - NORTH, VEH 2 - SOUTH	2
139	1/25/2006		2	PDO	0	1	4	4		Rend	VEH 1 - EAST, VEH 2 - EAST	2
144	3/2/2006	8:09	2	INJ	1	1			26	Rend	VEH 1 - NORTH, VEH 2 - NORTH	2
145	8/30/2006	15:51	2	INJ	1	1	1	1	4	Rend	VEH 1 - EAST, VEH 2 - EAST	2
140	2/10/2006		2	PDO	1	1	1	2		Rtrn	VEH 1 - SOUTH, VEH 2 - EAST	2
151	5/24/2004	14:51	2	INJ	1	1	1	1	7		VEH 1 - WEST, VEH 2 - WEST	3
153	12/6/2005	17:54	3	INJ	4	3	1	2		Othr	VEH 1 - EAST, VEH 2 - EAST, VEH-3 UNKNOWN	3
150	4/5/2004	11:45	2	PDO		1	1	2		Rend	VEH 1 - WEST, VEH 2 - WEST	3
152	8/17/2004	8:30	2	PDO	1	2	1	1		Rend	VEH 1 - EAST, VEH 2 - EAST	3
120	11/18/2006	16:15	2	PDO	1	1	1	2	4 7	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	4
121	12/15/2006	14:31	3	INJ	1	1	1	1	4	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	4
154	11/2/2005	15:15	2	PDO	1	2	1	1		Rend	VEH 1 - NORTH, VEH 2 - NORTH	4
99	10/21/2004	14:42	2	PDO	1	1	2	3	9	Rend	VEH 1 - WEST, VEH 2 - WEST	5
115	6/28/2006	17:09	2	PDO	1	1	2	2	9	Rend	VEH 1 - WEST, VEH 2 - WEST	5
118	9/21/2006	17:20	2	PDO	1	1	1	1	9 62	Rend	VEH 1 - WEST, VEH 2 - WEST	5
123	12/21/2006	15:40	2	PDO	1	2	1	1	7 4	Ltrn	VEH 1 - NORTHWEST, VEH 2 - WEST	6
113	4/25/2006	13:00	2	INJ	1	1	1	2	4 9	Rend	VEH 1 - EAST, VEH 2 - EAST	6

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
125	3/23/2007	13:45	2	PDO	1	3	1	1	9	Rend	VEH 1 - EAST, VEH 2 - EAST	6
128	8/14/2007	9:08	2	PDO	1	3	1	1	7 69	Ltrn	VEH 1 - SOUTHEAST, VEH 2 - EAST	7
122	12/20/2006	10:22	2	PDO	1	2	1	1	4	Rang	VEH 1 - SOUTHWEST, VEH 2 - WEST	7
117	9/18/2006	12:06	2	INJ	1	1	1	1	9	Rend	VEH 1 - EAST, VEH 2 - EAST	7
105	5/8/2005	14:21	1	PDO	1	2	1	1	5 7	RORd	VEH 1 -SOUTH	7
52	5/23/2006	9:50	2	PDO	1	2	1	1	7 5	Ltrn	VEH 1 - SOUTHWEST, VEH 2 - EAST	8
78	3/16/2007	12:45	2	INJ	1	1	1	2	7	Ovtk	VEH 1 MAKING U-TURN FROM WB TO EB AND STRUCK EB VEH 2	8
75	3/5/2007	14:25	2	PDO	1	1	4	4	9 66	Rend	VEH 1 REAR ENDED VEH 2 WHICH WAS STOPPED IN TRAFFIC	8
34	8/30/2005	1:17	1	PDO	5	1	1	2	61	Anml	VEH 1 STRUCK DEER	9
32	7/5/2005	15:45	2	PDO	1	1	1	2	7	Ltrn	VEH 1 STRUCK VEH 2 WHILE TURNING LEFT ONTO WESTFALL	9
73	2/1/2007	7:50	2	PDO	1	2	1	2	7	Ltrn	VEH 1 - NORTHWEST, VEH 2 - EAST	9
2	2/24/2004	7:30	2	PDO	1	1	1	2	20 9	Ovtk	VEH 1 PULLED INTO LEFT TURN LANE THEN PULLED BACK TO TRAV LANE	9
49	4/21/2006	12:52	2	PDO	1	1	1	1	7	Rang	VEH 1 - SOUTH, VEH 2 - EAST	9
74	2/22/2007	7:56	2	PDO	1	1	1	2	7 69	Rang	VEH 1 - NORTHWEST, VEH 2 - EAST	9
25	1/21/2005	14:47	2	INJ	1	1	5	2	7	Rtrn	VEH 1 TURNED RIGHT ONTO WESTFALL. VEH 2 STRUCK VEH 1.	9
37	10/31/2005	7:50	2	PDO	1	1	1	2	27	Side	EB VEH 1 DRIFTED INTO WB VEH 2 IN LEFT TURN LANE	9
71	1/20/2007	23:12	1	PDO	5	1	2	2	61	Anml	DEER	10
97	1/5/2005	17:45	1	PDO	0					Anml	ANIMAL	10
58	9/22/2006	16:13	2	PDO	1	2	1	2	7	Ltrn	VEH 1 - NORTH, VEH 2 - NORTH	10
19	12/22/2004	16:35	2	INJ	4	2	4	5	7	Rang	VEH 1 TURNING LEFT ONTO ROADWAY. EB VEH 2 STRUCK VEH 1.	10
72	1/30/2007	12:41	2	PDO	1	1	2	1	7)	Rang	VEH 1 - NORTHEAST, VEH 2 - EAST	10
8	5/11/2004	13:58	4	INJ	1	2	1	1	9	Rend	VEH 1 REAR ENDED VEH 2 WHICH CAUSED 2 INTO 3 AND 3 INTO 4	10

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
18	12/20/2004	17:18	2	PDO	5	2	4	2	66	Rend	VEH 1 SLID ON ROADWAY STRIKING VEH 2	10
44	1/13/2006	9:31	3	PDO	1	1	1	2	9	Rend	VEH3 MERGED CAUSING VEH 2 TO SLOW CAUSING VEH 1 TO REAR END 2&3	10
57	8/29/2006	17:14	2	INJ	1	2	1	2	9 60	Rend	VEH 1 - EAST, VEH 2 - EAST	10
59	9/25/2006	10:09	3	INJ	1	2	1	2	4	Rend	VEH 1 - EAST, VEH 2 - EAST, VEH 3 - EAST	10
96	10/26/2004	8:00	2	PDO	0	1	1	1		Rend	VEH 1 - WEST, VEH 2 - WEST	10
98	3/20/2006	12:50	2	PDO	1	2	1	1		Rend	VEH 1 - WEST, VEH 2 - WEST	10
65	11/30/2006	19:34	1	INJ	5	1	2	3	19	RORd	VEH 1 DROVE THRU LARGE ACCUMULATION OF WATER AND LOST CONTROL	10
92	11/14/2005	19:00	1	PDO						Anml	ANIMAL	11
30	6/18/2005	14:03	2	INJ	1	1	1	1	7	Ltrn	VEH 1 ATTEMPTING LEFT TURN.	11
46	2/22/2006	17:10	2	INJ	1	2	1	2	7	Ltrn	VEH 1 - NORTHEAST, VEH 2 - WEST	11
64	11/28/2006	17:58	2	INJ	4	2	1	1	7	Ltrn	VEH 1 -SOUTH, VEH 2 - WEST	11
70	1/19/2007	18:40	2	INJ	4	1	4	4	7	Ltrn	VEH 1 - NORTH, VEH 2 - WEST	11
79	5/14/2007	9:00	2	PDO	1	2	1	2	17	Ltrn	VEH 1 - NORTHWEST, VEH 2 - SOUTH	11
88	4/4/2004		1	PDO	1	5	4	4		Othr	VEH 1 - NORTHEAST	11
69	1/17/2007	16:28	2	PDO	1	1	2	4	13	Ovtk	VEH 1 - NORTH, VEH 2 - NORTH	11
14	11/9/2004	11:47	2	PDO	1	1	1	1		Rang	VEH 1 AND VEH 2 COLLIDED IN INTERSECTION	11
20	12/29/2004	10:58	2	PDO	1	1	2	2	7 17	Rang	VEH 1PROCEEDED THROUGH INTERSECTION ON RED. WORK ZONE.	11
26	1/24/2005	12:15	2	PDO	1	1	4	2	17	Rang	EB VEH 1 STRUCK LEFT TURNING VEH 2	11
61	10/4/2006	18:10	2	PDO	3	3	2	3	19	Rang	VEH 1 - WEST, VEH 2 - NORTH	11
3	2/26/2004	8:34	2	INJ	1	1	1	1	21	Rend	OPERATOR 1 FELL ASLEEP AND STRUCK VEH 2 FROM BEHIND	11
9	5/14/2004	16:34	3	PDO	1	2	1	1	4	Rend	VEH 1 REAR ENDED VEH 2 CAUSING VEH 2 TO HIT VEH 3	11
11	6/28/2004	14:17	2	PDO	1	3	2	3	4	Rend	VEH 1 REAR ENDED VEH 2 AS POLICE CAR WENT THROUGH INTERSECTION	11

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
12	8/30/2004	12:58	2	PDO	1	2	2	3	21 9	Rend	VEH 1 STRUCK VEH 2 WHILE APPROACHING RED LIGHT	11
13	9/27/2004	12:36	2	PDO	1	3	1	1	9	Rend	VEH 1 REAR ENDED VEH 2 WHICH WAS STOPPED	11
16	12/13/2004	18:27	2	PDO	4	3	1	2	4	Rend	VEH 1 REAR ENDED VEH 2	11
22	1/11/2005	6:34	2	INJ	4	1	1	1	9	Rend	VEH 2 REAR ENDED VEH 1 WHILE VEH 1 WAS MAKING RIGHT ON RED	11
29	4/14/2005	16:37	2	INJ	1	1	1	1	9 4	Rend	VEH 1 STRUCK VEH 2 WHICH WAS STOPPED IN TRAFFIC	11
31	6/24/2005	15:48	3	INJ	1	2	1	1	9	Rend	VEH 1 STRUCK VEH 2 FORCING VEH 2 INTO VEH 3	11
39	11/18/2005	8:20	2	PDO	1	1	1	1	4	Rend	veh 1 rear ended veh 2 who was stopped in eastbound traffic	11
40	11/23/2005	13:56	2	INJ	1	1	1	1	9 4	Rend	VEH 1 - NORTH, VEH 2 - NORTH	11
41	11/30/2005	17:51	2	INJ	4	3	1	1	9	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	11
43	12/8/2005	15:26	2	PDO	1	2	1	1	9 4	Rend	VEH 1 - EAST, VEH 2 - EAST	11
48	4/7/2006	11:00	2	PDO	1	1	2	3	4 9	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	11
53	6/7/2006	9:00	4	INJ	1	1	1	1	9 19	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH, VEH 3 - SOUTH, VEH 4 - SOUTH	11
63	11/27/2006	10:26	2	PDO	1	1	1	2	4 9	Rend	VEH 1 -SOUTH, VEH 2 - EAST	11
68	1/17/2007	9:15	2	PDO	1	2	2	2	9	Rend	VEH 1 - WEST, VEH 2 - WEST	11
77	3/16/2007	22:08	2	PDO	4	1	4	4	66	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	11
80	7/19/2007	13:34	2	PDO	1	1	1	2	9 26	Rend	VEH 1 - NORTH, VEH 2 - NORTH	11
89	6/7/2004	3:30	2	INJ	4	2	1	2	2	Rend	VEH 1 - EAST, VEH 2 - EAST	11
90	11/2/2004	15:50	2	PDO						Rend	DIRECTION UNKNOWN	11
91	10/11/2005	13:50	2	PDO						Rend	DIRECTION UNKNOWN	11
93	7/7/2006	12:58	2	INJ	1	3	1	1	9	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	11
94	9/11/2006	10:34	2	PDO	1	1	1	1	9	Rend	VEH 1 - SOUTH, VEH 2 - SOUTH	11
10	5/20/2004	14:14	3	PDO	1	1	1	2	18 4	Rtrn	VEH 1 MAKING RIGHT TURN INTO VEH 2 AND PUSHED VEH 2 INTO VEH 3	11

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
23	1/11/2005	19:59	1	PDO	5	1	1	2	61	Anml	DEER RAN INTO VEH 1	12
24	1/21/2005	7:52	2	PDO	1	1	4	4	7	Ltrn	VEH 2 TURNING LEFT. VEH 1 SLID INTO SNOWBANK THEN HIT BY VEH 2.	12
28	2/10/2005	7:49	2	PDO	1	2	5	4	18	Ltrn	VEH 1 MAKING U-TURN WHEN VEH 2 STRUCK VEH 1	12
82	8/9/2007	8:02	2	PDO	1	2	1	1	7	Ltrn	VEH 1 - SOUTHEAST, VEH 2 - EAST	12
86	8/12/2005	15:17	2	PDO	0	3	1	1		Ltrn	VEH 1 - NORTH, VEH 2 - EAST	12
85	5/3/2004	10:30	1	PDO	4	3	0	4		Othr	VEH 1 - EAST	12
1	2/14/2004	7:45	2	INJ	1	1	1	1	7	Rang	VEH 1 EXITING DRIVE FAILE D TO YIELD RIGHT OF WAY TO VEH 2	12
21	1/10/2005	17:12	2	PDO	5	2	1	2	7	Rang	VEH 1 STRUCK VEH 2 AS VEH 2 TURNED LEFT ONTO WESTFALL	12
35	9/22/2005	10:09	2	PDO	1	2	1	1	7	Rang	VEH 1 - NORTH, VEH 2 -WEST	12
51	5/10/2006	8:48	2	PDO	1	2	1	1	13	Rang	VEH 1 - WEST, VEH 2 - SOUTH	12
4	3/16/2004	13:24	2	PDO	1	2	4	4	9 66	Rend	VEH 2 STOPPED IN TRAFFIC. DRIVER 1 REAR ENDED VEH 2.	12
7	5/3/2004	10:30	2	INJ	1	1	1	1	7	Rend	VEH 1 REAR ENDED VEH 2	12
15	11/17/2004	16:54	2	INJ	5	1	1	2	9	Rend	VEH 1 REAR ENDED VEH 2	12
27	1/31/2005	8:43	3	PDO	1	1	1	1	9	Rend	WB VEH 1 STRUCK VEH 2, PUSHING VEH 2 INTO VEH 3	12
56	8/2/2006	16:57	2	PDO	1	1	1	2	9	Rend	VEH 1 - EAST, VEH 2 - EAST	12
60	10/2/2006	16:36	2	PDO	1	2	1	2	4	Rend	VEH 1 - WEST, VEH 2 - WEST	12
66	12/5/2006	7:37	2	PDO	1	1	2	2	9	Rend	VEH 1 -WEST, VEH 2 - WEST	12
87	1/16/2007	9:30	2	INJ	0			0		Rend	DIRECTION UNKNOWN	12
5	4/5/2004	15:40	2	PDO	1	1	1	1	2 18	Rtrn	DRIVER 1 MADE RIGHT TURN INTO PARKING LOT AND STRUCK VEH 2	12
67	12/7/2006	8:42	2	PDO	1	1	2	4	18	Rtrn	VEH 1 - NORTH, VEH 2 - WEST	12
38	11/10/2005	17:33	2	PDO	4	2	2	5	3	Back	VEH 1 ATTEMPTED K-TURN, STRUCK VEH 2 WHILE BACKING	13
6	4/29/2004	14:50	2	PDO	1	1	1	1	26	Ovtk	VEH 1 HIT VEH 2 AS IT TRIED TO AVOID UNKNWN LEFT TURNING VEH	13

DETAILS OF ACCIDENT HISTORY

PERIOD STUDIED:
FROM: 2/1/2004
TO: 8/31/2007
43 MONTHS

ROUTE NUMBER/STREET NAME: WESTFALL ROAD
LOCATION: ROCHESTER
MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
REFERENCE MARKERS / NODES: 2 - 13

CASE No.
FILE: westfall_data
BY: JMW
DATE: 2/29/2008

No.	DATE	TIME	# VEHICLES	SEVERITY	LIGHT COND	ROAD CHAR	SURFACE	WEATHER	CONTRIB. FACTORS	ACC. TYPE	ACCIDENT DESCRIPTION	KEY #
17	12/20/2004	16:46	2	PDO	3	1	2	1	17	Rang	VEH 1 DISREGARDED TRAFFIC CONTROL, STRIKING VEH 2	13
33	8/17/2005	18:39	2	PDO	1	1	1	1	17 62	Rang	VEH 1 STRUCK VEH 2 IN INTERSECTION	13
45	2/5/2006	15:23	2	INJ	1	1	2	3	17	Rang	VEH 1 - WEST, VEH 2 - NORTH	13
47	3/24/2006	17:17	2	PDO	1	1	1	1	17	Rang	VEH 1 - SOUTHEAST, VEH 2 - WEST	13
83	8/9/2007	15:16	2	PDO	1	1	1	2	17 4	Rang	VEH 1 - EAST, VEH 2 - SOUTH	13
42	12/2/2005	8:29	3	PDO	1	1	2	2	66	Rend	VEH 1 - WEST, VEH 2 - WEST	13
54	6/7/2006	10:44	2	PDO	1	1	1	1	7	Rtrn	VEH 1 - EAST, VEH 2 - NORTHEAST	13
110	7/26/2005	15:48	2	INJ	1	1	1	2	13	Ltrn	VEH 1 - EAST, VEH 2 - WEST	45
119	11/8/2006	9:55	2	PDO	1	1	2	3	66 9	Rend	VEH 1 - WEST, VEH 2 - WEST	45

COLLISION DIAGRAM

Key Number = 2

MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE

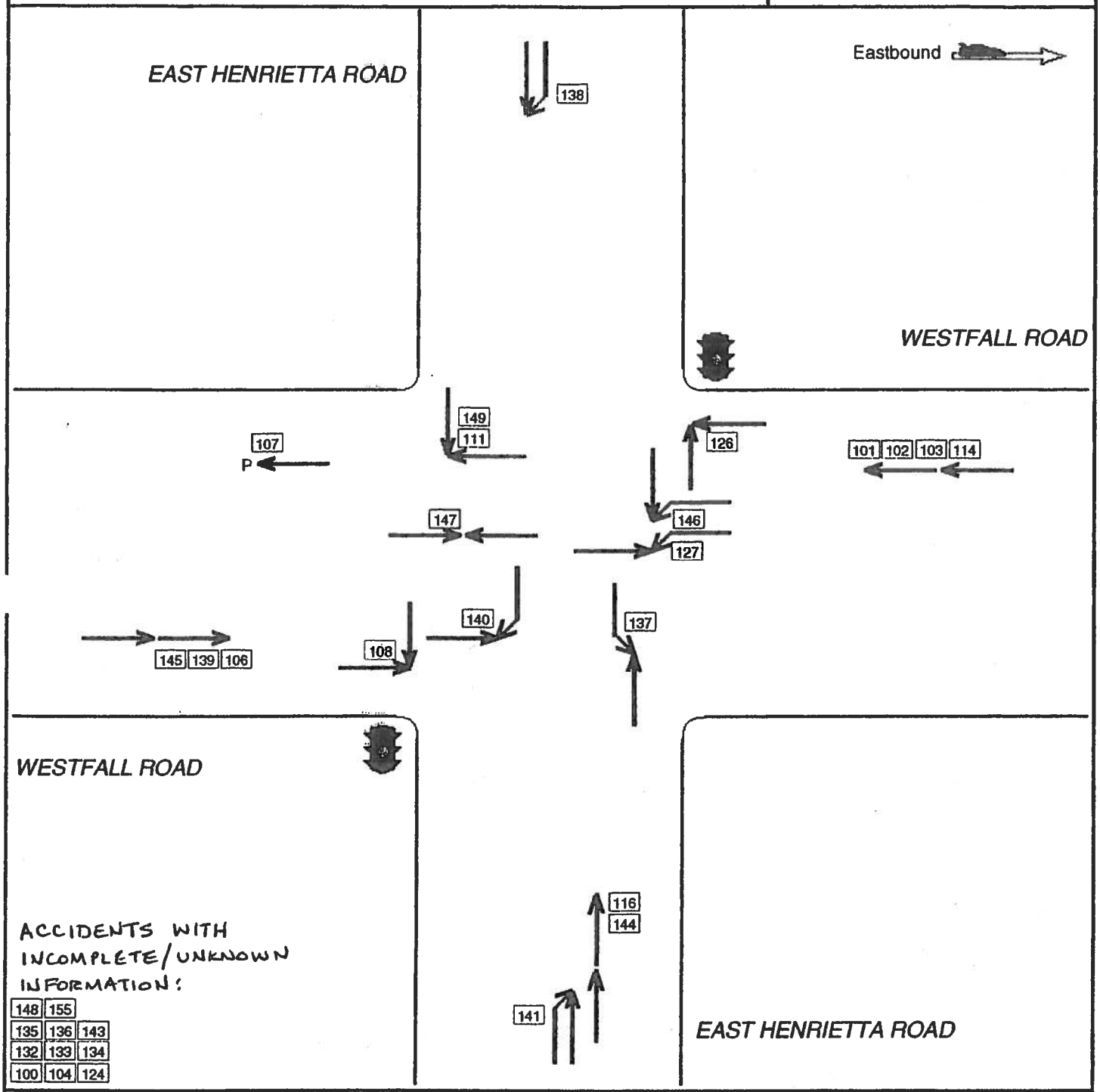
INTERSECTION: EAST HENRIETTA ROAD & WESTFALL ROAD

PERIOD: 3 YEARS 7 MONTHS FROM 2/1/2004 TO 8/31/2007

FILE: westfall_data

CASE # :

BY: JMW DATE: 2/29/2008



SYMBOLS			
MOVING VEHICLE	P	PEDESTRIAN	
TURNING VEHICLE	B	BICYCLIST	
BACKING VEHICLE	A	ANIMAL	
PARKED VEHICLE		FIXED OBJECT	
999 RECORD NUMBER		Injury	

MANNER OF COLLISION	
REAR END	HEAD ON
LEFT TURN	RIGHT TURN
LEFT TURN	RIGHT TURN
OVERTAKE	RIGHT ANGLE
OUT OF CONTROL	SIDE SWIPE

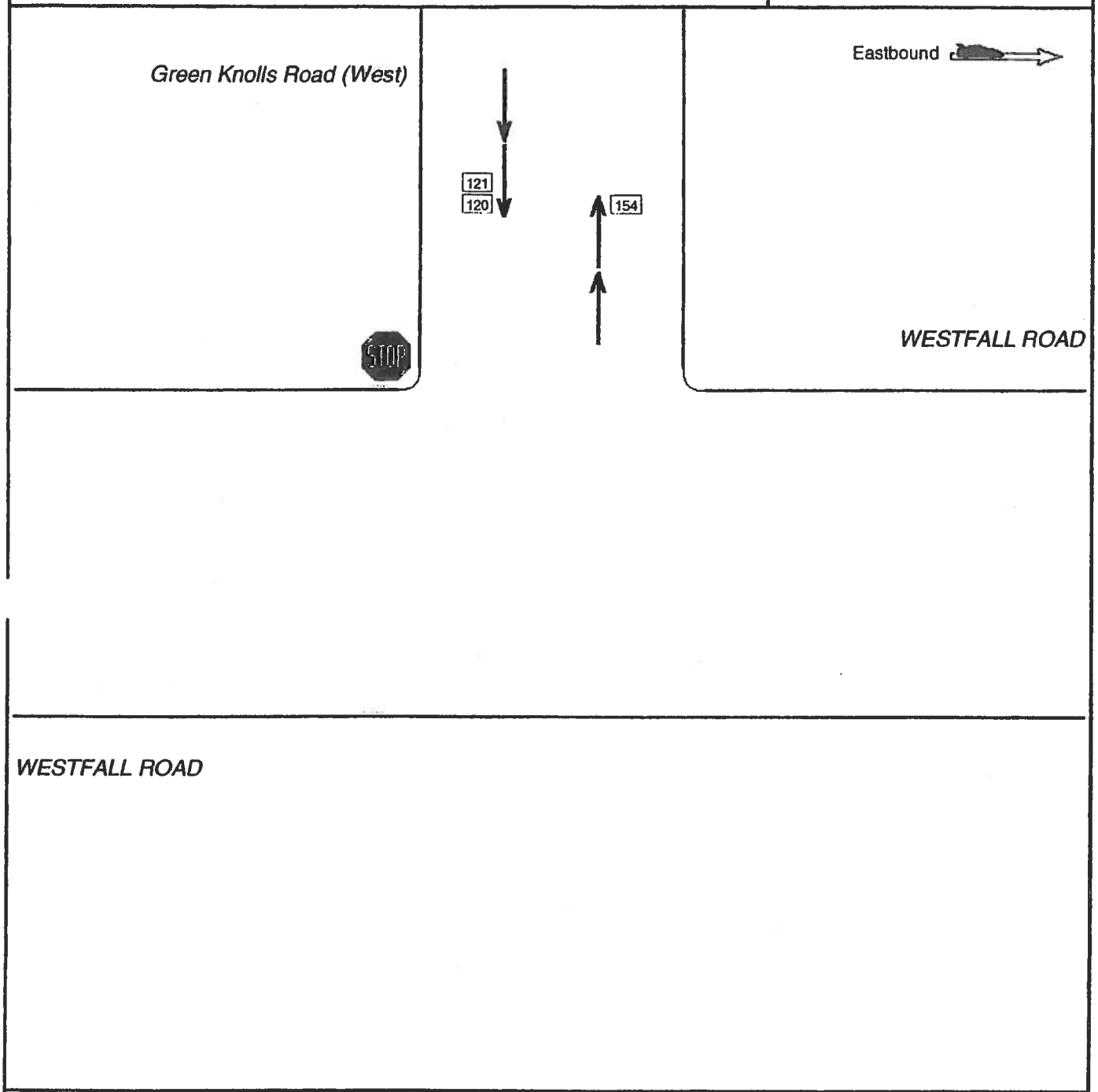
HSA Software 3.0

COLLISION DIAGRAM

Key Number = 4

MUNICIPALITY: *BRIGHTON / ROCHESTER* COUNTY: *MONROE*
INTERSECTION: *WESTFALL ROAD*
PERIOD: *3* YEARS *7* MONTHS FROM *2/1/2004* TO *8/31/2007*

FILE: *westfall_data*
CASE # :
BY: *JMW* DATE: *2/29/2008*



SYMBOLS				MANNER OF COLLISION			
	MOVING VEHICLE	P	PEDESTRIAN		REAR END		HEAD ON
	TURNING VEHICLE	B	BICYCLIST		LEFT TURN		RIGHT TURN
	BACKING VEHICLE	A	ANIMAL		LEFT TURN		RIGHT TURN
	PARKED VEHICLE		FIXED OBJECT		OVERTAKE		RIGHT ANGLE
999	RECORD NUMBER		Injury		OUT OF CONTROL		SIDE SWIPE

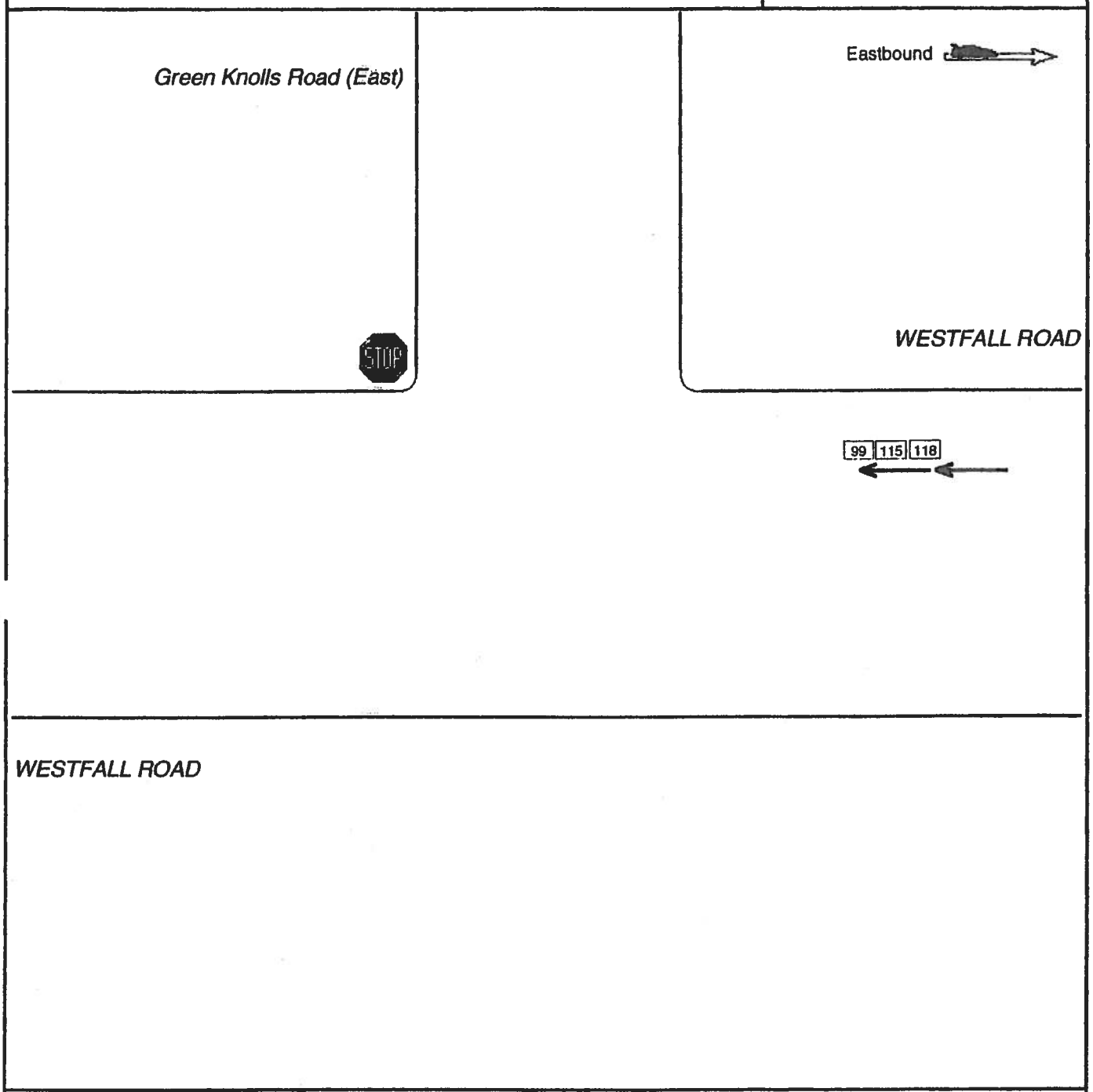
HSA Software 3.0

COLLISION DIAGRAM

Key Number = 5

MUNICIPALITY: *BRIGHTON / ROCHESTER* COUNTY: *MONROE*
INTERSECTION: *WESTFALL ROAD*
PERIOD: *3* YEARS *7* MONTHS FROM *2/1/2004* TO *8/31/2007*

FILE: *westfall_data*
CASE # :
BY: *JMW* DATE: *2/29/2008*



SYMBOLS			
MOVING VEHICLE	P	PEDESTRIAN	
TURNING VEHICLE	B	BICYCLIST	
BACKING VEHICLE	A	ANIMAL	
PARKED VEHICLE		FIXED OBJECT	
999 RECORD NUMBER		Injury	

MANNER OF COLLISION	
REAR END	HEAD ON
LEFT TURN	RIGHT TURN
LEFT TURN	RIGHT TURN
OVERTAKE	RIGHT ANGLE
OUT OF CONTROL	SIDE SWIPE

HSA Software 3.0

COLLISION DIAGRAM

Key Number = 7

MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE

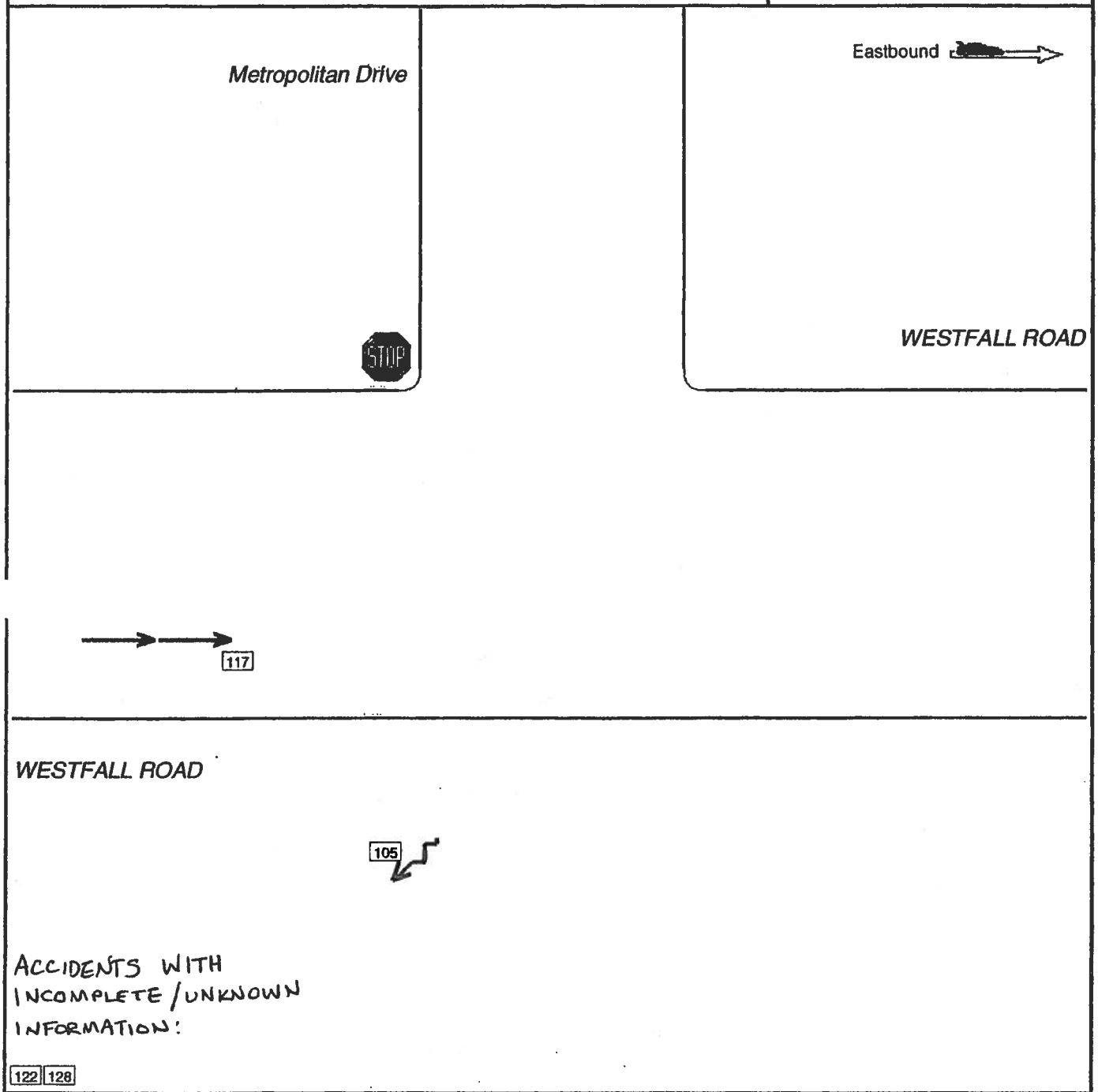
INTERSECTION: WESTFALL ROAD

PERIOD: 3 YEARS 7 MONTHS FROM 2/1/2004 TO 8/31/2007

FILE: westfall_data

CASE # :

BY: JMW DATE: 2/29/2008



SYMBOLS			
MOVING VEHICLE	P	PEDESTRIAN	
TURNING VEHICLE	B	BICYCLIST	
BACKING VEHICLE	A	ANIMAL	
PARKED VEHICLE		FIXED OBJECT	
999 RECORD NUMBER		Injury	

MANNER OF COLLISION	
REAR END	HEAD ON
LEFT TURN	RIGHT TURN
LEFT TURN	RIGHT TURN
OVERTAKE	RIGHT ANGLE
OUT OF CONTROL	SIDE SWIPE

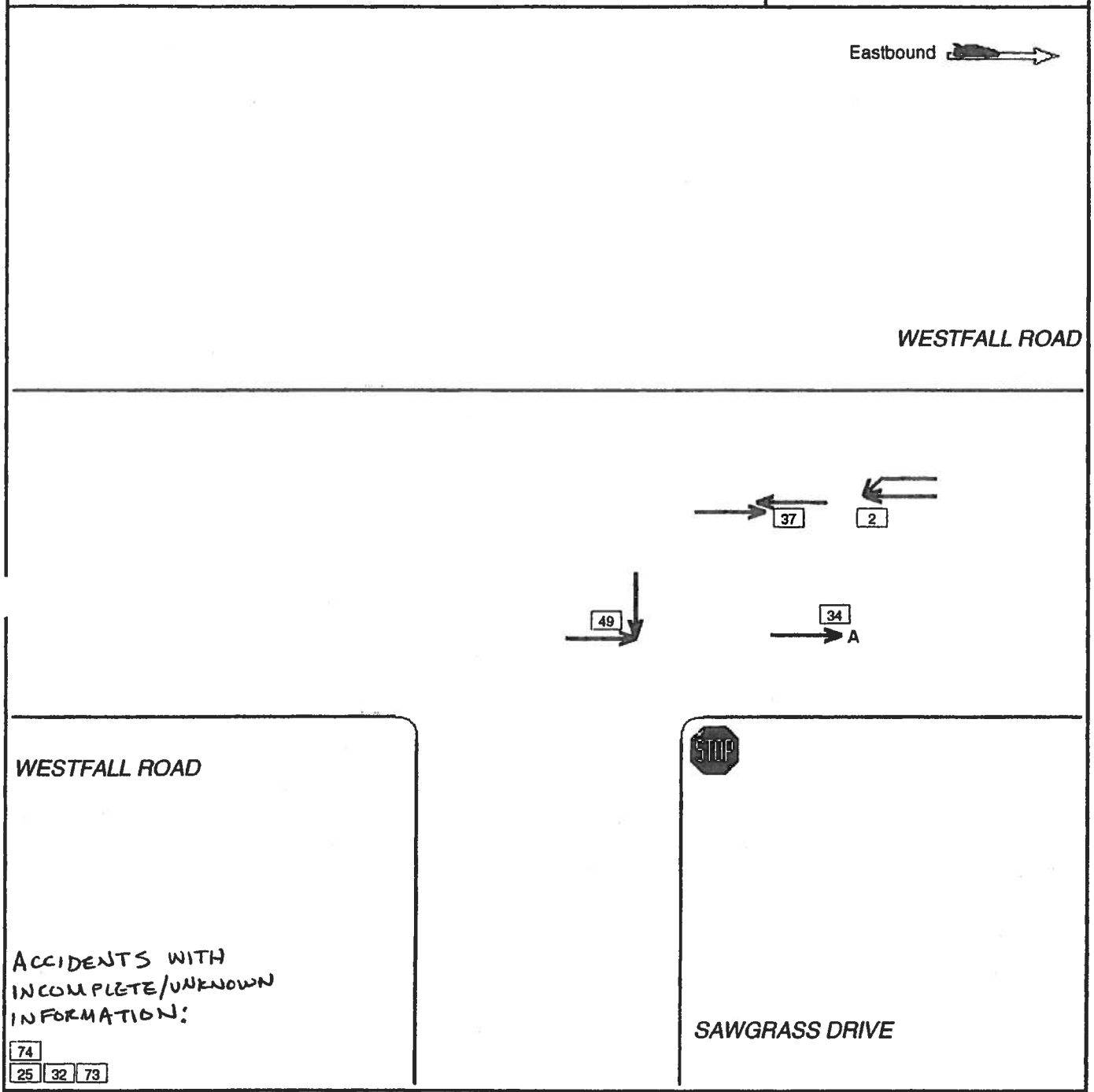
HSA Software 3.0

COLLISION DIAGRAM

Key Number = 9

MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
INTERSECTION: SAWGRASS DR & WESTFALL ROAD
PERIOD: 3 YEARS 7 MONTHS FROM 2/1/2004 TO 8/31/2007

FILE: westfall_data
CASE # :
BY: JMW DATE: 2/29/2008



ACCIDENTS WITH INCOMPLETE/UNKNOWN INFORMATION:

74
25 32 73

SYMBOLS			
MOVING VEHICLE	P	PEDESTRIAN
TURNING VEHICLE	B	BICYCLIST
BACKING VEHICLE	A	ANIMAL
PARKED VEHICLE		FIXED OBJECT
999 RECORD NUMBER		Injury

MANNER OF COLLISION	
REAR END	HEAD ON
LEFT TURN	RIGHT TURN
LEFT TURN	RIGHT TURN
OVERTAKE	RIGHT ANGLE
OUT OF CONTROL	SIDE SWIPE

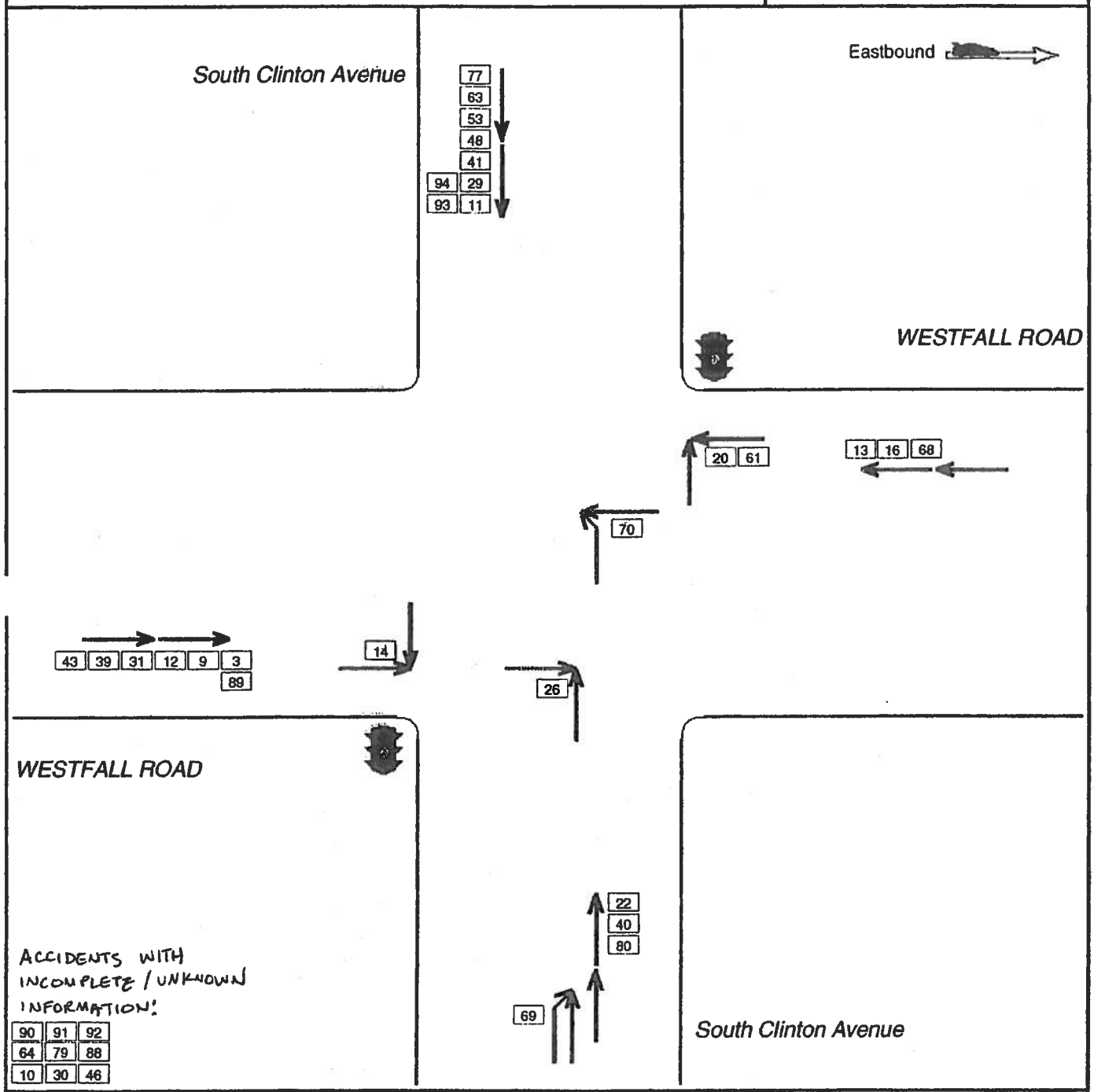
HSA Software 3.0

COLLISION DIAGRAM

Key Number = 11

MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
INTERSECTION: SOUTH CLINTON AVENUE & WESTFALL ROAD
PERIOD: 3 YEARS 7 MONTHS FROM 2/1/2004 TO 8/31/2007

FILE: westfall_data
CASE # :
BY: JMW DATE: 2/29/2008



ACCIDENTS WITH INCOMPLETE / UNKNOWN INFORMATION:

90 91 92
64 79 88
10 30 46

SYMBOLS			
MOVING VEHICLE	P	PEDESTRIAN	
TURNING VEHICLE	B	BICYCLIST	
BACKING VEHICLE	A	ANIMAL	
PARKED VEHICLE		FIXED OBJECT	
999 RECORD NUMBER		Injury	

MANNER OF COLLISION	
REAR END	HEAD ON
LEFT TURN	RIGHT TURN
LEFT TURN	RIGHT TURN
OVERTAKE	RIGHT ANGLE
OUT OF CONTROL	SIDE SWIPE

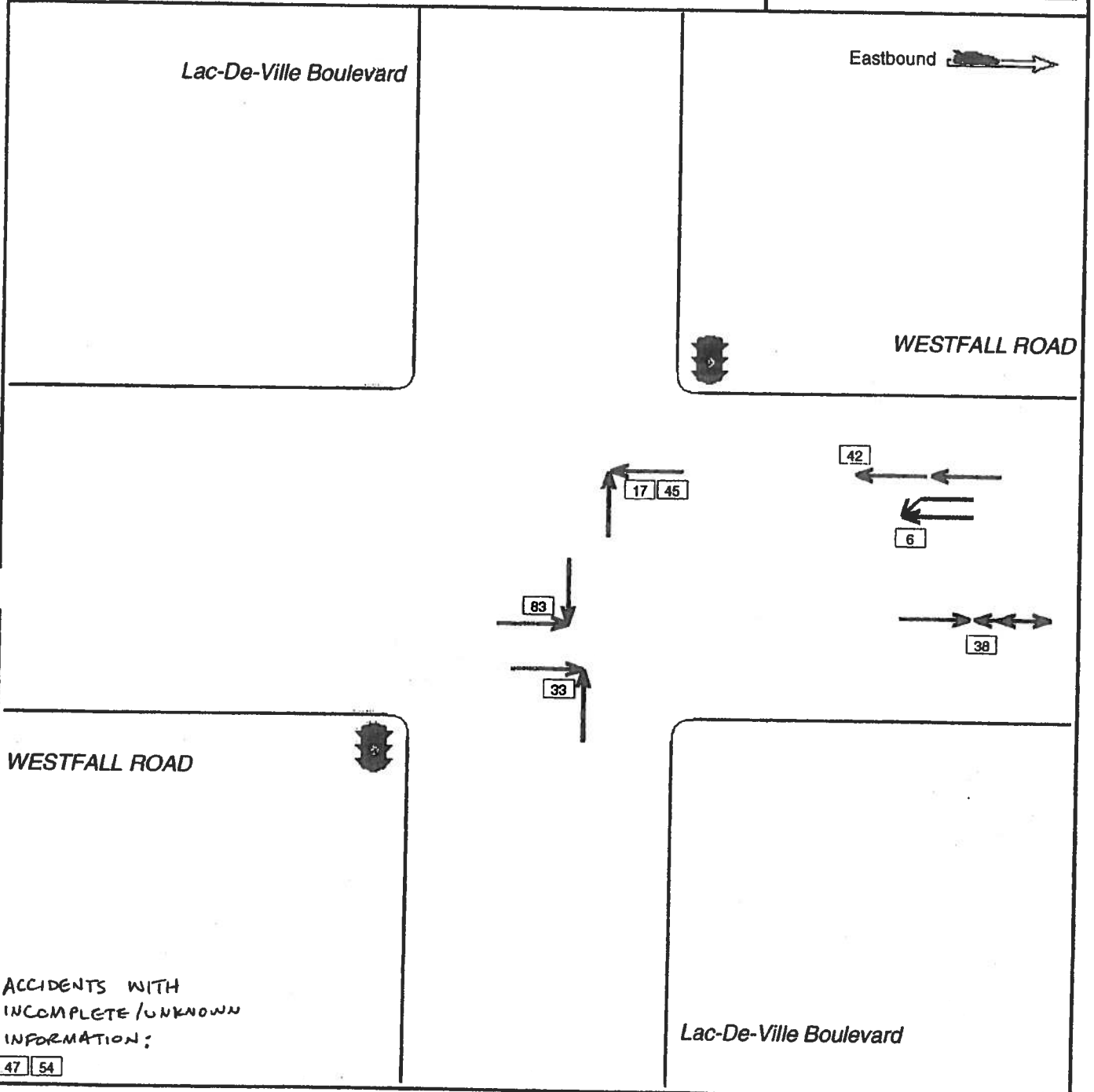
HSA Software 3.0

COLLISION DIAGRAM

Key Number = 13

MUNICIPALITY: BRIGHTON / ROCHESTER COUNTY: MONROE
INTERSECTION: LAC-DE-VILLE & WESTFALL ROAD
PERIOD: 3 YEARS 7 MONTHS FROM 2/1/2004 TO 8/31/2007

FILE: westfall_data
CASE # :
BY: JMW DATE: 2/29/2008



ACCIDENTS WITH INCOMPLETE/UNKNOWN INFORMATION:
47 54

SYMBOLS			
MOVING VEHICLE	P	PEDESTRIAN	
TURNING VEHICLE	B	BICYCLIST	
BACKING VEHICLE	A	ANIMAL	
PARKED VEHICLE		FIXED OBJECT	
999 RECORD NUMBER		Injury	

MANNER OF COLLISION	
REAR END	HEAD ON
LEFT TURN	RIGHT TURN
LEFT TURN	RIGHT TURN
OVERTAKE	RIGHT ANGLE
OUT OF CONTROL	SIDE SWIPE

HSA Software 3.0

APPENDIX E

Subsurface Investigation Report

Contract Drilling and Testing

SJB SERVICES, INC.

☐ **CORPORATE/ BUFFALO OFFICE**
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

☐ **ALBANY OFFICE**
PO Box 2199
Ballston Spa, NY 12020

5 Knabner Road
Mechanicville, NY 12118
Phone: (518) 899-7491
Fax: (518) 899-7496

☐ **CORTLAND OFFICE**
60 Miller Street
Cortland NY 13045
Phone: (607) 758-7182
Fax: (607) 758-7188

■ **ROCHESTER OFFICE**
535 Summit Point Drive
Henrietta, NY 14467
Phone: (585) 359-2730
Fax: (585) 359-9668

SUBSURFACE INVESTIGATION REPORT
PROPOSED ROAD IMPROVEMENTS
WESTFALL ROAD
ROCHESTER, NEW YORK

Prepared For:

Barton & Loguidice, P.C.
One South Washington Street
Suite 520
Rochester, New York 14614

SJB # RD-07-088
November 2007

SUBSURFACE INVESTIGATION REPORT
PROPOSED ROAD IMPROVEMENTS
WESTFALL ROAD
ROCHESTER, NEW YORK

INTRODUCTION

SJB Services, Inc. (SJB) is pleased to present this summary of our subsurface investigation for the Westfall Road Improvement Project in the Rochester, New York. A site location map is included in Appendix A.

The test borings were requested and authorized by Barton & Loguidice, P.C., One South Washington Street, Suite 520, Rochester, NY. A total of eleven (11) test borings were advanced. The test borings were located in the field by a representative of SJB Services, at locations designated by Barton & Loguidice. Refer to the attached drawings included in Appendix A, for the approximate location of each test boring.

INVESTIGATORY METHODS

SJB utilizized a portable coring machine to obtain core samples of the existing pavement at each boring location. Following coring, SJB utilized truck mounted CME 5505 drill rig to complete the test borings. Standard drilling techniques were used to advance the hollow stem augers through the overburden soils until reaching the required depths. As each boring was advanced, soil samples were obtained in the materials below the augers using the Standard Penetration Test (SPT), in general accordance with the procedures set forth in ASTM D1586. All recovered soil samples were visually classified in our office by a Geologist. The test boring logs are included in Appendix B. A Summary of the pavement cores and core photographs are included in Appendix C.

SURFACE/SUBSURFACE CONDITIONS ENCOUNTERED

Asphalt pavement and subbase (either crushed stone material or screened gravel) were encountered

at the ground surface at each boring location. In general, the subsurface conditions encountered at the test borings consisted sand and gravel fill soils underlain by indigenous soils composed predominantly of sands, silts, and silty clay soils. Detailed descriptions of the subsurface conditions encountered at each test borehole location are presented on the individual subsurface logs included in Appendix B. Subsurface conditions between exploration locations will vary. The stratification lines shown on the boring logs in Appendix B are approximate, where as in-situ, the changes between the strata may be more gradual.

No free standing water was observed in the test borings upon completion of drilling. It should be noted that post drilling free water observations may not accurately represent groundwater levels as a result of the short time allowed for stabilization of the water levels. Groundwater levels will be influenced by seasonal and construction related fluctuations.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding this report, please contact our office. All recovered samples will be retained for a maximum of sixty (60) days, at which time they will be destroyed unless otherwise noted.

Respectfully submitted,
SJB Services, Inc.

Chuck Guzzetta
Project Manager
Rochester District Manager

DATE			
START	10/26/2007		
FINISH	10/26/2007		
SHEET	1	OF	1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS
PROJ. NO.: RD-07-088
LOCATION: WESTFALL ROAD
ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	39	65/0.5		REF	ASPHALTIC CONCRETE, SUBBASE STONE Brown f-c SAND and f-c Gravel, numerous crushed stone fragments (moist, FILL)	Driller notes approximately 6" asphalt, 5"-6" stone subbase encountered at ground surface.
	2	28	65/0.4		REF		
5	3	31	75				REF= Sample Spoon Refusal
		50	50		125		
10						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. B-2
START	10/26/2007		SURF. ELEV
FINISH	10/26/2007		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED ROAD IMPROVEMENTS
PROJ. NO.: RD-07-088
LOCATION: WESTFALL ROAD
ROCHESTER, NEW YORK

DEPTH FT.	SMPL. NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	50/0.4			REF	ASPHALTIC CONCRETE, SUBBASE STONE Brown f-c SAND and Gravel, numerous crushed stone fragments (moist, FILL)	Driller notes approximately 6" asphalt, 6" stone subbase encountered at ground surface.
	2	17	16				
5		10	8		26	Brown Fine SAND, tr.- little Silt (moist, firm, SP- SM)	REF= Sample Spoon Refusal
	3	8	10				
		10	15		20	Contains tr. gravel	
10						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE

DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/26/2007		
FINISH	10/26/2007		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-3
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS
PROJ. NO.: RD-07-088
LOCATION: WESTFALL ROAD
ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	14	14			ASPHALTIC CONCRETE, SUBBASE STONE	Driller notes approximately 9" asphalt, 3" stone subbase encountered at ground surface.
		15	59		29	Brown f-c SAND and f-c Gravel, tr. crushed stone (moist, FILL)	
	2	15	7				
5		7	10		14		
	3	13	13				
		13	14		26		
						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE

DRILL RIG TYPE: CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/26/2007	**SJB SERVICES, INC.**	HOLE NO. B-4
FINISH	10/26/2007	**SUBSURFACE LOG**	SURF. ELEV
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS LOCATION: WESTFALL ROAD
PROJ. NO.: RD-07-088 ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						ASPHALTIC CONCRETE, SUBBASE STONE	Driller notes approximately 9" asphalt, 3" stone subbase encountered at ground surface.
	1	30	12				
		12	12		24	Red- Brown Silty CLAY, tr. sand (moist, v. stiff, CL)	
	2	17	16				
5		15	15		31	(hard)	
	3	17	10				
		10	13		20	(stiff)	
						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/26/2007		
FINISH	10/26/2007		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

SJB SERVICES, INC.

HOLE NO. B-5
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS
PROJ. NO.: RD-07-088

LOCATION: WESTFALL ROAD
ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						ASPHALTIC CONCRETE, SUBBASE STONE	
	1	35	30			Brown f-c SAND and f-c Gravel (moist, FILL)	
		25	16		55		
	2	20	35				
5		15	10		50		
	3	20	13				
		10	8		23	Grey- Brown Mottled Silty CLAY, tr. sand (moist, v. stiff, CL)	
						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE

DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/26/2007		
FINISH	10/26/2007		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

SJB SERVICES, INC.

HOLE NO. B-6
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS
PROJ. NO.: RD-07-088

LOCATION: WESTFALL ROAD
ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						ASPHALTIC CONCRETE, SUBBASE	
	1	40	30			Brown f-c SAND and f-c Gravel (moist, FILL)	
		30	6		60		Possible "native" topsoil encountered at ground surface.
	2	6	6			Orgainc Clayey SILT, tr. sand (moist, CL)	
5		6	6		12	Brown Silty CLAY, tr. sand (wet, medium, CL)	
	3	5	5				
		4	4		9	Containts some fine Sand, little f-c Gravel	
						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE

DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START 10/31/2007 FINISH 10/31/2007 SHEET 1 OF 1	**SJB SERVICES, INC.** **SUBSURFACE LOG**	SJB SERVICES, INC.	HOLE NO. B-7 SURF. ELEV G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS LOCATION: WESTFALL ROAD
PROJ. NO.: RD-07-088 ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	20	17			ASPHALTIC CONCRETE, SUBBASE STONE Grey Crushed LIMESTONE fragments and f-c Sand (moist, FILL)	Driller notes approximately 9.5" asphalt and 5" stone subbase encountered at ground surface.
		30	15		47		
	2	27	34				
5		44	29		78		
	3	48	36				
		45	65		81	Brown Fine SAND and Silt (moist, SM)	
10						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. B-8
START	10/31/2007		SURF. ELEV
FINISH	10/31/2007		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED ROAD IMPROVEMENTS LOCATION: WESTFALL ROAD
PROJ. NO.: RD-07-088 ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						ASPHALTIC CONCRETE, SUBBASE STONE	Driller notes approximately 8.75" asphalt, 4" stone, 8" gravel encountered at ground surface.
	1	20	15			Brown f-c SAND and f-c Gravel (moist, FILL)	
		12	10		27	Organic Clayey SILT, tr. sand (moist, FILL)	
	2	75	36			Brown f-c SAND and f-c Gravel (moist, FILL)	
5		40	30		76		
	3	15	18			Brown SILT, tr. sand, tr. gravel (moist, compact, ML)	
		17	26		35		
10						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/31/2007	**SJB SERVICES, INC.**	HOLE NO. B-9
FINISH	10/31/2007	**SUBSURFACE LOG**	SURF. ELEV
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS LOCATION: WESTFALL ROAD
PROJ. NO.: RD-07-088 ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						ASPHALTIC CONCRETE, SUBBASE STONE	Driller notes approximately 9" asphalt, 3"- 4" stone encountered at ground surface.
	1	22	15			Brown Clayey SILT, tr. sand, tr. organics	
		10	8		25	(moist, FILL)	
	2	65	17				
5		21	35		38	Brown Fine SAND, little f-c Gravel, tr. silt	
	3	38	65			(moist, compact, SP)	
		38	40		103	(v. compact)	
						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/31/2007	**SJB SERVICES, INC.**	HOLE NO. B-10
FINISH	10/31/2007	**SUBSURFACE LOG**	SURF. ELEV
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS LOCATION: WESTFALL ROAD
PROJ. NO.: RD-07-088 ROCHESTER, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	20	15			ASPHALTIC CONCRETE, SUBBASE STONE	Driller notes approximately 9.5" asphalt, 4"- 5" stone encountered at ground surface.
		13	12		28	Grey Crushed LIMESTONE fragments and f-c Sand (moist, FILL)	
	2	7	5			Black- Brown Organic Clayey SILT, tr. sand (moist, OL)	
5		4	4		9		
	3	10	5			Brown Silty CLAY, some fine Sand (moist, medium, CL)	
		3	5		8		
10						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
15							Driller notes 2" void observed beneath asphalt pavement.
20							Possible "native" topsoil horizon encountered in Sample #2.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	10/31/2007	**SJB SERVICES, INC.**	HOLE NO. B-11
FINISH	10/31/2007	**SUBSURFACE LOG**	SURF. ELEV
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED ROAD IMPROVEMENTS LOCATION: WESTFALL ROAD
PROJ. NO.: RD-07-088 ROCHESTER, NEW YORK

DEPTH FT.	SMPL. NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						ASPHALTIC CONCRETE, SUBBASE STONE	Driller notes approximately 9.25" asphalt, 4" stone encountered at ground surface.
	1	22	12			Brown f-c SAND, little Silt, little f-c Gravel, tr. clay	
		11	7		23	(moist, FILL)	
	2	10	10			Black- Brown Organic Clayey SILT, tr. sand	
5		10	8		20	(moist, OL)	
	3	9	6			Brown Silty CLAY, little fine Sand fragments	
		8	10		14	(moist, stiff, CL)	
						Boring Complete at 7.0'	No Free Standing Water Encountered at Boring Completion
10							
15							Possible "native" topsoil horizon encountered in Sample #3.
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: R. BLAKEMORE DRILL RIG TYPE : CME- 550

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

SUMMARY OF ASPHALT PAVEMENT CORES
Westfall Road
Rochester, NY

Boring #	Total Length	Description of Core/Sample
B-1	5"	3.25" Top, 1.75" Binder Crushed Stone Subbase
B-2	3.25"	1.5" Top, 1.75" Binder-severely degraded Crushed Stone Subbase
B-3	8.5"	1" Top, 1" Top, 1" Top, 2.25" Binder, 3.25" Base
B-4	6"	3.25" Top, 2.75" Binder 3" Base (possible macadam and stone)
B-5	14.5"	1.5" Top, 4.25" Binder, 3" Top, 3.25" Binder, 2.5" Base
B-6	9"	1.75" Top, 4" Binder, 3.25" Binder Crushed Stone Subbase
B-7	9.5"	1.75" Top, 7.25" Binder Crushed Stone Subbase
B-8	8.75"	2.25" Top, 6.5" Binder Crushed Stone Subbase
B-9	8.75"	1.75" Top, 7.0" Binder
B-10	9.5"	1.75" Top, 5" Binder, 2.75" Binder
B-11	9.75"	1.75" Top, 4" Binder, 4" Binder

B – 1
11/09/2007

B – 2
11/09/2007

B - 3
11/09/2007

B - 4
11/09/2007

B – 5
11/09/2007

B – 6
11/09/2007

B – 7
11/09/2007

B – 8
11/09/2007

B – 9
11/09/2007

B – 10
11/09/2007

B - 11
11/09/2007

APPENDIX F

Pavement Evaluation Report

PAVEMENT EVALUATION CALCULATIONS

Pavement Evaluation

Background

The project involves pavement and shoulder improvements to Westfall Road between the intersections of East Henrietta Road in the city of Rochester and Lac-de-Ville Boulevard in the town of Brighton. The improvements may also include widening, drainage improvements, and possible profile changes.

Westfall Road between East Henrietta Road and Metropolitan Drive has two 13.5 ft lanes with no shoulders. From Metropolitan Drive to Sawgrass Drive, travel lanes narrow to 11 ft, and 1.5 ft shoulders develop on both sides. At the Sawgrass intersection Westfall Road Transitions from a two lane road to a three lane road with the center lane being a turn only lane. From Sawgrass Drive to Lac-de-Ville Boulevard, travel lanes widen to 14 ft, there is an 11 ft center lane, and there are no shoulders.

Field Observations

Site visits were conducted in August, September, and October of 2007. Data regarding existing features, roadway profile, drainage features, traffic volumes, and the condition of the roadway were collected during these site visits. A Pavement Distress Data Survey was completed and 11 pavement cores and test borings were drilled in October of 2007.

Pavement Distress Summary:

The most severe and widespread pavement distress occurs between the intersections of East Henrietta Road and Metropolitan Drive. The majority of the deterioration in this segment consists of high severity wheelpath cracking and potholes. The wheelpath cracking may be caused by unstable base material, inadequate drainage, insufficient pavement thickness, or degradation of the asphalt. Cracking and distress around utility patches and overlays also contributes to the severe distress of the segment. There is low severity wheelpath rutting in the eastbound travel lane.

Deterioration in the segment between Metropolitan Drive and Sawgrass Drive consists of high severity edge cracking, shoulder deterioration, and joint distress where the pavement was widened. There are also localized asphalt patches in poor condition around the joint distress areas.

The predominant pavement distress characteristic in the segments from Sawgrass Drive to Lac-De-Ville Boulevard is the presence of two medium to high severity longitudinal cracks, one located in each travel lane, approximately 11 ft from the curbs. These longitudinal cracks indicate that the center lane has a different pavement and/or subbase section than the travel lanes. There is low severity wheelpath and transverse cracking in these segments as well.

The segment between South Clinton Avenue and Lac-De-Ville Boulevard has some medium severity longitudinal centerline cracking in addition to the two longitudinal cracks in the travel lanes. There are also eight utility patches that are in good condition.

Pavement Core / Soil Boring Summary:

SJB Services, Inc. completed 11 pavement cores in October, 2007. Five cores were done in the eastbound lane, five in the westbound, and one in the center lane to determine the thickness and condition of the flexible pavement, base, and subbase material. The cores revealed pavement thicknesses ranging from 3.25" to 14.5". Average pavement thicknesses east and west of Metropolitan Drive were 9.4" and 4.1", respectively. The largest core (14.5" of pavement) was taken from the center lane approximately 925 ft east of Sawgrass Drive. Stone sub-base thickness ranged from 3" to 6". Subgrade borings were advanced with a hollow stem auger to a depth of 7 ft below top of pavement. The borings revealed a subsurface composition of mostly sands, silts, and silty-clays underneath sand/gravel fills. There was no accumulation of free-standing water in the test borings after drilling. There was sample spoon refusal at two boring locations east of Metropolitan Drive due to crushed stone fragments.

Pavement Treatment Alternative

1. **Full Depth Reconstruction (East Henrietta Road to Sta. 47+75 (Cold Milling and Resurfacing)**

   Based on the results of the pavement cores performed along Westfall Road, it is recommended that the pavement treatment consist of full depth reconstruction between East Henrietta Road and 500 ft east of Sawgrass Drive (STA 11+62 to STA 47+75), and milling/overlaying from 500 ft east of Sawgrass Drive to Lac-De-Ville Boulevard (STA 47+75 to STA 75+70).

   Using the NYSDOT Comprehensive Pavement Design Manual, dated June 2000 and elements of the NYS Thickness Design Manual for New and Reconstructed Pavements, Revision 1 (10/31/94), the minimum pavement section consist of 6 ½ inches of asphalt concrete over 12 inches of sub-base material. Based on this evaluation, it is recommended that Monroe County's standard pavement section be used for this project. The asphalt pavement courses would consist of:

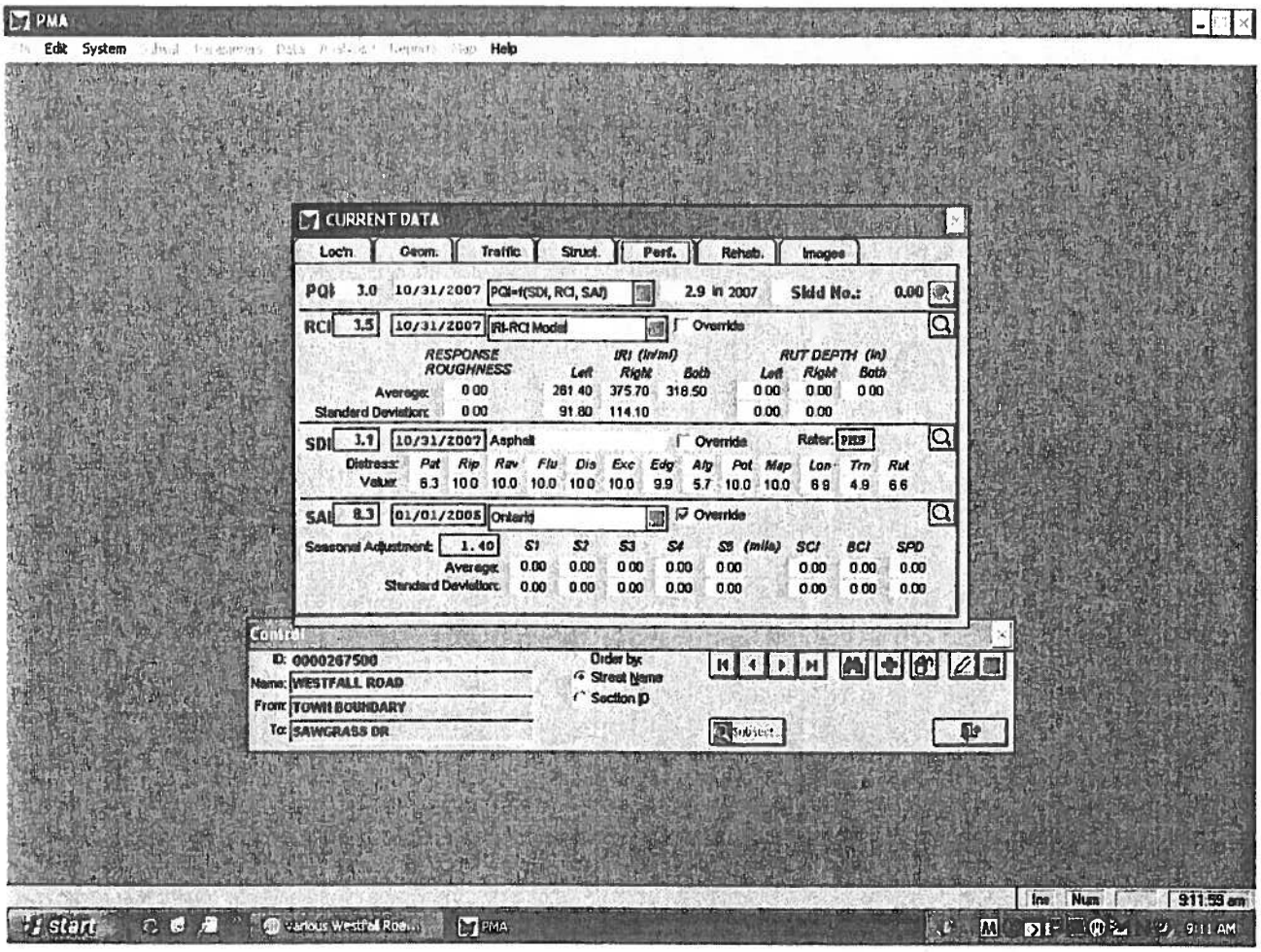
   - 6 inches of asphalt base course placed in 2-3 inch lifts
   - 2 inches of binder
   - 1½ inches of top

   The combined pavement thickness would be 9 ½ inches. Geotextile fabric would be placed beneath the sub-base course in new pavement and pavement reconstruction areas to prevent the mixing of fines and provide additional support for the new pavement in these areas.

In addition to the main travel lanes needing full depth reconstruction any proposed turning lanes or new roadway construction is recommended to have a full depth pavement section.

2. Cold Milling with One-Course Overlay

As indicated on the contract plans the shaded pavement areas would be cold milled and resurfaced with a 1 course asphalt overlay. These areas will be milled due to the adequate existing sub-base course and existing depths of asphalt pavement.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RCI 3.5 10/31/2007 IRI-RCI Model Override
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Average: 0.00 281.40 375.70 318.50 0.00 0.00 0.00
Standard Deviation: 0.00 91.80 114.10 0.00 0.00
SDI 3.1 10/31/2007 Asphalt Override Rater: PBS
Distress: Pat Rip Rav Flu Dis Exc Edg Alg Pot Map Lon Trn Rut
Value: 6.3 10.0 10.0 10.0 10.0 10.0 9.9 5.7 10.0 10.0 6.9 4.9 6.6
SAI 8.3 01/01/2005 Ontario Override
Seasonal Adjustment: 1.40 S1 S2 S3 S4 S5 (mils) SCI BCI SPD
Average: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Standard Deviation: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
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To: SAWGRASS DR
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Street Name
Section ID
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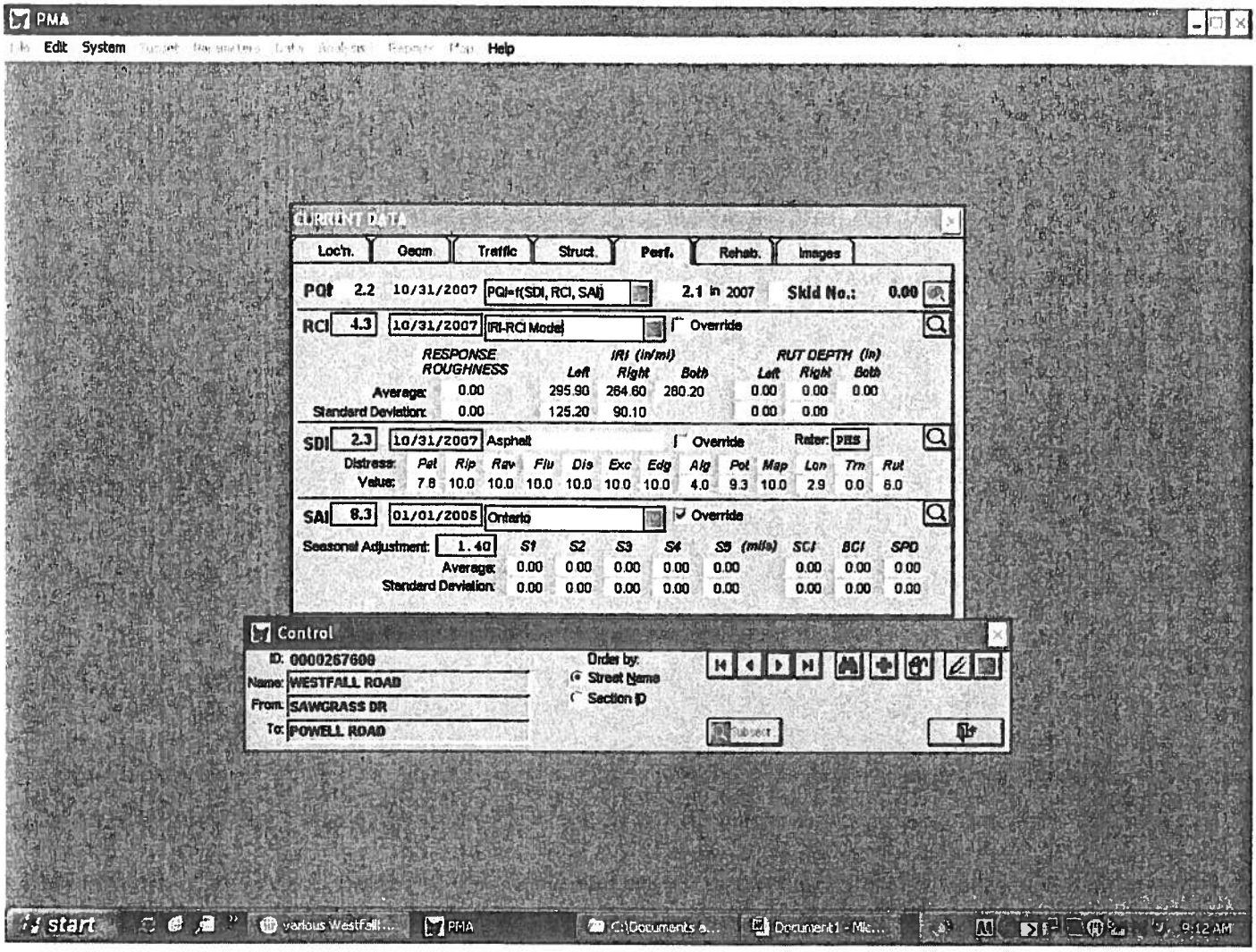
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RESPONSE ROUGHNESS IRI (in/mi) Left Right Both RUT DEPTH (in) Left Right Both
Average: 0.00 295.90 264.60 280.20 0.00 0.00 0.00
Standard Deviation: 0.00 125.20 90.10 0.00 0.00
SDI 2.3 10/31/2007 Asphalt Override Rater: PES
Distress: Pat Rip Rav Flu Dis Exc Edg Alg Pot Map Lon Trn Rut
Value: 7.8 10.0 10.0 10.0 10.0 10.0 10.0 4.0 9.3 10.0 2.9 0.0 6.0
SAI 8.3 01/01/2008 Ontario Override
Seasonal Adjustment: 1.40 S1 S2 S3 S4 S5 (mils) SCI BCI SPD
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Standard Deviation: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
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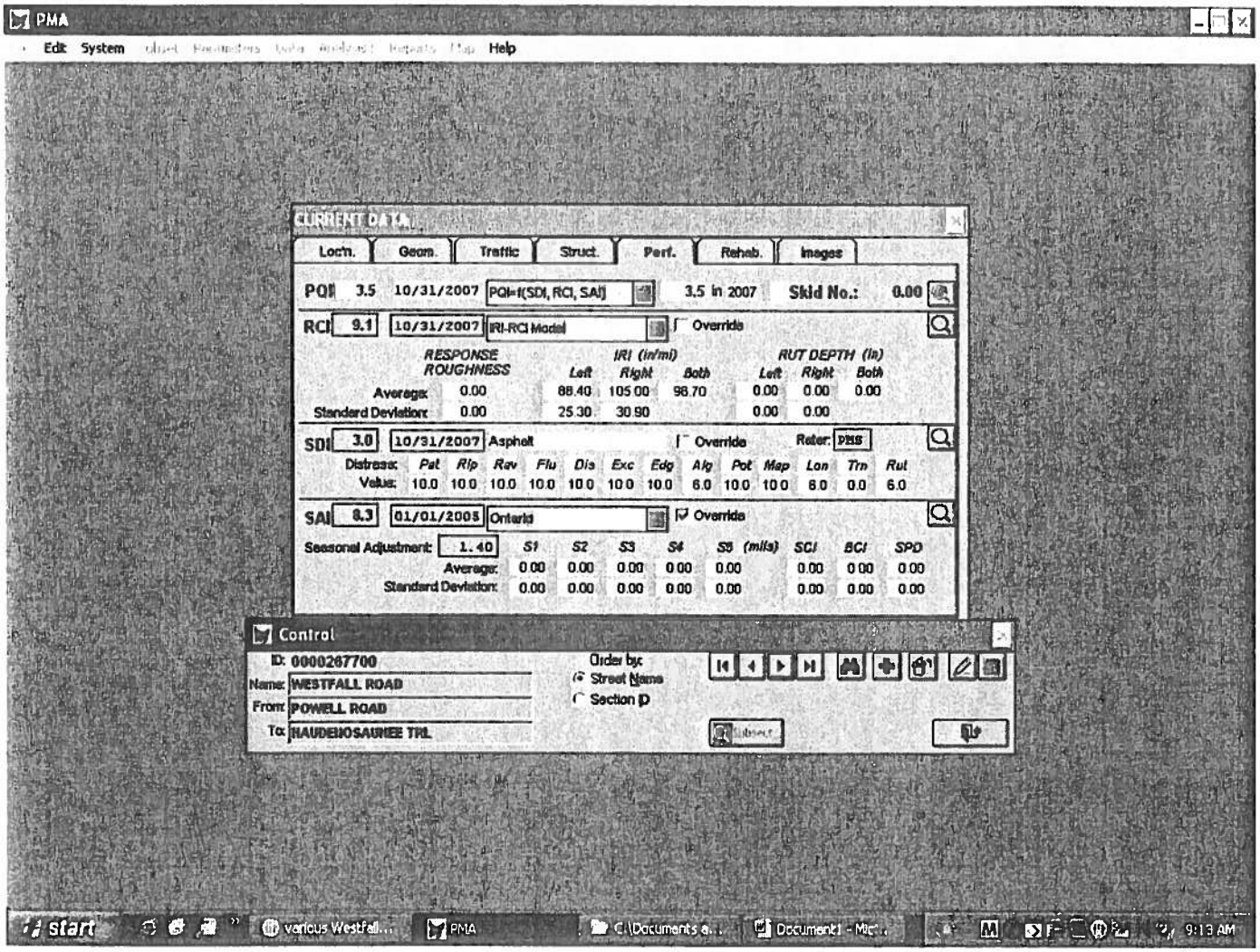
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RCI 9.1 10/31/2007 IRI-RCI Model Override
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Standard Deviation: 0.00 25.30 30.90 0.00 0.00
SDI 3.0 10/31/2007 Asphalt Override Rater: PMS
Distress: Pat Rip Rav Flu Dis Exc Edg Alg Pot Map Lon Trn Rut
Value: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 6.0 10.0 10.0 6.0 0.0 6.0
SAI 8.3 01/01/2005 Ontario Override
Seasonal Adjustment: 1.40 S1 S2 S3 S4 S5 (mils) SCI BCI SPD
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Section ID
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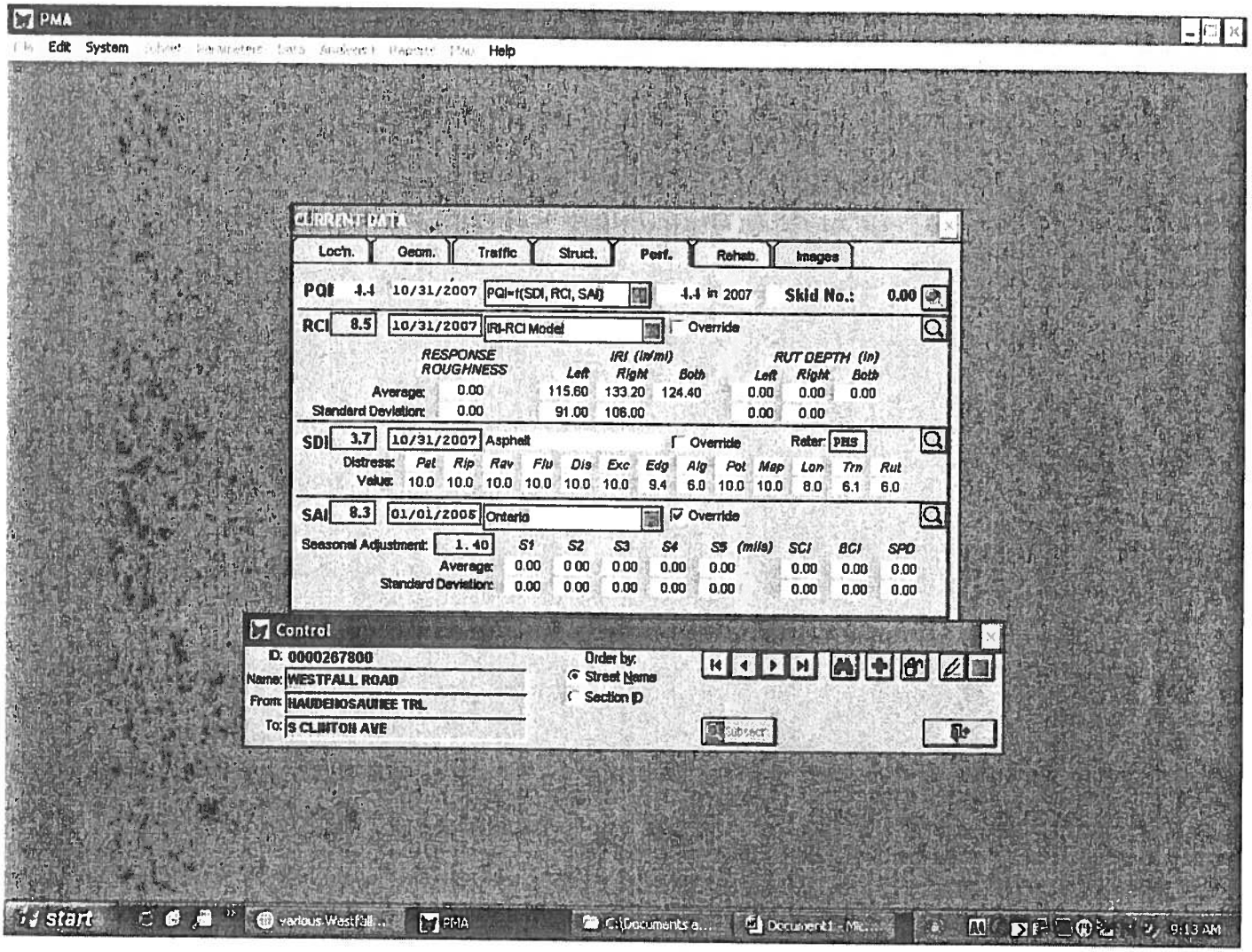
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RCI 8.5 10/31/2007 IRI-RCI Model Override
RESPONSE ROUGHNESS IRI (in/mi) Left Right Both RUT DEPTH (in) Left Right Both
Average: 0.00 115.60 133.20 124.40 0.00 0.00 0.00
Standard Deviation: 0.00 91.00 106.00 0.00 0.00
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Distress: Pat Rip Rav Flu Dis Exc Edg Alg Pot Map Lon Trn Rut
Value: 10.0 10.0 10.0 10.0 10.0 10.0 9.4 6.0 10.0 10.0 8.0 6.1 6.0
SAI 8.3 01/01/2005 Ontario Override
Seasonal Adjustment: 1.40 S1 S2 S3 S4 S5 (mils) SCI BCI SPD
Average: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Standard Deviation: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
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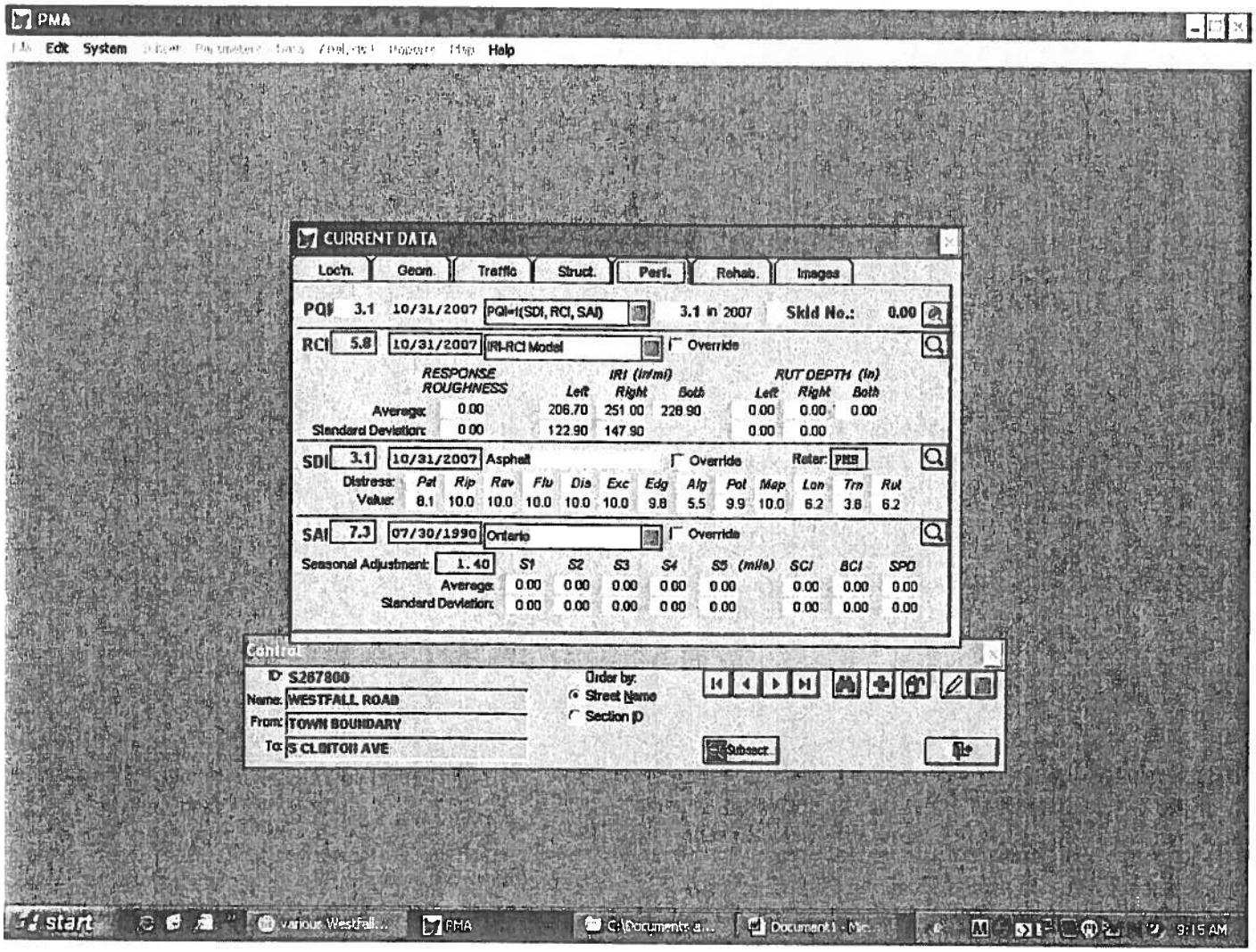

The last screen shot is a summary score for the entire section.

BR-48(6/90)

NYSDoT MATERIALS BUREAU

DISTRESS DATA FORM

Region 4 County MONROE Route No. WESTFALL Pin _____ PAVEMENT FLEXIBLE ☑ FLEXIBLE/RIGID ☐

Number of Lanes 2/3 Survey Pertinent to ____ Lane(s) _____ Direction _____

Date Insp. 10/26/07 Inspectors JMW Sheet 1 of 1

DISTRESS	SEVERITY		SECTION (1)	(2)	(3)	(4)	(5)	EXTENT TOTAL SUM	%	REMARKS
		Beginning	6 MEN	[illegible]	[illegible]	[illegible]	[illegible]			
		Ending	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
CORRUGATIONS (%)	N	None	10	10	10	10	10			
	P	Present								
SETTLEMENTS & HEAVES (#)	N	None	✓		✓	✓	✓			
	P	Present		1						
ASPHALT CONC. OVERLAY OR SPRAY PATCH (#)	N	None			✓	✓				
	G	Good					8			
	F	Fair		1						
	P	Poor	1							
WHEELPATH CRACKING (%)	N	None				6	8			
	L	Single Crack	1		5	4				
	M	Multiple Cracks	5		5		2			
	H	Mult. Cracks w/Potholes	4	10						
FULL WIDTH TRANSVERSE CRACKING (#)	N	None								
	L	Single Crack	6	1	1	3	1			
	M	Multiple Cracks		6						
	H	Mult. Cracks w/Potholes								
LONGITUDINAL CRACKING (%)	N	None	10	10	1					
	L	Single Crack								
	M	Multiple Cracks			8	5	7			
	H	Mult. Cracks w/Potholes				5	3			
EDGE CRACKING (%)	N	None		10		10	10			
	L	Single Crack	5							
	M	Multiple Cracks								
	H	Mult. Cracks w/Potholes			3					
CRACKING OTHER (%)	N	None		10	10	10	10			
	L	Single Crack								
	M	Multiple Cracks								
	H	Mult. Cracks w/Potholes	5							
SLIPPAGE CRACKS ☑	N	None	✓	✓	✓	✓	✓			
	P	Present								
RAVELLING (%)	N	None	10	10	10	10	10			
	P	Present								
WHEELPATH RUTTING (MEASURE) ☑	N	None			✓					
	L	< 3/8"				✓				
	M	3/8"–3/4"	✓				✓			
	H	>3/4"		✓						
WIDENING DROPOFF (MEASURE) ☑	N	None	✓	✓			✓			
	L	<3/8"			✓	✓				
	M	3/8"–3/4"								
	H	>3/4"								

SHOULDER SURVEY PERTINENT TO: BOTH ☒ RIGHT ☐ LEFT ☐

SHOULDER DETERIORATION ☑	N	None	✓	✓		✓	✓			
	L	Single Crack								
	M	Multiple Cracks								
	H	Mult. Cracks w/Potholes			✓					
LANE/SHOULDER SEPARATION (MEASURE) ☑	N	None	✓	✓		✓	✓			
	L	<1/4"/Sealed			✓					
	M	1/4"–1"								
	H	>1"								
LANE/SHOULDER DROPOFF (MEASURE) ☑	N	None	✓	✓	✓	✓	✓			
	L	< 1"								
	M	1"–2"								
	H	>2"								
SHOULDER DEFORMATION ☑	N	None	✓	✓	✓	✓	✓			
	P	Present								

Figure 3

APPENDIX G

Phase I Cultural Resource Reconnaissance Survey

Phase I Cultural Resource Reconnaissance Survey
is separately bound

APPENDIX H

NEPA Assessment Checklist

PIN: 4753.77 Project Name: Westfall Road Phase III Date: 01/20/09

NEPA ASSESSMENT CHECKLIST

Answer the following questions by checking YES or NO.

I. THRESHOLD QUESTION

	YES	NO
1. Does the project involve unusual circumstances as described in 23 CFR §771.117(b)?	____	X

- If YES, the project does not qualify as a Categorical Exclusion and an EA or EIS is required. You may STOP COMPLETING THE CHECKLIST.
- If NO, go on.

II. AUTOMATIC CATEGORICAL EXCLUSION

	YES	NO
2. Is the project an action listed as an Automatic Categorical Exclusion in 23 CFR §771.117(c) (C List) and/or is the project an element-specific project classified by FHWA as a Categorical Exclusion on July 22, 1996?	____	X

- If YES to question 2, the project qualifies for a C List Categorical Exclusion. You may STOP COMPLETING THE CHECKLIST. The checklist should be included in the appendix of the Final Design Report (or Scope Summary Memorandum/Final Design Report). The CATEGORICAL EXCLUSION DETERMINATION memo is to be sent to the appropriate Main Office Design liaison unit with a copy of the Final Design Report (or Scope Summary Memorandum/Final Design Report). A copy of the CATEGORICAL EXCLUSION DETERMINATION memo must also be sent to the Office of Budget and Finance, Project and Letting Management, and others (see sample DETERMINATION memo attached).

  (Note - Even if YES to question 2, there may be specific environmental issues that still require an action such as an EO 11990 Wetland Finding or a determination of effect on cultural resources. The project is still an Automatic Categorical Exclusion but the necessary action must be taken, such as obtaining FHWA's signature on the wetland finding. Refer to the appropriate section of the Environmental Procedures Manual for guidance.)

- If NO to question 2, go on.

III. PROGRAMMATIC CATEGORICAL EXCLUSION

	YES	NO
3. Is the project on new location or does it involve a change in the functional classification or added mainline capacity (add through-traffic lanes)?	____	X
4. Is this a Type I project under 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction"?	____	X

		YES	NO
5.	If the project is located within the limits of a designated sole source aquifer area or the associated stream flow source area, is the drainage pattern altered?	___	X
6.	Does the project involve changes in travel patterns?	___	X
7.	Does the project involve the acquisition of more than minor amounts of temporary or permanent right-of-way (a minor amount of right-of-way is defined as not more than 10 percent of a parcel for parcels under 4 ha (10 acres) in size, 0.4 ha (1 acre) of a parcel 4 ha to 40.5 ha (10 to 100 acres) in size and 1 percent of a parcel for parcels greater than 40.5 ha (100 acres) in size?)	___	X
8.	Does the project require a Section 4(f) evaluation and determination in accordance with the FHWA guidance?	___	X
9.	Does the project involve commercial or residential displacement?	___	X
10.	If Section 106 applies, does FHWA's determination indicate an opinion of adverse effect?	___	X
11.	Does the project involve any work in wetlands requiring a Nationwide Wetland Permit #23?	___	X
12.	Does the project involve any work in wetlands requiring an individual Executive Order 11990 Wetland Finding?	___	X
13.	Has it been determined that the project will significantly encroach upon a flood plain based on preliminary hydraulic analysis and consideration of EO 11988 criteria as appropriate?	___	X
14.	Does the project involve construction in, across or adjacent to a river designated as a component proposed for or included in the National System of Wild and Scenic Rivers?	___	X
15.	Does the project involve any change in access control?	___	X
16.	Does the project involve any known hazardous materials sites or previous land uses with potential for hazardous material remains within the right-of-way?	___	X
17.	Does the project occur in an area where there are Federally listed endangered or threatened species or critical habitat?	___	X

	YES	NO
18. Is the project, pursuant to EPM Chapter 1A and Table 2 and Table 3 of 40 CFR Parts 51 and 93, non-exempt or does it exceed any ambient air quality standard?	___	X
19. Does the project lack consistency with the New York State Coastal Zone Management Plan and policies of the Department of State, Office of Coastal Zone Management?	___	X
20. Does the project impact or acquire any Prime or Unique Farmland as defined in 7 CFR Part 657 of the Federal Farmland Protection Policy Act and are there outstanding compliance activities necessary? (Note: Interpret compliance activity to mean completion of Form AD 1006.)	___	X

- If NO for questions, 3-20, go on to answer question 21.
- If YES to any question 3-20, project will not qualify as a Programmatic Categorical Exclusion. Answer questions 21 and 22 for documentation only and go on to question 23.

	YES	NO
21. Does the project involve the use of a temporary road, detour or ramp closure?	X	___

- If NO to questions 3-20 and NO to question 21, the project qualifies as a Programmatic Categorical Exclusion. You may STOP COMPLETING THE CHECKLIST. The checklist should be included in the appendix of the Final Design Report (or Scope Summary Memorandum/Final Design Report). The CATEGORICAL EXCLUSION DETERMINATION memo is to be sent to the appropriate Main Office Design liaison unit with a copy of the Final Design Report (or Scope Summary Memorandum/Final Design Report). A copy of the Categorical Exclusion memo must also be sent to the Office of Budget and Finance, Project and Letting Management, and others (see sample DETERMINATION memo attached).
- If YES to question 21, preparer should complete question 22 (i-v). If questions 3-20 are NO and 21 is YES, the project will still qualify as a Programmatic Categorical Exclusion if questions 22 (i-v) are YES.

22. Since the project involves the use of temporary road, detour or ramp closure, will all of the following conditions be met:

	YES	NO
i. Provisions will be made for pedestrian access, where warranted, and access by local traffic and so posted.	X	
ii. Through-traffic dependent business will not be adversely affected.	X	
iii. The detour or ramp closure, to the extent possible, will not interfere with any local special event or festival.	X	
iv. The temporary road, detour or ramp closure does not substantially change the environmental consequences of the action.	X	
v. There is no substantial controversy associated with the temporary road, detour or ramp closure.	X	

- If questions 3-20 are NO, 21 is YES and 22 (i-v) are YES, the project qualifies for a Programmatic Categorical Exclusion. You may STOP COMPLETING THE CHECKLIST. The checklist should be included in the appendix of the Final Design Report (or Scope Summary Memorandum/Final Design Report). The CATEGORICAL EXCLUSION DETERMINATION memo should be sent to the appropriate Main Office Design liaison unit with a copy of the Final Design Report (or Scope Summary Memorandum/Final Design Report.) A copy of the CATEGORICAL EXCLUSION DETERMINATION memo must also be sent to the Office of Budget and Finance, Project and Letting Management, and others (see sample DETERMINATION memo attached).

- If questions 3-20 are NO, 21 is YES and any part of 22 is NO, go on to question 23.

	YES	NO
23.Is the project section listed in 23 CFR §771.117(d) (D List) or is the project an action similar to those listed in 23 CFR §771.117(d)?		

For those questions which precluded a Programmatic Categorical Exclusion, documentation should be provided for any YES response to questions 3-20 or for a NO response to any part of questions 22 (i-v). This documentation, as well as the checklist, should be included in the Design Approval Document, i.e., Final Design Report, etc., to be submitted to the Main Office/FHWA Design liaison unit for submission to the FHWA Division for classification of the project as a D List Categorical Exclusion.

APPENDIX I

Hazardous/Contaminated Materials Site Screening

Hazardous Waste/Contaminated Materials Screening Report is separately bound

APPENDIX J

Photo Simulation

PROPOSED IMPROVEMENTS AT STATION 21+00 - LOOKING EAST

EXISTING CONDITIONS

PROPOSED IMPROVEMENTS AT STATION 35+50 - LOOKING EAST

EXISTING CONDITIONS

MONROE COUNTY, NEW YORK
DEPARTMENT OF TRANSPORTATION

WESTFALL ROAD IMPROVEMENTS

PIN: 4753.77

Barton & Loguidice, P.C.
Engineers • Environmental Scientists • Planners • Landscape Architects

APPENDIX K

Air Quality Report

Air Quality Report
is separately bound