

UPMC SHADYSIDE 2011 MASTER PLAN
REVISED TRAFFIC, PARKING, AND PEDESTRIAN STUDY

FINAL REPORT
TECHNICAL APPENDIX



Transportation Solutions for Today and Tomorrow

Prepared for:
HARLEY ELLIS DEVEREAUX
Southfield, Michigan

Prepared by:
TRANS ASSOCIATES ENGINEERING CONSULTANTS, INC.
Pittsburgh, Pennsylvania

January 12, 2012

APPENDIX

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APPENDIX A

Approved City of Pittsburgh Form B



March 30, 2011

Ms. Susan Tymoczko
Zoning Administrator
City of Pittsburgh
Department of City Planning
John P. Robins Civic Building
200 Ross Street, 3rd Floor
Pittsburgh, Pennsylvania 15219

Subject: UPMC Shadyside Master Plan
Revised Scoping Form B
City of Pittsburgh, Allegheny County, Pennsylvania

Dear Ms. Tymoczko:

Trans Associates (TA) is pleased to provide the enclosed revised Scoping Form B for the UPMC Shadyside institutional master plan. This Form B as revised describes the proposed scope of work for the project, based on TA's extensive experience in the City of Pittsburgh and comments received from you and City staff during our February 9, 2011 scoping meeting. The study will address the traffic, parking, biking, loading and pedestrian aspects of the institutional master plan as described in the Form B.

This Form B presents our revised proposed scope of study. At this time, we request that you review this Form B and provide us with your approval letter at your earliest possible convenience. Thank you in advance for your assistance in this matter.

If you have any questions or need further information, please call me.

Yours truly,

A handwritten signature in black ink, appearing to read "Cynthia A. Jampole". The signature is fluid and cursive, written over a white background.

Cynthia A. Jampole, P.E.
Principal

CAJ:pah

Enclosure

cc: A. Purcell – City of Pittsburgh Department of Public Works
P. Roberts – City of Pittsburgh Department of City Planning
K. Ruhberg – Harley Ellis Devereaux
D. Jaeger – Harley Ellis Devereaux
D. Charley - UPMC
D. Schlauch – UPMC
M. Southern - TA
File –harle00-10244/Revised Form B Transmittal Letter to DCP

TRAFFIC, PARKING AND PEDESTRIAN IMPACT STUDY
 FORM B SCOPE OF WORK
 LAND DEVELOPMENT AND PARKING PLANS
 DEPARTMENT OF CITY PLANNING
 CITY OF PITTSBURGH

ALL ENTRIES MUST BE APPROVED BY THE TRANSPORTATION PLANNING DEPARTMENT OF CITY PLANNING, CITY OF PITTSBURGH.

1.0 NAME OF PROJECT

1.1	Developer/Agent	HARLEY ELLIS DEVEREAUX FOR UPMC
1.2	Development/Facility	UPMC SHADYSIDE MASTER PLAN 2010
1.3	Anticipated Development Date	
1.4	Date	7-30-10 UPDATED 3-09-11 *
1.5	Prepared by	TRANS ASSOCIATES - CYNTHIA A. JAMPOLE P.E.

2.0 PROJECT LOCATION (Please check)

* TO INCLUDE ADDITIONAL REQUIREMENTS OF THE CITY

Geographic location (Please check)		Name of Neighborhood/Comment
2.1	North	
2.2	East	SHADYSIDE
2.3	South	
2.4	West	
2.5	East Liberty	
2.6	North Shore	
2.7	Oakland	
2.8	South Side	
2.9	Strip District	
2.1	Central Business District	
2.11	Attach City Neighborhood Map	http://www.city.pittsburgh.pa.us/cp/html/neighborhood_map_list.htm

3.0 PROJECT COMPONENTS

TO BE DETERMINED FOR MASTER PLAN ANALYSIS

		EXISTING ON-SITE CONDITIONS						FUTURE ON-SITE CONDITIONS			
3.1	LAND USE TYPE	Size (Sq. Ft.)		# Units, Beds, Seats		# Parking Spaces		New Project Components			
		To Remain	To Remove	To Remain	To Remove	To Remain	To Remove	New Project Size (Sq. Ft.)	# Units, Beds, Seats, etc.	# New Parking Spaces	Comment
3.1.1	Residential - Single Unit										
3.1.2	Residential - Multi-Unit										
3.1.3	Group Res.										
3.1.4	Elderly										

		EXISTING ON-SITE CONDITIONS						FUTURE ON-SITE CONDITIONS			
3.2	LAND USE TYPE	Size (Sq. Ft.)		# Units, Beds, Seats		# Parking Spaces		New Project Components			
		To Remain	To Remove	To Remain	To Remove	To Remain	To Remove	New Project Size (Sq. Ft.)	# Units, Beds, Seats, etc.	# New Parking Spaces	Comment
3.2.1	Bank										
3.2.2	Child Care										
3.2.3	Club										
3.2.4	College										
3.2.5	Comm. Center										
3.2.6	Educ. Institution										
3.2.7	Grocery Store										
3.2.8	Hospital										

Comment:

LAND USE TYPE	EXISTING ON-SITE CONDITIONS						FUTURE ON-SITE CONDITIONS			
	Size (Sq. Ft.)		# Units, Beds, Sechs		# Parking Spaces		New Project Components			
	To Remain	To Remove	To Remain	To Remove	To Remain	To Remove	New Project Size (Sq. Ft.)	# Units, Beds, Sechs, etc.	# New Parking Spaces	Comment
3.2.9 Institutional	MEDICAL CENTER									
3.2.10 Medical Office										
3.2.11 Gen. Office										
3.2.12 Retail Sales										
3.2.13 Restaurant										
3.2.14 School										
3.2.15 Service Station										
3.2.16 University										
3.2.17 Warehouse										
3.2.18 Parking Facility	FACILITIES OF UPMC SHADYSIDE INCLUDING OFF-SITE SHUTTLE LOTS									
3.2.19 Other (specify)										

4.0 DESCRIBE STUDY AREA CONDITIONS (Attach DCP map showing study area boundary and site plan)

- 4.1 Area of Influence AS SHOWN IN FIGURE 1 BOUNDED BY ~~CROSS STREET CYPRESS STREET~~, BAUM BOULEVARD, AIKEN AVENUE, CENTRE AVENUE AND ~~MOREWOOD AVENUE~~ MILLVALE AVENUE AND LIBERTY AVENUE
- 4.2 Area of Significant Traffic and Parking Impact ENVIRONS OF UPMC SHADYSIDE CAMPUS - SHADYSIDE
- 4.3 Zoning Code Designation of Site (Attach map) EMI - SEE FIGURE 2
 Comment: _____
- 4.4 Zoning Code Designation of Adjacent Sites (Attach map) SEE FIGURE 2
 Comment: UNC, LNC, RM-H, R2-L, RID-L

5.0 TRAFFIC ANALYSIS

- 5.1 Existing Conditions SEE FIGURE 1

Study Intersections (Attach map showing project site and nearby critical intersections)	Unsignalized	Signalized
5.1.1 BAUM/MOREWOOD		X
5.1.2 BAUM/CYPRESS		X
5.1.3 BAUM/LIBERTY		X
5.1.4 BAUM/AIKEN		X
5.1.5 CENTRE/MOREWOOD		X
5.1.6 CENTRE/CYPRESS/ABZ DWY		X
5.1.7 CENTRE/AIKEN/LIBERTY		X
5.1.8 AIKEN/ELLSWORTH		X
5.1.9 BAUM/MILLVALE		X
5.1.10 MILLVALE/MOREWOOD TRD		
5.1.11 MILLVALE/CYPRESS TRD		
5.1.12 MILLVALE/LIBERTY		X
5.1.13 AIKEN/CLAYBURNE	X	
5.1.14		
5.1.15		
Comment:		

6.2 Project Entry/Exit Points (Attach map)

		Unsignalized	Signalized
5.2.1	DWYS OF UPMC SHADYSIDE PARKING FACILITIES ON BAUM, CENTRE, AIKEN AND POSSIBLY GROSS AND CYPRESS STS		
5.2.2			
5.2.3			
5.2.4			
Comment:	SHADYSIDE PLACE, EAST WING, VISITOR GARAGE, ARE TO BE ESPECIALLY CONSIDERED IN THE CONTEXT OF AIKEN AVENUE TRAFFIC		

6.0 REQUIRED DATA COLLECTION (Show count locations on map) **NOTE: NEW DATA REQUIRED ONLY AT LOCATIONS WITH *, AS THE CITY WILL ACCEPT PREVIOUS 2008 DATA**

6.1 Study Intersections (Attach map)	Traffic / Heavy Vehicle	Turning Movement	Pedestrians
6.1.1 BAUM / MOREWOOD	✓	✓	✓
6.1.2 BAUM / CYPRESS	✓	✓	✓
6.1.3 BAUM / LIBERTY	✓	✓	✓
6.1.4 BAUM / AIKEN	✓	✓	✓
6.1.5 CENTRE / MOREWOOD	✓	✓	✓
6.1.6 CENTRE / CYPRESS / PDB 2 DWY	✓	✓	✓
6.1.7 CENTRE / AIKEN / LIBERTY	✓	✓	✓
* 6.1.8 AIKEN / ELLSWORTH	✓	✓	✓
* 6.1.9 MILLVALE / MOREWOOD	✓	✓	✓
6.1.10 CLAYBOURNE / AIKEN	✓	✓	✓
6.1.11 LIBERTY / MILLVALE	✓	✓	✓
6.1.12 CYPRESS / MILLVALE	✓	✓	✓
6.1.13 GROSS / CYPRESS	✓	✓	✓
6.1.14 BAUM / MILLVALE	✓	✓	✓
* 6.1.15 DRIVEWAYS AT SHADYSIDE PLACE, ED, VISITOR GARAGE, AIKEN BUILDING, EAST WING DWY (5 LOCATIONS)		✓	

6.2 Study Periods (Please check)

		Comment
6.2.1	AM Peak	✓ 7-9 AM
6.2.2	Mid Day Peak	
6.2.3	PM Peak	✓ 4-6 PM
6.2.4	Evening	
6.2.5	Hospital Peak	✓ 2-4 PM
6.2.6	Weekday Event Peak	
6.2.7	School Peak	
6.2.8	Saturday Peak	
6.2.9	Other Event Peak (specify)	

6.3 Automatic Traffic Recorder (ATR) Counts (Please check and attach map)

Yes No

Comment: 

6.4 Video Data Collection

Type _____ Yes No

Comment: _____

6.0 REQUIRED DATA COLLECTION CONT'D (Show count locations on map)

6.5 Duration / Location

6.5.1	48-hr	Street Name	Between	And	
6.5.2	7-day	Street Name	Between	And	
6.5.3	Other	Street Name	Between	And	

6.6 Type ATR Count (Please check)

		Comment
6.6.1	Volume Counts	
6.6.2	15-Minute Increments	
6.6.3	1-Hour Increments	
6.6.4	Include Speed Data	
6.6.5	Include Vehicle Classification Data	

Comment: _____

6.7 Project Entry/Exit Points (Attach map)

Yes

No

6.7.1	POB 2
6.7.2	HILLMAN GARAGE DWY
6.7.3	AIKEN AVE DWYSTD EMPLOYER GARAGE, VIS GARAGE,
6.7.4	SHADYSIDE PLACE GARAGE, ED
6.7.5	

6.8 Sight Distance Measurements (Show locations on map)

Yes

No

Project Entry/Exit Points

6.8.1	ARE ANY PROPOSED NEW ACCESS POINTS
6.8.2	
6.8.3	
6.8.4	
6.8.5	

Comment: _____

6.9 Bicycle

Yes

No

6.9.1 Bicycle Counts

Yes

No

Comment: _____

6.9.2 Bicycle Rack Counts/Locations

Yes

No

Comment: _____

INCLUDE DETAILS OF AVAILABILITY OF BIKE LOCKERS, RACKS, SHOWERS, ACCESS POINTS TO THESE, TO WHOM THEY ARE AVAILABLE. SHOW THESE ON A MAP OF THE CAMPUS.

6.9.3 Bikeways/Paths

Yes

No

Comment: _____

6.10 Other

6.10.1 _____

Yes

No

6.10.2 _____

Yes

No

7.0 PROJECT PHASING

Phase	Year of Completion	Development Components	SF/Phase
1			
2			
3			
4			
10-Year Master Plan	TBD	TBD	
Other-Year Master Plan			

8.0 FUTURE BASE 10-YEAR COMPLETION CONDITIONS

8.1 Seasonal Adjustment (Please indicate source and provide comments)

%

Comment: _____

N/A

8.2 Annual Base Traffic Growth (Please indicate source and provide comments)

%

Comment: _____

TO BE OBTAINED FROM SPC

8.3 Trip Removals (Please check and comment)

8.3.1 On-Site Removals

Yes

No

8.3.2 Other (Explain)

Yes

No

Comment: _____

8.4 New Projects to be Added to base Traffic (As specified by DCB)

8.4.1 _____

8.4.2 _____

8.4.3 _____

8.4.4 _____

POLARIS SITE ANY OTHER APPROVED BUT NOT YET CONSTRUCTED PROJECTS - ADD ADD'L'S IF APPROVED PROJECT TO BE FURTHER INFORMED BY THE MOVE PCM PROJECT AND THE BRT STUDY PROJECT, AS WELL AS THE BAUM/CENTRE OVERLAY DISTRICT.

9.0 TRIP GENERATION (Site generated trips)

9.1 Trip Generation Rate (Please check and indicate sources)

9.1.1 Institute of Transportation Engineers (ITE)

Comment _____

9.1.2 Independent Survey

9.1.3 Other (specify)

~~LOCAL DATA FROM~~
UPMC SHADYSIDE
EXISTING FACILITIES

9.2 Trip Generation Adjustment Factors (check as applicable and explain)

N/A

9.2.1	Base Traffic Adjustment Factors	Comment
9.2.2	Captured Trips	%
9.2.3	Internal Trips	%
9.2.4	Shared Trips	%
9.2.5	Pass-by Trips	%
9.2.6	Diverted Linked Trips	%

9.3 Modal Split (Please check)

Yes No

		Comment
9.3.1	Auto	%
9.3.2	Public Transit	%
9.3.3	Trucks	%
9.3.4	Pedestrians	%
9.3.5	Other	%

INFO TO BE OBTAINED FROM UPMC

9.4 Parking Space and Trip Reduction based on Proximity to a Transit Facility

Yes No

Section 112.07.5.2 (d) City of Pittsburgh Zoning Code

Comment:

9.5 Auto Occupancy (Please check)

Yes No

Comment:

9.6 Transit Occupancy (Please check)

Yes No

Comment:

9.7 Special Circumstances (Please check)

Yes No

Comment:

10.0 ARRIVAL/DEPARTURE DISTRIBUTION/ASSIGNMENT (please check)

Yes No

Comment:

BASED ON EXISTING UPMC SHAOYSIDE TRAFFIC

10.1 Methodology for Trip Assignment (Please check)

10.1.1	Gravity Distribution Model	Yes <input type="checkbox"/>	No <input type="checkbox"/>
10.1.2	SPC Model	Yes <input type="checkbox"/>	No <input type="checkbox"/>
10.1.3	Market Study	Yes <input type="checkbox"/>	No <input type="checkbox"/>
10.1.4	Other (Specify)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Comment:

SEE 10.0 ABOVE

11.0 CAPACITY ANALYSIS (Check conditions that apply)

11.1	Existing Conditions	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
11.2	Future Base Conditions Without New Project	Yes <input type="checkbox"/>	No <input type="checkbox"/>
11.4	Future Base and Combined Development Conditions Without Mitigation	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
11.5	Future Base and Design-Year Combined Conditions) With Prop.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
11.6	Year(s) to be Analyzed for Combined Conditions (Please check)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

10 YR MASTER PLAN YEAR

Comments:

11.6.1	Phase 1 Year	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
11.6.2	Phase 2 Year	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
11.6.3	Phase 3 Year	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
11.6.4	Phase 4 Year	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
11.6.5	10 Year Master Plan Year	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
11.6.6	20-year (federally funded)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
11.6.7	Other Time Frame	Yes <input type="checkbox"/>	No <input type="checkbox"/>

12.0 SYNCHRO ANALYSIS OF QUEUING CONDITIONS (Please check and show area on map)

Yes No

BAUM BLD STUDY INTERSECTION

13.0 SIGNAL WARRANT ANALYSIS

Yes No

13.1 Locations

13.1.1	ANY NEW PROPOSED ACCESS POINTS
13.1.2	
13.1.3	
13.1.4	
13.1.5	

13.2 Warrant Types

TBD

	Comment	Yes	No
13.2.1	8-Hour	<input type="checkbox"/>	<input type="checkbox"/>
13.2.2	4-Hour	<input type="checkbox"/>	<input type="checkbox"/>
13.2.3	Peak-Hour	<input type="checkbox"/>	<input type="checkbox"/>
13.2.4	Pedestrian Volume	<input type="checkbox"/>	<input type="checkbox"/>
13.2.5	School Crossing	<input type="checkbox"/>	<input type="checkbox"/>
13.2.6	Coordinated Signal System	<input type="checkbox"/>	<input type="checkbox"/>
13.2.7	Crash Experience	<input type="checkbox"/>	<input type="checkbox"/>
13.2.8	Roadway Network	<input type="checkbox"/>	<input type="checkbox"/>

13.3 Left Turn Lane Warrant

TBD

Comment:

IF NEED FOR LT LANE(S) IS/ARE IDENTIFIED

13.4 Right Turn Auxiliary Lane Warrant

Yes No

Comment:

14.0 PEDESTRIAN ACCESS, CIRCULATION AND SAFETY (Please check)

14.1	On-site	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
14.2	Off-site	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Comments: PROVIDE DETAILS OF PEDESTRIAN CIRCULATION FROM GARAGES TO CAMPUS FACILITIES AND AROUND THE CAMPUS

15.0 ACCIDENT ANALYSIS (Please check)

Yes

No

15.1 Locations

15.1.1	
15.1.2	
15.1.3	
15.1.4	
15.1.5	
15.1.6	

15.2 Collision Diagram

Yes

No

15.2.1 3-Year Data

Yes

No

Comment:

15.2.2 5-Year Data

Yes

No

Comment:

15.3 Rate Comparisons

Yes

No

Comment:

16.0 SIGHT DISTANCE ANALYSIS

Yes

No

16.1 Locations

16.1.1	AT ANY PROPOSED NEW ACCESS LOCATIONS
16.1.2	
16.1.3	
16.1.4	

16.2 AASHTO Requirements

Yes

No

17.0 QUEUING ANALYSIS

Yes

No

17.1 Project Driveways/Existing/Auxiliary Turn Lanes (Designate for each location)

17.1.1	FOR ANY CHANGED CONDITIONS
17.1.2	
17.1.3	
17.1.4	

17.2 Queuing Method

Yes

No

Comment:

HAS QUEUING ANALYSIS
95TH PERCENTILE QUEUE

17.3 Conflict Analysis

Yes

No

Comment:

18.0 PARKING DEMAND/SUPPLY CONDITIONS

18.1 Existing Conditions On-site and Off-site (Please check)

18.1.1	Existing Parking Supply in Study Area (Detailed inventory)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
18.1.2	Existing Parking Demand (Based on accumulation counts)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
18.1.3	Existing Parking Supply/Demand Analysis	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
18.1.4	Existing Parking Space Surplus/Deficit	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
18.1.5	Existing Parking Management Plan	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

FROM UPMC SHADYSIDE
2010
PARKING
STUDY
BY
TRANS ASSOCIATES

18.1.6	Existing Residential Permit Parking Program (RPPP) Areas (Show on map)
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Yes

No

18.2 DATA COLLECTION (Please check)

18.2.1 Conduct On and Off Street Parking Inventory (Show on map) Yes No

18.2.2 Conduct Parking Accumulation Counts (Map) Yes No

A Data Collection Interval

1	Every Hour	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2	Every 2 Hours	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3	Other (Specify) - ADD IF NEW PARKING IS ADDED ONLY	Yes <input type="checkbox"/>	No <input type="checkbox"/>

18.2.3 Count Period

A	Start	8AM - 4PM	AM <input type="checkbox"/>	PM <input type="checkbox"/>
B	Finish		AM <input type="checkbox"/>	PM <input type="checkbox"/>

18.2.4 Duration/Turnover Counts (Show on map) **USE DATA FROM UPMC SHADYSIDE GARAGES**

A	Data Collection Interval	Yes <input type="checkbox"/>	No <input type="checkbox"/>
1	Every Hour	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2	Every 2 Hours	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3	Other (Specify)	Yes <input type="checkbox"/>	No <input type="checkbox"/>

ALREADY DONE

18.3 Existing Conditions Supply and Demand Analysis

18.3.1 Existing Parking Conditions

Surplus Deficit

Comment: **FROM 2010 PARKING STUDY (JUST COMPLETED IN APRIL 2010) PREPARE MAPPING AND INFORMATION RELATED TO RPPP AREAS AND THE NATURE OF STREET PARKING WITH RESPECT TO FUTURE TRAFFIC FLOW**

18.4 Parking Conditions Supply and Demand Analysis

18.4.1 Future Parking Conditions

Phase 1 Year Surplus Deficit

Comment: _____

Phase 2 Year Surplus Deficit

Comment: _____

Phase 3 Year Surplus Deficit

Comment: _____

Phase 4 Year Surplus Deficit

Comment: _____

10-Year Master Plan Year Surplus Deficit **TBD**

Comment: _____

Other-Year Master Plan Surplus Deficit

Comment: _____

PROVIDE UPMC SURVEY DATA FOR THE SHADYSIDE CAMPUS REGARDING CURRENT MODAL CHOICE AND PROVIDE EMPLOYEE HOME ZIP CODE DATA

18.5 Projection of Future Parking Demand

18.5.1 Methodology

A	ITE Parking Generation Manual
B	City of Pittsburgh Zoning Code
C	Site Specific Parking Study Demand Data
D	Other Methodology (Please specify)

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

18.6 Recommended Parking Mitigation

18.6.1 Future Parking Management Plan

A	On-Site
B	Off-Site

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

18.7 ADA Requirements

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Comment: _____

18.8 Parking Management Plan (PMP)

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Comment: _____

EXPAND TO TRANSPORTATION MANAGEMENT PLAN TO BE UPDATED TO INCLUDE PARKING POLICIES, ALTERNATIVE TRANSPORTATION MODES (BIKING, TRANSIT) AND MODE SHIFT, CASHOUT OPTION REVIEW, ESTABLISH MODE SHIFT GOALS

19.0 TRUCK LOADING ANALYSIS

19.1 Truck Trip Generation

19.1.1	Hourly
19.1.2	Daily

Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>

19.2 Size of Truck or Service Delivery Vehicle

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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19.3 Number of Existing Dock Space Per Zoning Code

Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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19.4 Number of Existing Dock Space Per Peak Demand

Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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ONLY FOR NEW STAND-ALONE FACILITIES, IF APPLICABLE

19.5 Proposed Number of Dock Space Per:

19.5.1	Phase 1 Master Plan
19.5.2	Phase 2 Master Plan
19.5.3	Phase 4 Master Plan
19.5.4	10-Year Master Plan

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

19.6 Truck Maneuverability On/Off-site

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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19.7 Refuse Storage/Pick-up Analysis (Please show on map)

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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19.8 Truck Loading Management Plan (TLMP)

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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19.9 Design Vehicle

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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19.10 Turning Radius

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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20.0 SITE PLAN REVIEW AND ANALYSIS

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Comment: _____

21.0 PUBLIC TRANSPORTATION

21.1	Port Authority Transit (PAT) Bus Routes to or Near the Site	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
21.1.1	Peak and Non Peak Bus Route and Trip Analysis	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
21.1.2	Identify Bus Stop and Shelter Locations At or Near the Site	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
21.2	Shuttle Bus /Other Private Carrier Service Analysis	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
21.2.1	Peak and Non Peak Bus Route and Trip Analysis	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
21.2.2	Identify Bus Stop Locations At or Near the Site	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
21.3	School Buses	Yes <input type="checkbox"/>	No <input type="checkbox"/>
21.3.1	Peak and Non Peak Bus Route and Trip Analysis	Yes <input type="checkbox"/>	No <input type="checkbox"/>
21.3.2	Identify Bus Stop Locations At or Near the Site	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: _____			

REVIEW ALL SHUTTLE SERVICE ROUTES AND SCHEDULES

N/A

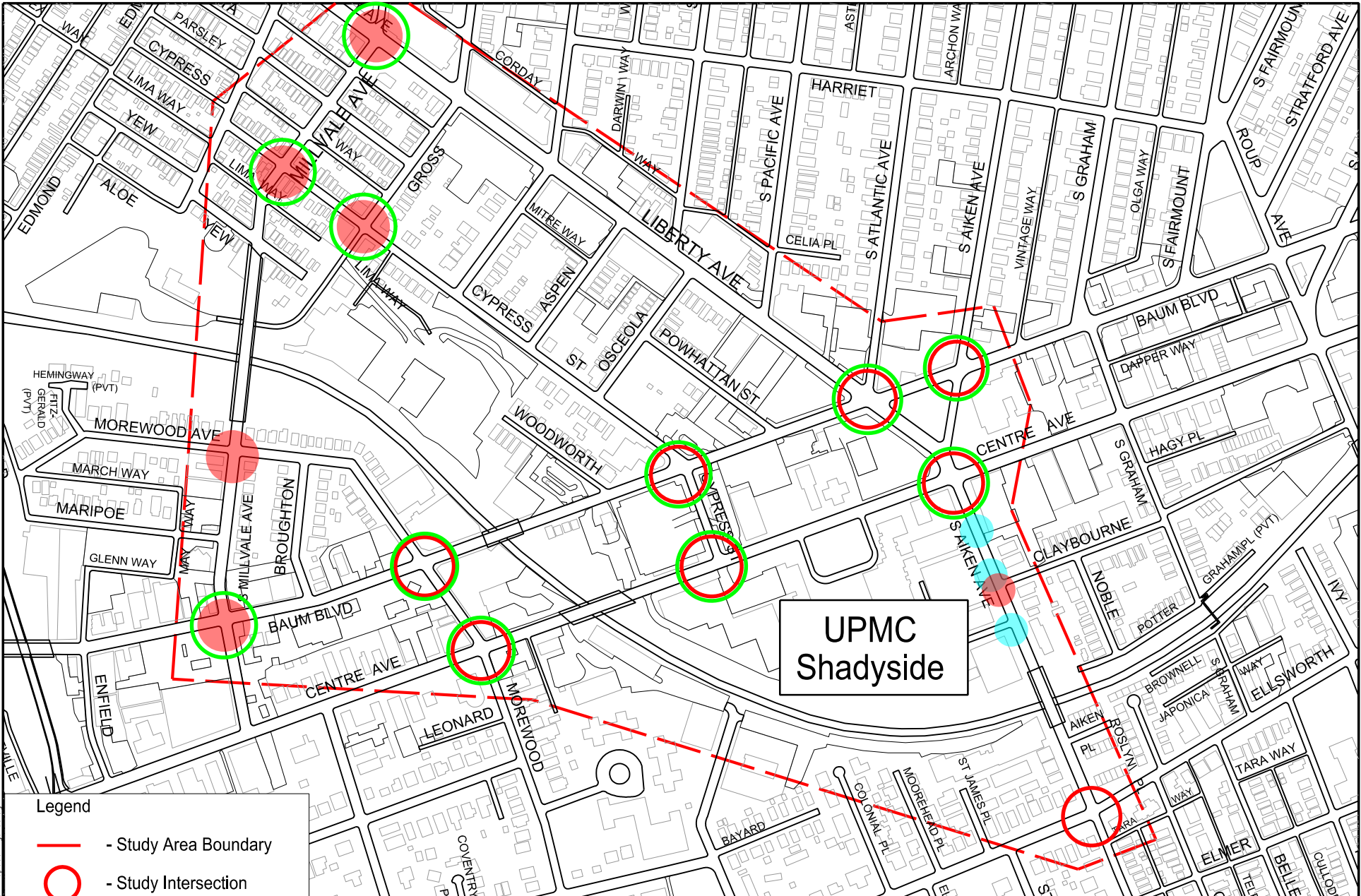
22.0 SUBMISSION REQUIREMENTS

22.1	Final Traffic Impact Study Report (4 copies, including maps, tables and figures)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
22.2	Executive Summary (include in final report)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
22.3	Appendix (4 copies)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
22.4	Form B (include approved copy in final report)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
22.5	Form C (include approved copy in final report)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
22.6	Correspondence (include in final report)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>






23.0 SCHOOL AND COLLEGE SITE PLAN REVIEW CHECK LIST (Based on study done for the State of Texas)

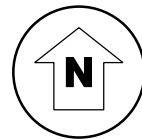
Check list	Yes	No	Comment
23.1			
23.2			
23.3			
23.4			
23.5			
23.6			
23.7			
23.8			
23.9			
23.10			
23.11			
23.12			
23.13			
23.14			
23.15			
23.16			
23.17			
23.18			
23.19			

N/A



Legend

-  - Study Area Boundary
-  - Study Intersection
-  - Study Intersection (added by City)
-  - Study Driveway (added by City)
-  - Data Available



SCALE: N.T.S.



Transportation Solutions for Today and Tomorrow
 Twin Towers Suite 400 / 4955 Steubenville Pike
 Pittsburgh, Pennsylvania 15205 / (412) 490-0630

PROJECT NO. HARLE00 -10244

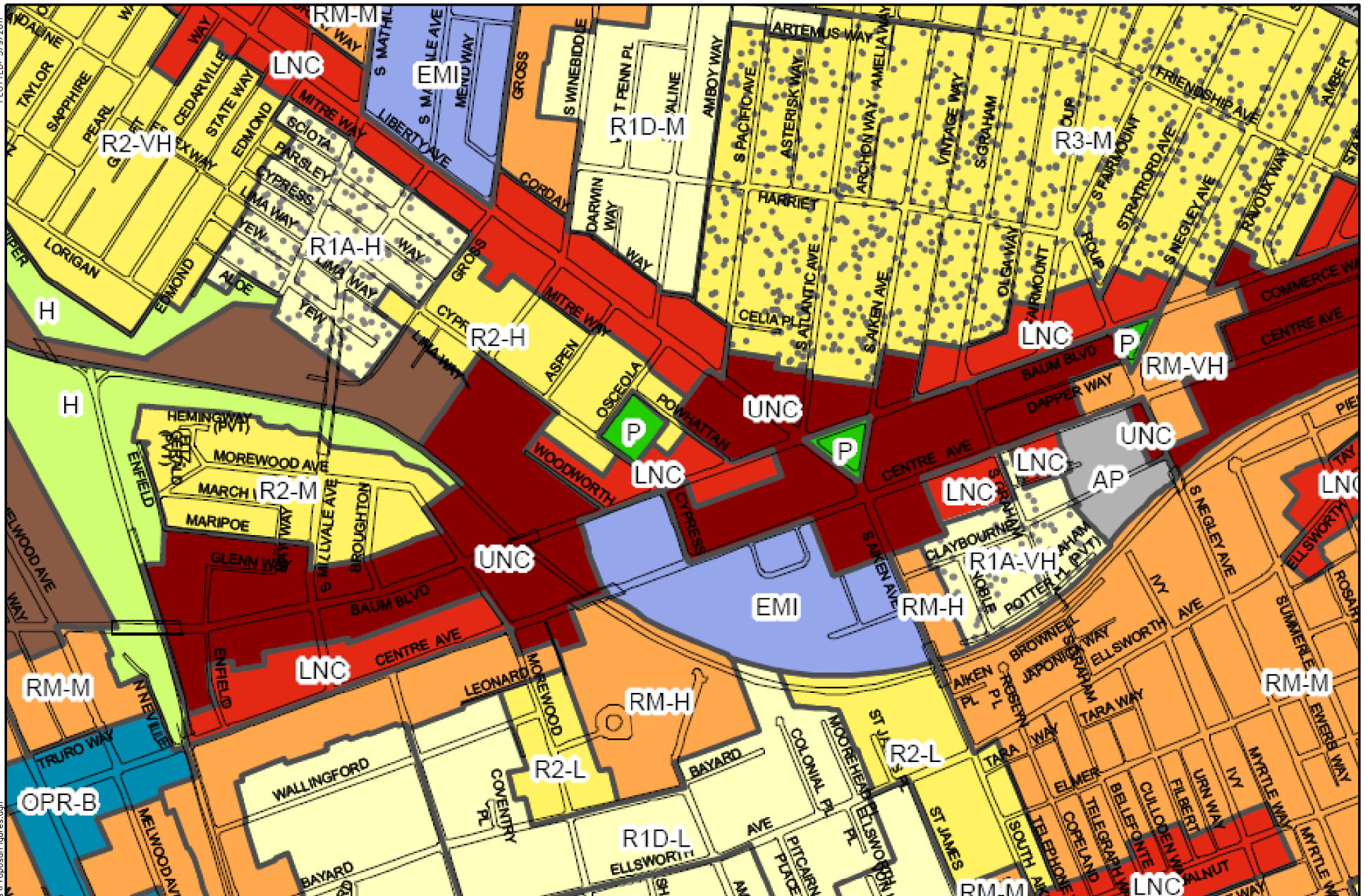
PROJECT: UPMC Shadyside Master Plan 2010

TITLE: Study Intersections
 Updated 03/09/2011

FIGURE

1

D.B. cad
 C.B. caj
 REV. _____



SCALE: N.T.S.



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 Twin Towers Suite 400 / 4955 Steubenville Pike
 Pittsburgh, Pennsylvania 15205 / (412) 490-0630

PROJECT NO. HARLE00 -10244

PROJECT: UPMC Shadyside Master Plan 2010

TITLE: Zoning Map

FIGURE

2

D.B. ___cad___
 C.B. ___caj___
 REV. _____

APPENDIX B

Turning Movement Counts and Pedestrian Count Summaries

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Baum & S Millvale AM
Site Code : 81720001
Start Date : 4/8/2008
Page No : 1

Baum Blvd. at S. Millvale Ave.
OXFOR00#08172 Board#D4-4435 JCD

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	S. Millvale Ave. Southbound					Baum Blvd. Westbound					S. Millvale Ave. Northbound					Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	5	18	4	2	29	32	151	4	2	189	5	7	3	1	16	3	130	6	0	139	373
07:15 AM	7	25	10	2	44	38	200	14	0	252	6	14	3	0	23	2	131	10	1	144	463
07:30 AM	14	47	5	6	72	32	214	7	1	254	9	19	8	0	36	6	174	17	2	199	561
07:45 AM	10	43	5	1	59	28	256	5	0	289	14	10	9	2	35	5	182	30	1	218	601
Total	36	133	24	11	204	130	821	30	3	984	34	50	23	3	110	16	617	63	4	700	1998
08:00 AM	5	33	14	0	52	23	238	2	2	265	16	23	12	1	52	11	156	14	0	181	550
08:15 AM	12	24	16	3	55	35	243	6	0	284	16	9	12	0	37	4	148	16	1	169	545
08:30 AM	12	42	8	4	66	28	189	6	0	223	15	10	9	2	36	5	139	10	1	155	480
08:45 AM	13	35	7	0	55	27	200	5	1	233	9	11	16	3	39	9	138	21	3	171	498
Total	42	134	45	7	228	113	870	19	3	1005	56	53	49	6	164	29	581	61	5	676	2073
Grand Total	78	267	69	18	432	243	1691	49	6	1989	90	103	72	9	274	45	1198	124	9	1376	4071
Approach %	18.1	61.8	16	4.2		12.2	85	2.5	0.3		32.8	37.6	26.3	3.3		3.3	87.1	9	0.7		
Total %	1.9	6.6	1.7	0.4	10.6	6	41.5	1.2	0.1	48.9	2.2	2.5	1.8	0.2	6.7	1.1	29.4	3	0.2	33.8	
% Typical Vehicles	76	255	69	18	418	230	1667	49	6	1952	87	94	69	9	259	45	1179	115	9	1348	3977
% Typical Vehicles	97.4	95.5	100	100	96.8	94.7	98.6	100	100	98.1	96.7	91.3	95.8	100	94.5	100	98.4	92.7	100	98	97.7
Heavy Duty Vehicles	2	12	0	0	14	13	24	0	0	37	3	9	3	0	15	0	19	9	0	28	94
% Heavy Duty Vehicles	2.6	4.5	0	0	3.2	5.3	1.4	0	0	1.9	3.3	8.7	4.2	0	5.5	0	1.6	7.3	0	2	2.3

Start Time	S. Millvale Ave. Southbound					Baum Blvd. Westbound					S. Millvale Ave. Northbound					Baum Blvd. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:30 AM																						
07:30 AM	14	47	5	6	72	32	214	7	1	254	9	19	8	0	36	6	174	17	2	199	561	
07:45 AM	10	43	5	1	59	28	256	5	0	289	14	10	9	2	35	5	182	30	1	218	601	
08:00 AM	5	33	14	0	52	23	238	2	2	265	16	23	12	1	52	11	156	14	0	181	550	
08:15 AM	12	24	16	3	55	35	243	6	0	284	16	9	12	0	37	4	148	16	1	169	545	
Total Volume	41	147	40	10	238	118	951	20	3	1092	55	61	41	3	160	26	660	77	4	767	2257	
% App. Total	17.2	61.8	16.8	4.2		10.8	87.1	1.8	0.3		34.4	38.1	25.6	1.9		3.4	86	10	0.5			
PHF	.732	.782	.625	.417	.826	.843	.929	.714	.375	.945	.859	.663	.854	.375	.769	.591	.907	.642	.500	.880	.939	
% Typical Vehicles	39	144	40	10	233	112	936	20	3	1071	54	58	39	3	154	26	650	74	4	754	2212	
% Typical Vehicles	95.1	98.0	100	100	97.9	94.9	98.4	100	100	98.1	98.2	95.1	95.1	100	96.3	100	98.5	96.1	100	98.3	98.0	
Heavy Duty Vehicles	2	3	0	0	5	6	15	0	0	21	1	3	2	0	6	0	10	3	0	13	45	
% Heavy Duty Vehicles	4.9	2.0	0	0	2.1	5.1	1.6	0	0	1.9	1.8	4.9	4.9	0	3.8	0	1.5	3.9	0	1.7	2.0	

pnf = 0.163
%HV = 4%

pnf = 0.85
%HV = 5%

pnf = 0.72
%HV = 0%

pnf = 0.66
%HV = 0%

Baum Blvd. at S. Millvale Ave.
 OXF00#08172 Board#D4-4435 JCD

Groups Printed- Heavy Duty Vehicles

Start Time	S. Millvale Ave. Southbound					Baum Blvd. Westbound					S. Millvale Ave. Northbound					Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	0	1	0	0	1	3	0	0	0	3	0	3	0	0	3	0	0	1	0	1	8
07:15 AM	0	2	0	0	2	0	3	0	0	3	0	1	0	0	1	0	4	0	0	4	10
07:30 AM	0	1	0	0	1	1	3	0	0	4	1	0	0	0	1	0	2	1	0	3	9
07:45 AM	1	1	0	0	2	1	2	0	0	3	0	1	1	0	2	0	3	0	0	3	10
Total	1	5	0	0	6	5	8	0	0	13	1	5	1	0	7	0	9	2	0	11	37
08:00 AM	0	1	0	0	1	1	5	0	0	6	0	1	1	0	2	0	2	2	0	4	13
08:15 AM	1	0	0	0	1	3	5	0	0	8	0	1	0	0	1	0	3	0	0	3	13
08:30 AM	0	4	0	0	4	4	0	0	0	4	2	1	1	0	4	0	2	2	0	4	16
08:45 AM	0	2	0	0	2	0	6	0	0	6	0	1	0	0	1	0	3	3	0	6	15
Total	1	7	0	0	8	8	16	0	0	24	2	4	2	0	8	0	10	7	0	17	57
Grand Total	2	12	0	0	14	13	24	0	0	37	3	9	3	0	15	0	19	9	0	28	94
Approch %	14.3	85.7	0	0		35.1	64.9	0	0		20	60	20	0		0	67.9	32.1	0		
Total %	2.1	12.8	0	0	14.9	13.8	25.5	0	0	39.4	3.2	9.6	3.2	0	16	0	20.2	9.6	0	29.8	

Start Time	S. Millvale Ave. Southbound					Baum Blvd. Westbound					S. Millvale Ave. Northbound					Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	0	1	0	0	1	1	3	0	0	4	1	0	0	0	1	0	2	1	0	3	9
07:45 AM	1	1	0	0	2	1	2	0	0	3	0	1	1	0	2	0	3	0	0	3	10
08:00 AM	0	1	0	0	1	1	5	0	0	6	0	1	1	0	2	0	2	2	0	4	13
08:15 AM	1	0	0	0	1	3	5	0	0	8	0	1	0	0	1	0	3	0	0	3	13
Total Volume	2	3	0	0	5	6	15	0	0	21	1	3	2	0	6	0	10	3	0	13	45
% App. Total	40	60	0	0		28.6	71.4	0	0		16.7	50	33.3	0		0	76.9	23.1	0		
PHF	.500	.750	.000	.000	.625	.500	.750	.000	.000	.656	.250	.750	.500	.000	.750	.000	.833	.375	.000	.813	.865

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

STATIS ASSOCIATES
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Morewood AM
 Site Code : 81720002
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at Morewood Ave.
 OXF00#08172 Board#D4-4436 FS

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	Morewood Ave. Southbound					Baum Blvd. Westbound					Morewood Ave. Northbound					Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	1	2	0	0	3	25	160	6	0	191	26	11	6	5	48	0	105	12	3	120	362
07:15 AM	0	0	1	0	1	36	198	5	0	239	45	10	11	5	71	2	124	24	2	152	463
07:30 AM	0	0	0	0	0	38	224	5	0	267	40	7	10	6	63	1	138	29	1	169	499
07:45 AM	0	1	0	0	1	41	240	6	0	287	49	10	13	2	74	5	146	32	4	187	549
Total	1	3	1	0	5	140	822	22	0	984	160	38	40	18	256	8	513	97	10	628	1873
08:00 AM	2	0	0	0	2	37	210	6	1	254	53	9	15	4	81	5	125	19	4	153	490
08:15 AM	0	1	0	0	1	47	237	5	0	289	42	8	10	0	60	5	137	27	2	171	521
08:30 AM	0	0	0	0	0	48	198	10	0	256	30	9	7	6	52	3	134	20	4	161	469
08:45 AM	0	0	1	0	1	43	216	4	1	264	34	12	16	2	64	11	122	17	8	158	487
Total	2	1	1	0	4	175	861	25	2	1063	159	38	48	12	257	24	518	83	18	643	1967
Grand Total	3	4	2	0	9	315	1683	47	2	2047	319	76	88	30	513	32	1031	180	28	1271	3840
Approch %	33.3	44.4	22.2	0	0	15.4	82.2	2.3	0.1	0	62.2	14.8	17.2	5.8	0	2.5	81.1	14.2	2.2	0	0
Total %	0.1	0.1	0.1	0	0.2	8.2	43.8	1.2	0.1	0	8.3	2	2.3	0.8	0	0.8	26.8	4.7	0.7	0	0
% Typical Vehicles	3	4	2	0	9	310	1661	47	2	2020	317	75	87	30	509	32	1016	180	28	1256	3794
% Typical Vehicles	100	100	100	0	100	98.4	98.7	100	100	98.7	99.4	98.7	98.9	100	99.2	100	98.5	100	100	98.8	98.8
% Heavy Duty Vehicles	0	0	0	0	0	5	22	0	0	27	2	1	1	0	4	0	15	0	0	15	46
% Heavy Duty Vehicles	0	0	0	0	0	1.6	1.3	0	0	1.3	0.6	1.3	1.1	0	0.8	0	1.5	0	0	1.2	1.2

Start Time	Morewood Ave. Southbound					Baum Blvd. Westbound					Morewood Ave. Northbound					Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	0	0	0	0	0	38	224	5	0	267	40	7	10	6	63	1	138	29	1	169	499
07:45 AM	0	1	0	0	1	41	240	6	0	287	49	10	13	2	74	5	146	32	4	187	549
08:00 AM	2	0	0	0	2	37	210	6	1	254	53	9	15	4	81	5	125	19	4	153	490
08:15 AM	0	1	0	0	1	47	237	5	0	289	42	8	10	0	60	5	137	27	2	171	521
Total Volume	2	2	0	0	4	163	911	22	1	1097	184	34	48	12	278	16	546	107	11	680	2059
% App. Total	50	50	0	0	500	14.9	83	2	0.1	0	66.2	12.2	17.3	4.3	0	2.4	80.3	15.7	1.6	0	0
PHF	.250	.500	.000	.000	.500	.867	.949	.917	.250	.949	.868	.850	.800	.500	.858	.800	.935	.836	.688	.909	.938
Typical Vehicles	2	2	0	0	4	159	900	22	1	1082	182	33	47	12	274	16	538	107	11	672	2032
% Typical Vehicles	100	100	0	0	100	97.5	98.8	100	100	98.6	98.9	97.1	97.9	100	98.6	100	98.5	100	100	98.8	98.7
% Heavy Duty Vehicles	0	0	0	0	0	4	11	0	0	15	2	1	1	0	4	0	8	0	0	8	27
% Heavy Duty Vehicles	0	0	0	0	0	2.5	1.2	0	0	1.4	1.1	2.9	2.1	0	1.4	0	1.5	0	0	1.2	1.3

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

pmf = 0.82
 %HV = 0%

pmf = 0.79
 %HV = 2%

pmf = 0.82
 %HV = 0%

Groups Printed- Heavy Duty Vehicles

Start Time	Morewood Ave. Southbound						Baum Blvd. Westbound						Morewood Ave. Northbound						Baum Blvd. Eastbound						
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
		Right on Red		Right on Red		App. Total		Right on Red		Right on Red		App. Total		Right on Red		Right on Red		Right on Red		Right on Red		Right on Red		Right on Red	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Morewood Ave. Southbound						Baum Blvd. Westbound						Morewood Ave. Northbound						Baum Blvd. Eastbound						
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
		Right on Red		Right on Red		App. Total		Right on Red		Right on Red		App. Total		Right on Red		Right on Red		Right on Red		Right on Red		Right on Red		Right on Red	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Cypress AM
 Site Code : 81720003
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	Cypress St. Southbound						Baum Blvd. Westbound						Cypress St. Northbound						Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
	07:00 AM	4	6	0	2	12	13	195	3	0	211	0	3	2	2	7	1	97	14	3	115	3	345	115
07:15 AM	1	14	4	2	21	17	238	4	1	260	4	4	5	3	16	2	122	8	1	133	8	430	133	
07:30 AM	1	12	3	3	19	26	244	3	0	273	6	2	3	1	12	2	135	8	4	149	8	453	149	
07:45 AM	0	8	4	0	12	15	282	2	0	299	3	1	5	0	9	2	141	16	6	165	6	485	165	
Total	6	40	11	7	64	71	959	12	1	1043	13	10	15	6	44	7	495	46	14	562	14	1713	562	
08:00 AM	2	4	0	2	8	18	266	3	0	287	8	4	5	3	20	7	117	16	4	144	4	459	144	
08:15 AM	5	9	4	2	20	21	283	3	1	308	5	3	3	0	11	2	125	13	2	142	2	481	142	
08:30 AM	6	10	6	1	23	13	235	0	0	248	6	2	6	4	18	0	125	8	1	134	8	423	134	
08:45 AM	3	10	6	4	23	17	256	2	1	276	9	4	5	4	22	1	135	8	1	145	8	466	145	
Total	16	33	16	9	74	69	1040	8	2	1119	28	13	19	11	71	10	502	45	8	565	8	1829	565	
Grand Total	22	73	27	16	138	140	1999	20	3	2162	41	23	34	17	115	17	997	91	22	1127	22	3542	1127	
Approach %	15.9	52.9	19.6	11.6		6.5	92.5	0.9	0.1		35.7	20	29.6	14.8		1.5	88.5	8.1	2		2			
Total %	0.6	2.1	0.8	0.5	3.9	4	56.4	0.6	0.1	61	1.2	0.6	1	0.5	3.2	0.5	28.1	2.6	0.6	31.8	0.6			
% Typical Vehicles	21	73	27	16	137	139	1959	20	3	2121	39	23	34	16	112	17	976	89	22	1104	22	3474	1104	
% Heavy Duty Vehicles	95.5	100	100	100	99.3	99.3	98	100	100	98.1	95.1	100	100	94.1	97.4	100	97.9	97.8	100	98	100	98.1	98.1	
% Heavy Duty Vehicles	1	0	0	0	1	1	40	0	0	41	2	0	0	1	3	0	21	2	0	23	0	68	23	
% Heavy Duty Vehicles	4.5	0	0	0	0.7	0.7	2	0	0	1.9	4.9	0	0	5.9	2.6	0	2.1	2.2	0	2	0	1.9	2	

Start Time	Cypress St. Southbound						Baum Blvd. Westbound						Cypress St. Northbound						Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
	07:30 AM	1	12	3	3	19	26	244	3	0	273	6	2	3	1	12	2	135	8	4	149	4	453	149
07:45 AM	0	8	4	0	12	15	282	2	0	299	3	1	5	0	9	2	141	16	6	165	6	485	165	
08:00 AM	2	4	0	2	8	18	266	3	0	287	8	4	5	3	20	7	117	16	4	144	4	459	144	
08:15 AM	5	9	4	2	20	21	283	3	1	308	5	3	3	0	11	2	125	13	2	142	2	481	142	
Total	8	33	11	7	59	80	1075	11	1	1167	22	10	16	4	52	13	518	53	16	600	16	1878	600	
% App. Total	13.6	55.9	18.6	11.9		6.9	92.1	0.9	0.1		42.3	19.2	30.8	7.7		2.2	86.3	8.8	2.7		2.7			
PHF	.400	.688	.688	.583	.738	.769	.950	.917	.250	.947	.688	.625	.800	.333	.650	.464	.918	.828	.667	.909	.667	.909	.968	
% Typical Vehicles	7	33	11	7	58	80	1052	11	1	1144	22	10	16	4	52	13	508	51	16	588	16	1842	588	
% Heavy Duty Vehicles	87.5	100	100	100	98.3	100	97.9	100	100	98.0	100	100	100	100	100	100	98.1	96.2	100	98.0	100	98.1	98.1	
% Heavy Duty Vehicles	1	0	0	0	1	0	23	0	0	23	0	0	0	0	0	0	10	2	0	12	0	36	12	
% Heavy Duty Vehicles	12.5	0	0	0	1.7	0	2.1	0	0	2.0	0	0	0	0	0	0	1.9	3.8	0	2.0	0	1.9	2.0	

PHF = 0.78
 %HV = 3%

PHF = 0.63
 %HV = 0%

PHF = 0.75
 %HV = 0%

PHF = 0.75
 %HV = 0%

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Groups Printed- Heavy Duty Vehicles

Start Time	Cypress St. Southbound						Baum Blvd. Westbound						Cypress St. Northbound						Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total	
07:00 AM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0		0	0	0	0	0	
07:15 AM	0	0	0	0	0		0	2	0	0	2		1	0	0	0	1		0	5	0	0	5	
07:30 AM	0	0	0	0	0		0	6	0	0	6		0	0	0	0	0		0	2	0	0	2	
07:45 AM	0	0	0	0	0		0	5	0	0	5		0	0	0	0	0		0	4	1	0	5	
Total	0	0	0	0	0		0	15	0	0	15		1	0	0	0	1		0	11	1	0	12	
08:00 AM	1	0	0	0	1		0	5	0	0	5		0	0	0	0	0		0	3	0	0	3	
08:15 AM	0	0	0	0	0		0	7	0	0	7		0	0	0	0	0		0	1	1	0	2	
08:30 AM	0	0	0	0	0		0	5	0	0	5		0	0	0	1	1		0	4	0	0	4	
08:45 AM	0	0	0	0	0		1	8	0	0	9		1	0	0	0	1		0	2	0	0	2	
Total	1	0	0	0	1		1	25	0	0	26		1	0	0	1	2		0	10	1	0	11	
Grand Total	1	0	0	0	1		1	40	0	0	41		2	0	0	1	3		0	21	2	0	23	
Approach %	100	0	0	0	0		2.4	97.6	0	0	100		66.7	0	0	33.3	4.4		0	91.3	8.7	0	100	
Total %	1.5	0	0	0	1.5		1.5	58.8	0	0	60.3		2.9	0	0	1.5	4.4		0	30.9	2.9	0	33.8	

Start Time	Cypress St. Southbound						Baum Blvd. Westbound						Cypress St. Northbound						Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total	
07:30 AM	0	0	0	0	0		0	6	0	0	6		0	0	0	0	0		0	2	0	0	2	
07:45 AM	0	0	0	0	0		0	5	0	0	5		0	0	0	0	0		0	4	1	0	5	
08:00 AM	1	0	0	0	1		0	5	0	0	5		0	0	0	0	0		0	3	0	0	3	
08:15 AM	0	0	0	0	0		0	7	0	0	7		0	0	0	0	0		0	1	1	0	2	
Total Volume	1	0	0	0	1		0	23	0	0	23		0	0	0	0	0		0	10	2	0	12	
% App. Total	100	0	0	0	0		0	100	0	0	100		0	0	0	0	0		0	83.3	16.7	0	100	
PHF	.250	.000	.000	.000	.250		.000	.821	.000	.000	.821		.000	.000	.000	.000	.000		.625	.500	.000	.600		

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Baum & Liberty AM
Site Code : 81720004
Start Date : 4/23/2008
Page No : 1

(bank 2 to S. Atlantic)
Baum Blvd. at Liberty Ave./
S. Atlantic Ave.
OXFOR00#08172 Board#D4-4436 FS

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound						Baum Blvd. Westbound						Liberty Ave. Northbound						Baum Blvd. Eastbound										
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Thru to S. Atlantic	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Thru to S. Atlantic	Right	Right on Red	App. Total	Int. Total	
07:00 AM	1	16	51	7	78	24	174	30	1	0	229	21	56	3	0	80	7	10	65	34	0	116	7	10	65	34	0	116	503
07:15 AM	0	19	70	12	101	23	216	34	0	0	273	30	66	3	0	99	5	3	65	19	0	92	5	3	65	19	0	92	565
07:30 AM	1	23	82	5	112	15	262	38	1	0	316	31	71	2	1	105	3	7	89	23	2	124	3	7	89	23	2	124	657
07:45 AM	4	22	82	13	125	24	235	36	9	0	304	32	70	6	0	108	5	8	115	26	5	159	5	8	115	26	5	159	696
Total	6	80	285	37	416	86	887	138	11	0	1122	114	263	14	1	392	20	28	334	102	7	491	20	28	334	102	7	491	2421
08:00 AM	1	27	79	18	125	17	262	44	1	0	324	32	67	4	0	103	6	6	106	17	1	136	6	6	106	17	1	136	688
08:15 AM	3	13	70	11	97	17	232	35	3	1	288	23	71	8	0	102	3	5	79	23	2	112	3	5	79	23	2	112	599
08:30 AM	4	23	69	16	117	20	239	36	2	1	298	29	80	4	0	113	8	5	91	22	1	127	8	5	91	22	1	127	655
08:45 AM	2	26	82	14	128	26	208	42	3	0	279	16	63	9	4	92	3	5	85	26	1	120	3	5	85	26	1	120	619
Total	10	89	300	59	467	80	941	157	9	2	1189	100	281	25	4	410	20	21	361	88	5	495	20	21	361	88	5	495	2561
Grand Total	16	169	585	96	883	166	1828	295	20	2	2311	214	544	39	5	802	40	49	695	190	12	986	40	49	695	190	12	986	4982
Approach %	1.8	19.1	66.3	10.9	1.9	7.2	79.1	12.8	0.9	0.1	26.7	67.8	4.9	0.6	0	16.1	4.1	5	70.5	19.3	1.2	19.8	4.1	5	70.5	19.3	1.2	19.8	
Total %	0.3	3.4	11.7	1.9	0.3	3.3	36.7	5.9	0.4	0	46.4	4.3	10.9	0.8	0.1	16.1	0.8	1	14	3.8	0.2	19.8	0.8	1	14	3.8	0.2	19.8	
Typical Vehicles	16	166	574	95	868	162	1801	292	20	2	2277	210	536	39	5	790	38	49	682	189	12	970	38	49	682	189	12	970	4905
% Typical Vehicles	100	98.2	98.1	99	100	98.3	97.6	98.5	99	100	98.5	98.1	98.5	100	100	98.5	95	100	98.1	99.5	100	98.4	95	100	98.1	99.5	100	98.4	98.5
Heavy Duty Vehicles	0	3	11	1	15	4	27	3	0	0	34	4	8	0	0	12	2	0	13	1	0	16	2	0	13	1	0	16	77
% Heavy Duty Vehicles	0	1.8	1.9	1	1.7	2.4	1.5	1	0	0	1.5	1.9	1.5	0	0	1.5	5	0	1.9	0.5	0	1.6	5	0	1.9	0.5	0	1.6	1.5

Start Time	Liberty Ave. Southbound						Baum Blvd. Westbound						Liberty Ave. Northbound						Baum Blvd. Eastbound										
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Thru to S. Atlantic	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Thru to S. Atlantic	Right	Right on Red	App. Total	Int. Total	
07:30 AM	1	23	82	5	112	15	262	38	1	0	316	31	71	2	1	105	3	7	89	23	2	124	3	7	89	23	2	124	657
07:45 AM	4	22	82	13	125	24	235	36	9	0	304	32	70	6	0	108	5	8	115	26	5	159	5	8	115	26	5	159	696
08:00 AM	1	27	79	18	125	17	262	44	1	0	324	32	67	4	0	103	6	6	106	17	1	136	6	6	106	17	1	136	688
08:15 AM	3	13	70	11	97	17	232	35	3	1	288	23	71	8	0	102	3	5	79	23	2	112	3	5	79	23	2	112	599
Total	9	85	313	47	459	73	991	153	14	1	1232	118	279	20	1	418	17	26	389	89	10	531	17	26	389	89	10	531	2640
% App. Total	2	18.5	68.2	10.2	1.1	5.9	80.4	12.4	1.1	0.1	95.1	92.2	66.7	4.8	0.2	96.8	3.2	4.9	73.3	16.8	1.9	26.40	3.2	4.9	73.3	16.8	1.9	26.40	
PHF	.563	.787	.954	.653	.313	.918	.760	.946	.869	.389	.250	.922	.982	.625	.250	.000	.708	.813	.846	.856	.500	.835	.708	.813	.846	.856	.500	.835	.948
Typical Vehicles	9	83	307	47	451	69	977	152	14	1	1213	116	275	20	1	412	17	26	381	89	10	523	17	26	381	89	10	523	2599
% Typical Vehicles	100	97.6	98.1	100	100	98.3	94.5	98.6	99.3	100	98.5	98.3	98.6	100	100	98.6	100	100	97.9	100	100	98.5	100	100	97.9	100	100	98.5	98.4
Heavy Duty Vehicles	0	2	6	0	8	4	14	1	0	0	19	2	4	0	0	6	0	0	8	0	0	8	0	0	8	0	0	8	41
% Heavy Duty Vehicles	0	2.4	1.9	0	1.7	5.5	1.4	0.7	0	0	1.5	1.7	1.4	0	0	1.4	0	0	2.1	0	0	1.5	0	0	2.1	0	0	1.5	1.6

PHF = 0.72
%HV = 0.1

PHF = 0.42
%HV = 0.1

PHF = 0.80
%HV = 0.1

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

(bank 2 to S. Atlantic)

Baum Blvd. at Liberty Ave./

S. Atlantic Ave.

OXFOR00#08172 Board#D4-4436 FS

File Name : Baum & Liberty AM
Site Code : 81720004
Start Date : 4/23/2008
Page No : 1

Groups Printed- Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound						Baum Blvd. Westbound						Liberty Ave. Northbound						Baum Blvd. Eastbound							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
	Left to S. Atlantic	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	0	1	2	1	0	4	0	3	1	0	4	1	1	0	0	2	0	0	0	0	0	0	0	0	0	10
07:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	3	5
07:30 AM	0	1	1	0	0	2	1	4	0	0	5	1	1	0	0	2	0	0	0	0	0	0	0	0	2	11
07:45 AM	0	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8
Total	0	3	5	1	0	9	1	11	1	0	13	2	3	0	0	5	2	0	0	0	0	0	0	0	7	34
08:00 AM	0	0	0	0	0	0	3	3	0	0	6	1	1	0	0	2	0	0	0	0	0	0	0	0	3	11
08:15 AM	0	0	3	0	0	3	0	4	1	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	1	11
08:30 AM	0	0	0	0	0	0	0	3	1	0	4	1	2	0	0	3	0	0	0	0	0	0	1	0	2	9
08:45 AM	0	0	3	0	0	3	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	3	0	3	12
Total	0	0	6	0	0	6	3	16	2	0	21	2	5	0	0	7	0	0	0	0	0	0	8	1	0	43
Grand Total	0	3	11	1	0	15	4	27	3	0	34	4	8	0	0	12	2	0	0	0	0	13	1	0	16	77
Approach %	0	20	73.3	6.7	0	19.5	11.8	79.4	8.8	0	0	33.3	66.7	0	0	15.6	12.5	0	0	0	6.2	0	0	0	20.8	
Total %	0	3.9	14.3	1.3	0	19.5	5.2	35.1	3.9	0	44.2	5.2	10.4	0	0	15.6	2.6	0	0	0	1.3	0	0	0	20.8	

Start Time	Liberty Ave. Southbound						Baum Blvd. Westbound						Liberty Ave. Northbound						Baum Blvd. Eastbound							
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
	Left to S. Atlantic	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	0	1	1	0	0	2	1	4	0	0	5	1	1	0	0	2	0	0	0	0	0	2	0	0	0	11
07:45 AM	0	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	2	8
08:00 AM	0	0	0	0	0	0	3	3	0	0	6	1	1	0	0	2	0	0	0	0	0	3	0	0	3	11
08:15 AM	0	0	3	0	0	3	0	4	1	0	5	0	2	0	0	2	0	0	0	0	0	1	0	0	1	11
Total Volume	0	2	6	0	0	8	4	14	1	0	19	2	4	0	0	6	0	0	0	0	0	8	0	0	0	41
% App. Total	0	25	75	0	0	66.7	21.1	73.7	5.3	0	0	33.3	66.7	0	0	7.5	0	0	0	0	0	100	0	0	0	41
PHF	.000	.500	.500	.000	.000	.667	.333	.875	.250	.000	.792	.500	.500	.000	.000	.750	.000	.000	.000	.000	.000	.667	.000	.000	.667	.932

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	S. Aiken Ave. Southbound					Baum Blvd. Westbound					S. Aiken Ave. Northbound					Baum Blvd. Eastbound										
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	0	0	5	10	15	0	215	1	0	216	1	0	1	9	11	1	82	0	0	83	1	82	0	0	83	325
07:15 AM	1	0	0	16	17	0	264	2	1	267	0	1	2	3	6	2	87	0	0	89	2	87	0	0	89	379
07:30 AM	5	0	9	7	21	0	326	2	0	328	1	4	0	8	13	2	116	0	0	118	2	116	0	0	118	480
07:45 AM	1	0	8	7	16	0	297	2	0	299	1	7	5	11	24	4	138	0	0	142	4	138	0	0	142	481
Total	7	0	22	40	69	0	1102	7	1	1110	3	12	8	31	54	9	423	0	0	432	9	423	0	0	432	1665
08:00 AM	2	0	10	2	14	0	291	3	0	294	2	2	6	8	18	3	119	0	0	122	3	119	0	0	122	448
08:15 AM	4	0	10	4	18	0	280	2	0	282	0	4	6	8	18	2	95	0	0	97	2	95	0	0	97	415
08:30 AM	3	0	10	9	22	0	280	1	0	281	1	3	2	3	9	0	112	0	0	112	2	112	0	0	112	424
08:45 AM	4	0	5	5	14	0	273	2	0	275	1	8	7	4	20	1	118	0	0	119	1	118	0	0	119	428
Total	13	0	35	20	68	0	1124	8	0	1132	4	17	21	23	65	6	444	0	0	450	6	444	0	0	450	1715
Grand Total	20	0	57	60	137	0	2226	15	1	2242	7	29	29	54	119	15	867	0	0	882	15	867	0	0	882	3380
Approach %	14.6	0	41.6	43.8		0	99.3	0.7	0		5.9	24.4	24.4	45.4		1.7	98.3	0	0		1.7	98.3	0	0		
Total %	0.6	0	1.7	1.8	4.1	0	65.9	0.4	0	66.3	0.2	0.9	0.9	1.6	3.5	0.4	25.7	0	0	26.1	0.4	25.7	0	0	26.1	
Typical Vehicles	20	0	56	58	134	0	2173	15	0	2188	7	29	26	51	113	15	837	0	0	852	15	837	0	0	852	3287
% Typical Vehicles	100	0	98.2	96.7	97.8	0	97.6	100	0	97.6	100	100	89.7	94.4	95	100	96.5	0	0	96.6	100	96.5	0	0	96.6	97.2
Heavy Duty Vehicles	0	0	1	2	3	0	53	0	1	54	0	0	3	3	6	0	30	0	0	30	0	30	0	0	30	93
% Heavy Duty Vehicles	0	0	1.8	3.3	2.2	0	2.4	0	100	2.4	0	0	10.3	5.6	5	0	3.5	0	0	3.4	0	3.5	0	0	3.4	2.8

Start Time	S. Aiken Ave. Southbound					Baum Blvd. Westbound					S. Aiken Ave. Northbound					Baum Blvd. Eastbound										
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	5	0	9	7	21	0	326	2	0	328	1	4	0	8	13	2	116	0	0	118	2	116	0	0	118	480
07:45 AM	1	0	8	7	16	0	297	2	0	299	1	7	5	11	24	4	138	0	0	142	4	138	0	0	142	481
08:00 AM	2	0	10	2	14	0	291	3	0	294	2	2	6	8	18	3	119	0	0	122	3	119	0	0	122	448
08:15 AM	4	0	10	4	18	0	280	2	0	282	0	4	6	8	18	2	95	0	0	97	2	95	0	0	97	415
Total Volume	12	0	37	20	69	0	1194	9	0	1203	4	17	17	35	73	11	468	0	0	479	11	468	0	0	479	1824
% App. Total	17.4	0	53.6	29		0	99.3	0.7	0		5.5	23.3	23.3	47.9		2.3	97.7	0	0		2.3	97.7	0	0		
PHF	.600	.000	.925	.714	.821	.000	.916	.750	.000	.917	.500	.607	.708	.795	.760	.688	.848	.000	.000	.843	.688	.848	.000	.000	.843	.948
Typical Vehicles	12	0	36	19	67	0	1167	9	0	1176	4	17	14	33	68	11	453	0	0	464	11	453	0	0	464	1775
% Typical Vehicles	100	0	97.3	95.0	97.1	0	97.7	100	0	97.8	100	100	82.4	94.3	93.2	100	96.8	0	0	96.9	100	96.8	0	0	96.9	97.3
Heavy Duty Vehicles	0	0	1	1	2	0	27	0	0	27	0	0	3	2	5	0	15	0	0	15	0	15	0	0	15	49
% Heavy Duty Vehicles	0	0	2.7	5.0	2.9	0	2.3	0	0	2.2	0	0	17.6	5.7	6.8	0	3.2	0	0	3.1	0	3.2	0	0	3.1	2.7

PHF = 0.81
%HV = 10%

PHF = 0.89
%HV = 4%

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Baum & S Aiken AM
Site Code : 81720005
Start Date : 4/23/2008
Page No : 1

Baum Blvd. at S. Aiken Ave.
OXFOR00#08172 Board#D4-4434 JD

Groups Printed- Heavy Duty Vehicles

Start Time	S. Aiken Ave. Southbound				Baum Blvd. Westbound				S. Aiken Ave. Northbound				Baum Blvd. Eastbound										
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0	2	7
07:15 AM	0	0	0	0	4	4	0	1	5	0	0	0	0	0	0	0	0	0	1	0	0	1	6
07:30 AM	0	0	0	0	6	6	0	0	6	0	0	0	0	0	0	0	0	0	5	0	0	5	11
07:45 AM	0	0	0	1	6	6	0	0	6	0	0	0	0	0	2	0	0	0	3	0	0	3	12
Total	0	0	0	2	20	20	0	1	21	0	0	0	2	0	2	0	0	0	11	0	0	11	36
08:00 AM	0	0	0	0	8	8	0	0	8	0	0	0	1	0	0	0	0	0	6	0	0	6	15
08:15 AM	0	0	1	0	7	7	0	0	7	0	0	1	1	0	1	0	0	0	1	0	0	1	11
08:30 AM	0	0	0	0	7	7	0	0	7	0	0	0	0	0	0	0	0	0	5	0	0	5	12
08:45 AM	0	0	0	0	11	11	0	0	11	0	0	0	1	0	0	0	0	0	7	0	0	7	19
Total	0	0	1	0	33	33	0	0	33	0	0	1	3	0	4	0	0	0	19	0	0	19	57
Grand Total	0	0	1	2	53	53	0	1	54	0	0	3	3	0	6	0	0	30	0	0	0	30	93
Approch %	0	0	33.3	66.7	98.1	98.1	0	1.9	50	0	0	50	50	0	100	0	0	100	0	0	0	0	32.3
Total %	0	0	1.1	2.2	57	58.1	0	1.1	58.1	0	0	3.2	3.2	0	6.5	0	0	32.3	0	0	0	32.3	93

Start Time	S. Aiken Ave. Southbound				Baum Blvd. Westbound				S. Aiken Ave. Northbound				Baum Blvd. Eastbound										
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:30 AM	0	0	0	0	6	6	0	0	6	0	0	0	0	0	0	0	0	5	0	0	5	11	
07:45 AM	0	0	0	1	6	6	0	0	6	0	0	2	0	0	3	0	0	3	0	0	3	12	
08:00 AM	0	0	0	0	8	8	0	0	8	0	0	0	1	0	6	0	0	6	0	0	6	15	
08:15 AM	0	0	1	0	7	7	0	0	7	0	0	1	1	0	1	0	0	1	0	0	1	11	
Total Volume	0	0	1	1	27	27	0	0	27	0	0	3	2	0	15	0	0	15	0	0	0	15	49
% App. Total	0	0	50	50	100	100	0	60	40	0	0	60	40	0	100	0	0	100	0	0	0	100	49
PHF	.000	.000	.250	.250	.844	.844	.000	.000	.844	.000	.000	.375	.500	.625	.625	.000	.000	.625	.000	.000	.000	.625	.817

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	Morewood Ave. Southbound					Centre Ave. Westbound					Morewood Ave. Northbound					Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	10	34	12	1	57	7	68	9	0	84	3	26	13	1	43	3	56	2	1	62	246
07:15 AM	12	36	8	0	56	13	66	10	0	89	7	57	23	0	87	7	61	3	0	71	303
07:30 AM	6	43	22	0	71	14	108	6	0	128	6	56	29	0	91	4	82	10	0	96	386
07:45 AM	11	42	25	0	78	17	89	12	0	118	6	60	21	0	87	7	84	10	0	101	384
Total	39	155	67	1	262	51	331	37	0	419	22	199	86	1	308	21	283	25	1	330	1319
08:00 AM	2	51	12	0	65	11	76	9	0	96	5	66	23	0	94	7	71	9	0	87	342
08:15 AM	10	58	18	0	86	12	80	12	0	104	10	66	25	0	101	7	95	12	0	114	405
08:30 AM	13	52	17	0	82	13	81	8	0	102	8	43	24	0	75	4	79	4	0	87	346
08:45 AM	7	45	17	1	70	11	81	13	0	105	3	54	20	2	79	4	90	8	0	102	356
Total	32	206	64	1	303	47	318	42	0	407	26	229	92	2	349	22	335	33	0	390	1449
Grand Total	71	361	131	2	565	98	649	79	0	826	48	428	178	3	657	43	618	58	1	720	2768
Approach %	12.6	63.9	23.2	0.4		11.9	78.6	9.6	0		7.3	65.1	27.1	0.5		6	85.8	8.1	0.1		
Total %	2.6	13	4.7	0.1	20.4	3.5	23.4	2.9	0	29.8	1.7	15.5	6.4	0.1	23.7	1.6	22.3	2.1	0	26	
Typical Vehicles	68	356	131	2	557	94	603	78	0	775	45	420	168	3	636	43	575	52	1	671	2639
% Typical Vehicles	95.8	98.6	100	100	98.6	95.9	92.9	98.7	0	93.8	93.8	98.1	94.4	100	96.8	100	93	89.7	100	93.2	95.3
Heavy Duty Vehicles	3	5	0	0	8	4	46	1	0	51	3	8	10	0	21	0	43	6	0	49	129
% Heavy Duty Vehicles	4.2	1.4	0	0	1.4	4.1	7.1	1.3	0	6.2	6.2	1.9	5.6	0	3.2	0	7	10.3	0	6.8	4.7

Start Time	Morewood Ave. Southbound					Centre Ave. Westbound					Morewood Ave. Northbound					Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	6	43	22	0	71	14	108	6	0	128	6	56	29	0	91	4	82	10	0	96	386
07:45 AM	11	42	25	0	78	17	89	12	0	118	6	60	21	0	87	7	84	10	0	101	384
08:00 AM	2	51	12	0	65	11	76	9	0	96	5	66	23	0	94	7	71	9	0	87	342
08:15 AM	10	58	18	0	86	12	80	12	0	104	10	66	25	0	101	7	95	12	0	114	405
Total Volume	29	194	77	0	300	54	353	39	0	446	27	248	98	0	373	25	332	41	0	398	1517
% App. Total	9.7	64.7	25.7	0		12.1	79.1	8.7	0		7.2	66.5	26.3	0		6.3	83.4	10.3	0		
PHF	.659	.836	.770	.000	.872	.794	.817	.813	.000	.871	.675	.939	.845	.000	.923	.893	.874	.854	.000	.873	.936
Typical Vehicles	26	192	77	0	295	52	331	39	0	422	25	243	93	0	361	25	306	36	0	367	1445
% Typical Vehicles	89.7	99.0	100	0	98.3	96.3	93.8	100	0	94.6	92.6	98.0	94.9	0	96.8	100	92.2	87.8	0	92.2	95.3
Heavy Duty Vehicles	3	2	0	0	5	2	22	0	0	24	2	5	5	0	12	0	26	5	0	31	72
% Heavy Duty Vehicles	10.3	1.0	0	0	1.7	3.7	6.2	0	0	5.4	7.4	2.0	5.1	0	3.2	0	7.8	12.2	0	7.8	4.7

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Groups Printed- Heavy Duty Vehicles

Start Time	Morewood Ave. Southbound				Centre Ave. Westbound				Morewood Ave. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	2	0	0	2	0	5	1	0	6	0	1	0	0	1	0	5	0	0	0	5	14
07:15 AM	0	0	0	0	0	1	5	0	0	6	0	0	1	0	1	0	3	0	0	0	3	10
07:30 AM	0	0	0	0	0	0	4	0	0	4	1	1	0	0	2	0	6	3	0	0	9	15
07:45 AM	2	0	0	0	2	0	6	0	0	6	1	2	2	0	5	0	8	1	0	0	9	22
Total	2	2	0	0	4	1	20	1	0	22	2	4	3	0	9	0	22	4	0	0	26	61
08:00 AM	0	2	0	0	2	1	7	0	0	8	0	1	1	0	2	0	6	0	0	0	6	18
08:15 AM	1	0	0	0	1	1	5	0	0	6	0	1	2	0	3	0	6	1	0	0	7	17
08:30 AM	0	1	0	0	1	0	8	0	0	8	1	1	1	0	3	0	6	0	0	0	6	18
08:45 AM	0	0	0	0	0	1	6	0	0	7	0	1	3	0	4	0	3	1	0	0	4	15
Total	1	3	0	0	4	3	26	0	0	29	1	4	7	0	12	0	21	2	0	0	23	68
Grand Total	3	5	0	0	8	4	46	1	0	51	3	8	10	0	21	0	43	6	0	0	49	129
Approch %	37.5	62.5	0	0	6.2	7.8	90.2	2	0	14.3	38.1	47.6	0	0	16.3	0	87.8	12.2	0	0	38	
Total %	2.3	3.9	0	0	6.2	3.1	35.7	0.8	0	39.5	2.3	6.2	7.8	0	16.3	0	33.3	4.7	0	0	38	

Start Time	Morewood Ave. Southbound				Centre Ave. Westbound				Morewood Ave. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:30 AM	0	0	0	0	0	0	4	0	0	4	1	1	0	0	2	0	6	3	0	0	9	15
07:45 AM	2	0	0	0	2	0	6	0	0	6	1	2	2	0	5	0	8	1	0	0	9	22
08:00 AM	0	2	0	0	2	1	7	0	0	8	0	1	1	0	2	0	6	0	0	0	6	18
08:15 AM	1	0	0	0	1	1	5	0	0	6	0	1	2	0	3	0	6	1	0	0	7	17
Total Volume	3	2	0	0	5	2	22	0	0	24	2	5	5	0	12	0	26	5	0	0	31	72
% App. Total	60	40	0	0	60	8.3	91.7	0	0	16.7	41.7	41.7	0	0	83.9	0	83.9	16.1	0	0	31	72
PHF	.375	.250	.000	.000	.625	.500	.786	.000	.000	.750	.500	.625	.625	.000	.600	.000	.813	.417	.000	.000	.861	.818

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Start Time	Cypress St. Southbound						UPMC Hospital Dwy. Northbound						Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
	07:00 AM	8	16	5	1	30	89	4	3	2	0	9	204	2	55	17	2	76
07:15 AM	4	31	11	2	48	110	6	5	4	0	15	261	2	58	26	2	88	261
07:30 AM	10	27	17	0	54	147	4	7	2	0	13	312	8	70	19	1	98	312
07:45 AM	3	28	10	0	41	151	10	4	2	0	16	322	3	87	24	0	114	322
Total	25	102	43	3	173	497	24	19	10	0	53	1099	15	270	86	5	376	1099
08:00 AM	4	27	14	0	45	119	9	4	7	1	21	277	6	64	19	3	92	277
08:15 AM	7	23	15	0	45	136	6	4	4	0	14	304	8	73	26	2	109	304
08:30 AM	7	17	18	1	43	106	3	3	2	0	8	274	2	97	17	1	117	274
08:45 AM	6	10	7	0	23	134	4	2	3	1	10	282	5	90	20	0	115	282
Total	24	77	54	1	156	495	22	13	16	2	53	1137	21	324	82	6	433	1137
Grand Total	49	179	97	4	329	992	46	32	26	2	106	2236	36	594	168	11	809	2236
Approach %	14.9	54.4	29.5	1.2	23.3	72	4.4	30.2	24.5	1.9	4.7	16.6	4.4	73.4	20.8	1.4	36.2	16.6
Total %	2.2	8	4.3	0.2	14.7	44.4	2.1	1.4	1.2	0.1	4.7	16.6	1.6	26.6	7.5	0.5	36.2	16.6
Typical Vehicles	49	178	95	4	326	949	36	32	26	2	96	2120	36	544	160	9	749	2120
% Typical Vehicles	100	99.4	97.9	100	99.1	95.7	78.3	100	100	100	90.6	94.8	100	91.6	95.2	81.8	92.6	94.8
Heavy Duty Vehicles	0	1	2	0	3	43	10	0	0	0	10	116	0	50	8	2	60	116
% Heavy Duty Vehicles	0	0.6	2.1	0	0.9	4.3	21.7	0	0	0	9.4	5.2	0	8.4	4.8	18.2	7.4	5.2

Start Time	Cypress St. Southbound						UPMC Hospital Dwy. Northbound						Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
	07:30 AM	10	27	17	0	54	147	4	7	2	0	13	312	8	70	19	1	98
07:45 AM	3	28	10	0	41	151	10	4	2	0	16	322	3	87	24	0	114	322
08:00 AM	4	27	14	0	45	119	9	4	7	1	21	277	6	64	19	3	92	277
08:15 AM	7	23	15	0	45	136	6	4	4	0	14	304	8	73	26	2	109	304
Total Volume	24	105	56	0	185	553	29	19	15	1	64	1215	25	294	88	6	413	1215
% App. PHF	13	56.8	30.3	0	25.9	69.3	4.9	29.7	23.4	1.6	7.62	25.1	6.1	71.2	21.3	1.5	38.0	25.1
Typical Vehicles	24	105	55	0	184	533	24	19	15	1	59	1156	25	266	83	6	380	1156
% Typical Vehicles	100	100	98.2	0	99.5	96.4	82.8	100	100	100	92.2	95.1	100	90.5	94.3	100	92.0	95.1
Heavy Duty Vehicles	0	0	1	0	1	20	5	0	0	0	5	59	0	28	5	0	33	59
% Heavy Duty Vehicles	0	0	1.8	0	0.5	3.6	17.2	0	0	0	7.8	4.9	0	9.5	5.7	0	8.0	4.9

PHF = 0.50
 % HV = 0.1

PHF = 0.84
 % HV = 5.1

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Centre & Cypress AM
Site Code : 81720007
Start Date : 4/17/2008
Page No : 1

Centre Ave. at Cypress St.
OXFOR00#08172 Board#D4-4435 JCD

Groups Printed- Heavy Duty Vehicles

Start Time	Cypress St. Southbound				Centre Ave. Westbound				UPMC Hospital Dwy. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	0	7	1	1	0	9	16
07:15 AM	0	1	0	0	1	0	5	0	0	5	2	0	0	0	2	0	3	0	1	0	4	12
07:30 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	7	1	0	0	8	12
07:45 AM	0	0	1	0	1	0	5	0	0	5	1	0	0	0	1	0	7	1	0	0	8	15
Total	0	1	1	0	2	0	19	0	0	19	5	0	0	0	5	0	24	3	2	0	29	55
08:00 AM	0	0	0	0	0	1	7	0	0	8	1	0	0	0	1	0	8	1	0	0	9	18
08:15 AM	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	6	2	0	0	8	14
08:30 AM	0	0	1	0	1	0	5	0	0	5	1	0	0	0	1	0	6	1	0	0	7	14
08:45 AM	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	6	1	0	0	7	15
Total	0	0	1	0	1	1	23	0	0	24	5	0	0	0	5	0	26	5	0	0	31	61
Grand Total	0	1	2	0	3	1	42	0	0	43	10	0	0	0	10	0	50	8	2	0	60	116
Approch %	0	33.3	66.7	0	0	2.3	97.7	0	0	0	100	0	0	0	0	0	83.3	13.3	3.3	0	60	
Total %	0	0.9	1.7	0	2.6	0.9	36.2	0	0	37.1	8.6	0	0	0	8.6	0	43.1	6.9	1.7	0	51.7	

Start Time	Cypress St. Southbound				Centre Ave. Westbound				UPMC Hospital Dwy. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:30 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	7	1	0	0	8	12
07:45 AM	0	0	1	0	1	0	5	0	0	5	1	0	0	0	1	0	7	1	0	0	8	15
08:00 AM	0	0	0	0	0	1	7	0	0	8	1	0	0	0	1	0	8	1	0	0	9	18
08:15 AM	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	6	2	0	0	8	14
Total Volume	0	0	1	0	1	1	19	0	0	20	5	0	0	0	5	0	28	5	0	0	33	59
% App. Total	0	0	100	0	0	5	95	0	0	0	100	0	0	0	0	0	84.8	15.2	0	0	33	59
PHF	.000	.000	.250	.000	.250	.250	.679	.000	.000	.625	.625	.000	.000	.000	.625	.000	.875	.625	.000	.000	.917	.819

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Liberty & Centre AM
Site Code : 8172_6p1
Start Date : 4/23/2008
Page No : 1

need to add #6 part 2
Centre Ave. at S. Aiken
Ave./Liberty Ave.
OXFOR00#08172 Board#D4-4437 JR

Groups Printed: Typical Vehicles - Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound				Centre Ave. Westbound				S. Aiken Ave. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	14	75	12	1	102	19	59	11	0	89	21	65	5	0	91	11	45	15	0	71	353
07:15 AM	12	77	17	0	106	30	63	12	0	105	26	92	10	0	128	5	39	15	1	60	399
07:30 AM	12	89	12	2	115	19	97	19	0	135	29	81	16	0	126	13	57	25	0	95	471
07:45 AM	17	88	20	1	126	26	97	15	1	139	32	105	13	0	150	13	52	16	0	81	496
Total	55	329	61	4	449	94	316	57	1	468	108	343	44	0	495	42	193	71	1	307	1719
08:00 AM	19	68	20	0	107	26	78	17	2	123	29	90	17	0	136	7	65	15	0	87	453
08:15 AM	20	74	15	0	109	19	85	20	2	126	31	99	8	0	138	9	49	26	0	84	457
08:30 AM	13	65	16	0	94	15	97	22	1	135	34	86	14	0	134	8	60	14	0	82	445
08:45 AM	25	78	20	0	123	27	82	11	3	123	40	80	20	0	140	12	62	22	0	96	482
Total	77	285	71	0	433	87	342	70	8	507	134	355	59	0	548	36	236	77	0	349	1837
Grand Total	132	614	132	4	882	181	658	127	9	975	242	698	103	0	1043	78	429	148	1	656	3556
Approach %	15	69.6	15	0.5		18.6	67.5	13	0.9		23.2	66.9	9.9	0		11.9	65.4	22.6	0.2		
Total %	3.7	17.3	3.7	0.1	24.8	5.1	18.5	3.6	0.3	27.4	6.8	19.6	2.9	0	29.3	2.2	12.1	4.2	0	18.4	
Typical Vehicles	129	609	126	3	867	180	616	122	9	927	239	695	100	0	1034	68	393	144	1	606	3434
% Typical Vehicles	97.7	99.2	95.5	75	98.3	99.4	93.6	96.1	100	95.1	98.8	99.6	97.1	0	99.1	87.2	91.6	97.3	100	92.4	96.6
Heavy Duty Vehicles	3	5	6	1	15	1	42	5	0	48	3	3	3	0	9	10	36	4	0	50	122
% Heavy Duty Vehicles	2.3	0.8	4.5	25	1.7	0.6	6.4	3.9	0	4.9	1.2	0.4	2.9	0	0.9	12.8	8.4	2.7	0	7.6	3.4

Start Time	Liberty Ave. Southbound				Centre Ave. Westbound				S. Aiken Ave. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	12	89	12	2	115	19	97	19	0	135	29	81	16	0	126	13	57	25	0	95	471
07:45 AM	17	88	20	1	126	26	97	15	1	139	32	105	13	0	150	13	52	16	0	81	496
08:00 AM	19	68	20	0	107	26	78	17	2	123	29	90	17	0	136	7	65	15	0	87	453
08:15 AM	20	74	15	0	109	19	85	20	2	126	31	99	8	0	138	9	49	26	0	84	457
Total Volume	68	319	67	3	457	90	357	71	5	523	121	375	54	0	550	42	223	82	0	347	1877
% App. Total	14.9	69.8	14.7	0.7		17.2	68.3	13.6	1		22	68.2	9.8	0		12.1	64.3	23.6	0		
PHF	.850	.896	.838	.375	.907	.865	.920	.888	.625	.941	.945	.893	.794	.000	.917	.808	.858	.788	.000	.913	.946
Typical Vehicles	67	318	62	2	449	89	338	69	5	501	120	373	53	0	546	35	205	79	0	319	1815
% Typical Vehicles	98.5	99.7	92.5	66.7	98.2	98.9	94.7	97.2	100	95.8	99.2	99.5	98.1	0	99.3	83.3	91.9	96.3	0	91.9	96.7
Heavy Duty Vehicles	1	1	5	1	8	1	19	2	0	22	1	2	1	0	4	7	18	3	0	28	62
% Heavy Duty Vehicles	1.5	0.3	7.5	33.3	1.8	1.1	5.3	2.8	0	4.2	0.8	0.5	1.9	0	0.7	16.7	8.1	3.7	0	8.1	3.3

PHF = 0.86
%HV = 3%

PHF = 0.83
%HV = 9%

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Liberty & Centre AM
Site Code : 8172_6p1
Start Date : 4/23/2008
Page No : 1

need to add #6 part 2
Centre Ave. at S. Aiken
Ave./Liberty Ave.
OXFOR00#08172 Board#D4-4437 JR

Groups Printed- Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound						Centre Ave. Westbound						S. Aiken Ave. Northbound						Centre Ave. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
	07:00 AM	1	1	0	0	2	0	0	4	1	0	5	0	0	0	0	0	0	0	0	1	4	0	0	5
07:15 AM	0	0	0	0	0	0	0	6	0	0	6	0	1	0	1	0	0	0	0	1	2	0	0	3	11
07:30 AM	0	0	0	1	1	0	0	3	1	0	4	0	0	0	0	0	0	0	0	1	4	1	0	6	11
07:45 AM	0	1	1	0	2	1	1	5	0	0	6	0	0	0	0	0	0	0	2	6	0	0	8	16	
Total	1	2	1	1	5	1	18	2	0	21	0	1	1	0	2	1	0	0	5	16	1	0	22	50	
08:00 AM	0	0	2	0	2	0	0	6	1	0	7	1	1	1	0	0	0	0	2	4	2	0	8	20	
08:15 AM	1	0	2	0	3	0	0	5	0	0	5	0	0	0	0	0	0	0	1	4	0	0	6	15	
08:30 AM	0	1	0	0	1	0	0	6	2	0	8	0	0	0	0	0	0	0	1	5	1	0	7	16	
08:45 AM	1	2	1	0	4	0	0	7	0	0	7	2	0	1	0	0	0	0	0	7	0	0	7	21	
Total	2	3	5	0	10	0	24	3	0	27	3	2	2	0	7	1	0	0	5	20	3	0	28	72	
Grand Total	3	5	6	1	15	1	42	5	0	48	3	3	3	0	9	10	36	4	0	0	8	0	50	122	
Approach %	20	33.3	40	6.7		2.1	87.5	10.4	0		33.3	33.3	33.3	0		20	72	8	0						
Total %	2.5	4.1	4.9	0.8	12.3	0.8	34.4	4.1	0	39.3	2.5	2.5	2.5	0	7.4	8.2	29.5	3.3	0				41		

Start Time	Liberty Ave. Southbound						Centre Ave. Westbound						S. Aiken Ave. Northbound						Centre Ave. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
	07:30 AM	0	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	1	4	0	0	6
07:45 AM	0	1	1	0	2	1	5	0	0	6	0	0	0	0	0	2	6	0	0	0	6	0	0	8	16
08:00 AM	0	0	2	0	2	0	6	1	0	7	1	1	1	0	3	2	4	0	0	2	4	2	0	8	20
08:15 AM	1	0	2	0	3	0	5	0	0	5	0	0	0	0	1	2	4	0	0	2	4	0	0	6	15
Total	1	1	5	1	8	1	19	2	0	22	1	2	1	0	4	7	18	3	0	0	28	0	0	62	
% App. Total	12.5	12.5	62.5	12.5		4.5	86.4	9.1	0		25	50	25	0		25	64.3	10.7	0						
PHF	.250	.250	.625	.250	.667	.250	.792	.500	.000	.786	.250	.500	.250	.000	.333	.875	.750	.375	.000				.875	.775	

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

(part 2 of intersection #6)
 Only entering S. Aiken Ave., btwn.
 Liberty Ave. and Baum Blvd.
 OXF00#08172 Board#D4-4435 JCD

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																					
	From Liberty Ave. Southbound					From Centre Ave. Westbound					From S. Aiken Ave. Northbound					From Centre Ave. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	0	0	0	0	0	0	2	0	0	0	3	0	0	3	6	0	0	0	0	6	11
07:15 AM	1	0	0	0	1	0	0	1	0	0	4	0	0	0	4	2	0	0	0	0	2	8
07:30 AM	0	0	0	0	0	0	0	4	0	0	7	0	0	0	7	3	0	0	0	0	3	14
07:45 AM	1	0	0	0	1	0	0	1	0	0	15	0	0	0	15	9	0	0	0	0	9	26
Total	2	0	0	0	2	0	0	8	0	0	29	0	0	0	29	20	0	0	0	0	20	59
08:00 AM	2	0	0	0	2	0	0	1	0	0	7	0	0	0	7	5	0	0	0	0	5	15
08:15 AM	0	0	0	0	0	0	0	1	0	0	11	0	0	0	11	7	0	0	0	0	7	19
08:30 AM	4	0	0	0	4	0	0	0	0	0	4	0	0	0	4	4	0	0	0	0	4	12
08:45 AM	2	0	0	0	2	0	0	0	0	0	11	0	0	0	11	5	0	0	0	0	5	18
Total	8	0	0	0	8	0	0	2	0	0	33	0	0	0	33	21	0	0	0	0	21	64
Grand Total	10	0	0	0	10	0	0	10	0	0	62	0	0	0	62	41	0	0	0	0	41	123
Approch %	100	0	0	0	100	0	0	0	0	0	100	0	0	0	100	100	0	0	0	0	100	
Total %	8.1	0	0	0	8.1	0	0	8.1	0	0	50.4	0	0	0	50.4	33.3	0	0	0	0	33.3	
% Typical Vehicles	10	0	0	0	10	0	0	10	0	0	62	0	0	0	62	34	0	0	0	0	34	116
% Heavy Duty Vehicles	100	0	0	0	100	0	0	100	0	0	100	0	0	0	100	82.9	0	0	0	0	82.9	94.3
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7	7
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17.1	0	0	0	0	17.1	5.7

Start Time	From Liberty Ave. Southbound										From Centre Ave. Westbound										From S. Aiken Ave. Northbound										From Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total														
	07:30 AM	0	0	0	0	0	0	0	4	0	0	0	7	0	0	7	0	0	0	0	0	3	0	0	0	3	14													
07:45 AM	1	0	0	0	1	0	0	1	0	0	15	0	0	0	15	9	0	0	0	0	9	0	0	0	9	26														
08:00 AM	2	0	0	0	2	0	0	1	0	0	7	0	0	0	7	5	0	0	0	0	5	0	0	0	5	15														
08:15 AM	0	0	0	0	0	0	0	1	0	0	11	0	0	0	11	7	0	0	0	0	7	0	0	0	7	19														
Total Volume	3	0	0	0	3	0	0	7	0	0	40	0	0	0	40	24	0	0	0	0	24	0	0	0	24	74														
% App. Total	100	0	0	0	100	0	0	100	0	0	100	0	0	0	100	100	0	0	0	0	100	0	0	0	100	7.12														
PHF	.375	.000	.000	.000	.375	.000	.000	.438	.000	.000	.667	.000	.000	.000	.667	.667	.000	.000	.000	.000	.667	.000	.000	.000	.667	.712														
% Typical Vehicles	3	0	0	0	3	0	0	7	0	0	40	0	0	0	40	19	0	0	0	0	19	0	0	0	19	69														
% Typical Vehicles	100	0	0	0	100	0	0	100	0	0	100	0	0	0	100	79.2	0	0	0	0	79.2	0	0	0	79.2	93.2														
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	5	5														
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20.8	0	0	0	0	20.8	0	0	0	20.8	6.8														

PHF = 0.71
 % HDV = 7%

Groups Printed- Heavy Duty Vehicles

Start Time	From Liberty Ave. Southbound						From Centre Ave. Westbound						From S. Aiken Ave. Northbound						From Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
	07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	7
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	100
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	100

Start Time	From Liberty Ave. Southbound						From Centre Ave. Westbound						From S. Aiken Ave. Northbound						From Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
	07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	100
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.625	.000	.000	.000	.625	.625	

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & S Millvale AM
 Site Code : 81720010
 Start Date : 9/3/2008
 Page No : 1

S. Millvale Av. at Liberty Ave.
 OXF0R00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																				
	S. Millvale Ave. Southbound						S. Millvale Ave. Northbound						Liberty Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total			
07:00 AM	15	16	3	2	36	103	7	86	10	0	103	24	8	67	8	0	83	246			
07:15 AM	14	24	11	0	49	89	7	76	6	0	89	34	10	85	7	1	103	275			
07:30 AM	37	40	22	0	99	132	7	114	11	0	132	29	6	87	9	1	103	363			
07:45 AM	20	33	15	0	68	96	6	85	5	0	96	44	11	96	14	0	121	329			
Total	86	113	51	2	252	420	27	361	32	0	420	131	35	335	38	2	410	1213			
08:00 AM	22	20	11	1	54	118	5	107	6	0	118	31	12	83	15	0	110	313			
08:15 AM	18	30	4	0	52	111	5	99	7	0	111	27	13	95	10	0	118	308			
08:30 AM	16	28	12	0	56	134	11	108	15	0	134	39	20	99	8	0	127	356			
08:45 AM	13	19	8	1	41	106	6	87	13	0	106	31	15	94	12	0	121	299			
Total	69	97	35	2	203	469	27	401	41	0	469	128	60	371	45	0	476	1276			
Grand Total	155	210	86	4	455	889	54	762	73	0	889	259	95	706	83	2	886	2489			
Approach %	34.1	46.2	18.9	0.9			6.1	85.7	8.2	0		41.3	41.3	17	0.4		10.7	79.7	9.4	0.2	
Total %	6.2	8.4	3.5	0.2	18.3	35.7	2.2	30.6	2.9	0	35.7	4.3	4.3	1.8	0	10.4	3.8	28.4	3.3	0.1	35.6
Typical Vehicles	150	208	85	4	447	866	53	741	72	0	866	98	105	41	1	245	94	690	72	2	858
% Typical Vehicles	96.8	99	98.8	100	98.2	97.4	98.1	97.2	98.6	0	97.4	91.6	98.1	93.2	100	94.6	98.9	97.7	86.7	100	98.8
% Heavy Duty Vehicles	3.2	1	1.2	0	1.8	2.6	1.9	2.8	1.4	0	2.6	8.4	1.9	6.8	0	5.4	1.1	2.3	13.3	0	3.2

Start Time	S. Millvale Ave. Westbound (WB)												S. Millvale Ave. Northbound (NB)												Liberty Ave. Eastbound (SEB)											
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total												
	07:30 AM	37	40	22	0	99	132	7	114	11	0	132	29	13	8	8	0	29	6	87	9	1	103	363												
07:45 AM	20	33	15	0	68	96	6	85	5	0	96	44	16	18	10	0	44	11	96	14	0	121	329													
08:00 AM	22	20	11	1	54	118	5	107	6	0	118	31	14	11	6	0	31	12	83	15	0	110	313													
08:15 AM	18	30	4	0	52	111	5	99	7	0	111	27	15	10	2	0	27	13	95	10	0	118	308													
Total Volume	97	123	52	1	273	457	23	405	29	0	457	131	58	47	26	0	131	42	361	48	1	452	1313													
% App. Total	35.5	45.1	19	0.4			5	88.6	6.3	0		44.3	35.9	19.8	0		9.3	79.9	10.6	0.2		8.08	94.0	8.00	2.50	93.4										
PHF	.655	.769	.591	.250	.689	.866	.821	.888	.659	.000	.866	.744	.906	.653	.650	.000	.744	.808	.940	.800	.250	.934														
Typical Vehicles	95	122	51	1	269	448	23	396	29	0	448	126	55	46	25	0	126	42	351	44	1	438	1281													
% Typical Vehicles	97.9	99.2	98.1	100	98.5	98.0	94.8	97.9	96.2	0	98.0	96.2	100	97.2	91.7	100	96.2	100	97.2	91.7	100	96.9	97.6													
Heavy Duty Vehicles	2	1	1	0	4	4	0	1	0	0	4	5	0	1	1	0	5	0	10	4	0	14	32													
% Heavy Duty Vehicles	2.1	0.8	1.9	0	1.5	2.0	0	2.2	0	0	2.0	3.8	5.2	2.1	3.8	0	3.8	0	2.8	8.3	0	3.1	2.4													

PHF = 0.82
 % HV = 8%

PHF = 0.60
 % HV = 2%

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

S. Millvale Av. at Liberty Ave.
 OXF0R00#08172 Board#D4-4436 FS

Groups Printed- Heavy Duty Vehicles

Start Time	S. Millvale Ave. Southbound						S. Millvale Ave. Northbound						Liberty Ave. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	1	0	0	0	1	0	2	0	0	3	0	0	2	0	0	0	0	6	12
07:15 AM	1	0	0	0	1	0	2	0	0	2	0	0	1	0	0	0	0	4	8
07:30 AM	1	1	1	0	3	0	2	1	0	2	0	0	1	0	2	1	0	3	9
07:45 AM	1	0	0	0	1	0	2	1	1	2	0	0	3	0	0	0	0	2	8
Total	4	1	1	0	6	0	8	1	1	9	1	0	7	1	8	6	0	15	37
08:00 AM	0	0	0	0	0	0	4	1	0	4	0	0	1	0	0	0	0	2	7
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	6	1	0	7	8
08:30 AM	0	1	0	0	1	0	5	1	1	5	2	0	4	0	1	1	0	2	12
08:45 AM	1	0	0	0	1	1	3	0	0	4	0	0	2	0	1	1	0	2	9
Total	1	1	0	0	2	1	13	0	0	14	2	0	7	0	8	5	0	13	36
Grand Total	5	2	1	0	8	1	21	1	0	23	3	0	14	1	16	11	0	28	73
Approach %	62.5	25	12.5	0	0	4.3	91.3	4.3	0	23	14.3	21.4	0	3.6	57.1	39.3	0	0	0
Total %	6.8	2.7	1.4	0	0	1.4	28.8	1.4	0	31.5	12.3	4.1	0	1.4	21.9	15.1	0	38.4	0

Start Time	S. Millvale Ave. Southbound						Liberty Ave. Westbound						S. Millvale Ave. Northbound						Liberty Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total						
07:30 AM	1	1	1	0	3	0	2	0	0	2	0	0	1	0	0	0	0	3	9					
07:45 AM	1	0	0	0	1	0	2	0	0	2	0	0	3	0	2	0	0	2	8					
08:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	0	0	0	2	7					
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	6	1	0	7	8					
Total Volume	2	1	1	0	4	0	9	0	0	9	1	0	5	0	10	4	0	14	32					
% App. Total	50	25	25	0	0	0	100	0	0	0	20	20	0	0	71.4	28.6	0	0	0					
PHF	.500	.250	.250	.000	.333	.000	.563	.000	.000	.563	.250	.250	.417	.000	.417	.500	.000	.500	.889					

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																							
	S. Millvale Ave. Southbound						Cypress St. Westbound						S. Millvale Ave. Northbound						Cypress St. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	0	28	0	0	28	6	4	1	1	0	6	0	1	20	3	0	24	1	1	0	0	0	1	59
07:15 AM	3	27	1	0	31	8	5	0	1	2	8	0	0	24	5	0	29	1	3	0	0	0	4	72
07:30 AM	0	57	0	0	57	14	8	1	1	4	14	0	0	23	3	0	26	0	4	1	1	1	6	103
07:45 AM	5	46	1	0	52	15	8	2	2	3	15	2	0	43	9	2	54	0	2	2	1	2	5	126
Total	8	158	2	0	168	43	25	4	5	9	43	2	1	110	20	2	133	2	9	2	2	3	16	360
08:00 AM	3	33	0	0	36	16	6	1	3	6	16	1	0	22	10	1	33	0	3	0	0	0	3	88
08:15 AM	2	35	0	1	38	21	10	4	3	4	21	0	1	20	4	0	25	1	2	0	0	1	4	88
08:30 AM	2	42	0	0	44	15	8	4	1	2	15	1	0	38	6	1	45	0	6	0	2	2	8	112
08:45 AM	1	29	3	1	34	14	4	3	5	2	14	1	3	24	8	1	36	0	1	0	0	0	1	85
Total	8	139	3	2	152	66	28	12	12	14	66	3	4	104	28	3	139	1	12	0	0	3	16	373
Grand Total	16	297	5	2	320	109	53	16	17	23	109	5	214	48	5	272	3	21	2	6	32	733		
Approach %	5	92.8	1.6	0.6			1.8	78.7	17.6	1.8			9.4	65.6	6.2	18.8		0.4	2.9	0.3	0.8	4.4		
Total %	2.2	40.5	0.7	0.3	43.7	14.9	7.2	2.2	2.3	3.1	14.9	0.7	29.2	6.5	0.7	37.1	0.4	2.9	0.3	0.8	4.4			
Typical Vehicles	16	285	5	2	308	108	52	16	17	23	108	5	201	48	4	258	3	21	2	5	31	705		
% Typical Vehicles	100	96	100	100	96.2	99.1	98.1	100	100	100	99.1	100	93.9	100	80	94.9	100	100	100	83.3	96.9	96.2		
Heavy Duty Vehicles	0	4	0	0	3.8	0.9	1.9	0	0	0	0.9	0	6.1	0	20	5.1	0	0	0	0	16.7	3.1	3.8	

Start Time	S. Millvale Ave. Southbound (WB)												Cypress St. Westbound (WB)												S. Millvale Ave. Northbound (EB)												Cypress St. Eastbound (SB)											
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total																		
	07:30 AM	0	57	0	0	57	0	8	1	1	4	14	0	0	23	3	0	26	0	0	4	1	1	6	103																							
07:45 AM	5	46	1	0	52	15	8	2	2	3	15	0	0	43	9	2	54	0	0	2	1	2	5	126																								
08:00 AM	3	33	0	0	36	16	6	1	3	6	16	1	0	22	10	1	33	0	0	3	0	0	3	88																								
08:15 AM	2	35	0	1	38	21	10	4	3	4	21	0	1	20	4	0	25	1	2	0	0	1	4	88																								
Total	10	171	1	1	183	66	32	8	9	17	66	1	108	26	3	138	1	11	2	2	4	18	405																									
% App. Total	5.5	93.4	0.5	0.5			48.5	12.1	13.6	25.8			628	18.8	2.2	639	5.6	61.1	11.1	22.2																												
PHF	.500	.750	.250	.250	.803	.786	.800	.500	.750	.708	.786	.250	.628	.650	.375	.639	.250	.688	.500	.500	.750																											
Typical Vehicles	10	167	1	1	179	66	32	8	9	17	66	1	104	26	3	134	1	11	2	2	4	18	397																									
% Typical Vehicles	100	97.7	100	100	97.8	100	100	100	100	100	100	100	96.3	100	100	97.1	100	100	100	100	100	100	98.0																									
Heavy Duty Vehicles	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0																									
% Heavy Duty Vehicles	0	2.3	0	0	2.2	0	0	0	0	0	0	0	3.7	0	0	2.9	0	0	0	0	0	0	2.0																									

PHF = 0.50
 %HV = 0%

PHF = 0.66
 %HV = 0%

PHF = 0.72
 %HV = 0%

PHF = 0.50
 %HV = 0%

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : S Millvale & Cypress AM
 Site Code : 81720018
 Start Date : 9/3/2008
 Page No : 1

Cypress St. at S. Millvale Ave.
 OXF0R00#08172 Board#D4-4435 JCD

Start Time	Groups Printed- Heavy Duty Vehicles																	
	S. Millvale Ave. Southbound						S. Millvale Ave. Northbound						Cypress St. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	3	0	0	3	0	0	1	0	0	1	0	0	0	0	0	0	0
07:30 AM	0	2	0	0	2	0	0	2	0	0	2	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Total	0	6	0	0	6	0	0	6	0	0	6	0	0	0	0	0	0	0
08:00 AM	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	2	0	0	2	0	0	4	0	1	5	0	0	0	0	1	1	0
08:45 AM	0	2	0	0	2	1	0	2	0	0	2	0	0	0	0	0	0	0
Total	0	6	0	0	6	1	0	7	0	1	8	0	0	0	0	1	1	0
Grand Total	0	12	0	0	12	1	0	13	0	1	14	0	0	0	0	0	1	1
Approch %	0	100	0	0	0	100	0	92.9	0	7.1	0	100	0	0	0	100	0	0
Total %	0	42.9	0	0	42.9	3.6	0	46.4	0	3.6	50	3.6	0	0	0	3.6	0	3.6

Start Time	S. Millvale Ave. Southbound												S. Millvale Ave. Northbound											
	Cypress St. Westbound						Cypress St. Eastbound						Cypress St. Westbound						Cypress St. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
08:00 AM	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	4	0	0	4	0	0	4	0	0	4	0	0	4	0	0	4	0	0	0	0	0	0	0
% App. Total	0	100	0	0	0	0	0	100	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
PHF	.000	.500	.000	.000	.500	.000	.000	.500	.000	.000	.500	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.500

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Cypress & Gross AM
 Site Code : 81720014
 Start Date : 9/9/2008
 Page No : 1

Cypress St. at Gross St.
 OXF0R00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																	
	Gross St. Southbound						Gross St. Northbound						Cypress St. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:00 AM	0	0	1	0	1	0	2	1	0	0	3	0	1	0	1	0	2	0
07:15 AM	4	6	1	0	11	0	2	9	0	0	11	6	6	0	0	0	6	0
07:30 AM	1	3	1	0	5	0	1	9	0	0	10	3	0	5	5	0	10	0
07:45 AM	4	3	0	0	7	0	1	4	0	0	5	2	1	0	2	0	7	0
Total	9	12	3	0	24	0	6	23	0	0	29	13	11	0	2	0	13	0
08:00 AM	1	1	0	0	2	0	1	5	0	0	6	3	2	0	1	0	3	0
08:15 AM	4	3	1	0	8	0	1	11	0	0	12	4	3	0	1	0	4	0
08:30 AM	4	3	2	0	9	0	0	6	0	0	6	5	4	0	1	0	5	0
08:45 AM	3	2	1	0	6	0	1	9	0	0	10	1	0	0	1	0	1	0
Total	12	9	4	0	25	0	3	31	0	0	34	13	9	0	4	0	13	0
Grand Total	21	21	7	0	49	0	9	54	0	0	63	26	20	0	6	0	26	0
Approach %	42.9	42.9	14.3	0	0	0	14.3	85.7	0	0	0	23.1	76.9	0	23.1	0	0	64.5
Total %	9.8	9.8	3.3	0	22.9	0	4.2	25.2	0	0	29.4	12.1	9.3	0	2.8	0	12.1	0
Typical Vehicles	21	21	7	0	49	0	9	54	0	0	63	26	20	0	6	0	26	0
% Typical Vehicles	100	100	100	0	100	0	100	100	0	0	100	100	100	0	100	0	100	0
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																							
	Gross St. Southbound (WB)						Cypress St. Westbound (NB)						Gross St. Northbound (EB)						Cypress St. Eastbound (SB)					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
07:30 AM	1	3	1	0	5	0	1	9	0	0	10	3	3	0	0	0	3	0	0	5	5	0	10	28
07:45 AM	4	3	0	0	7	0	1	4	0	0	5	2	1	0	1	0	2	0	0	5	2	0	7	21
08:00 AM	1	1	0	0	2	0	1	5	0	0	6	3	2	0	1	0	3	0	0	5	1	0	6	17
08:15 AM	4	3	1	0	8	0	1	11	0	0	12	4	3	0	1	0	4	0	0	15	2	0	17	41
Total Volume	10	10	2	0	22	0	4	29	0	0	33	12	9	0	3	0	12	0	0	30	10	0	40	107
% App. Total	45.5	45.5	9.1	0	0	0	12.1	87.9	0	0	0	25	75	0	25	0	0	0	0	75	25	0	0	0
PHF	.625	.833	.500	.000	.688	1.000	1.000	.659	.000	.000	.688	.750	.750	.000	.750	.000	.750	.000	.000	.500	.500	.000	.588	.652
Typical Vehicles	10	10	2	0	22	0	4	29	0	0	33	12	9	0	3	0	12	0	0	30	10	0	40	107
% Typical Vehicles	100	100	100	0	100	0	100	100	0	0	100	100	100	0	100	0	100	0	100	0	100	0	100	100
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cypress St. at Gross St.
 OXF00#08172 Board#D4-4436 FS

Groups Printed- Heavy Duty Vehicles

Start Time	Gross St. Southbound				Cypress St. Westbound				Gross St. Northbound				Cypress St. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Gross St. Southbound				Cypress St. Westbound				Gross St. Northbound				Cypress St. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Aiken Ave. &
 Ellsworth Ave.
 HARLE00#10244
 Board#4435 JCD

File Name : HARLE00_10244_AM_#12
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 1

Start Time	Groups Printed- Vehicles - Heavy Duty Vehicles																								
	S. Aiken Ave. Southbound						Ellsworth Ave. Westbound						S. Aiken Ave. Northbound						Ellsworth Ave. Eastbound						
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total
07:00 AM	7	44	5	0	56	1	62	21	13	97	7	93	4	0	104	13	19	2	2	36	13	19	2	2	36
07:15 AM	3	31	7	0	41	2	86	23	5	116	8	123	1	1	133	10	27	2	2	41	10	27	2	2	41
07:30 AM	5	51	11	1	68	5	114	33	4	156	13	124	2	0	139	17	32	4	1	54	17	32	4	1	54
07:45 AM	4	68	13	2	87	1	81	38	9	129	18	123	3	0	144	14	40	2	1	57	14	40	2	1	57
Total	19	194	36	3	252	9	343	115	31	498	46	463	10	1	520	54	118	10	6	188	54	118	10	6	188
08:00 AM	20	30	10	1	61	4	91	32	6	133	16	104	4	0	124	21	38	3	1	63	21	38	3	1	63
08:15 AM	8	63	15	3	89	2	103	33	5	143	20	124	2	0	146	6	37	0	0	43	6	37	0	0	43
08:30 AM	11	49	21	2	83	0	91	39	3	133	18	150	5	0	173	10	40	4	1	55	10	40	4	1	55
08:45 AM	17	59	16	1	93	3	89	27	5	124	15	113	3	0	131	7	33	9	2	51	7	33	9	2	51
Total	56	201	62	7	326	9	374	131	19	533	69	491	14	0	574	44	148	16	4	212	44	148	16	4	212
Grand Total	75	395	98	10	578	18	717	246	50	1031	115	954	24	1	1094	98	266	26	10	400	98	266	26	10	400
Approach %	13	68.3	17	1.7	18.6	1.7	69.5	23.9	4.8	33.2	10.5	87.2	2.2	0.1	35.3	24.5	66.5	6.5	2.5	12.9	24.5	66.5	6.5	2.5	12.9
Total %	2.4	12.7	3.2	0.3	18.6	0.6	23.1	7.9	1.6	33.2	3.7	30.7	0.8	0	35.3	3.2	8.6	0.8	0.3	12.9	3.2	8.6	0.8	0.3	12.9
Vehicles	72	383	96	10	561	18	701	246	47	1012	112	948	22	1	1083	97	254	26	9	386	97	254	26	9	386
% Vehicles	96	97	98	100	97.1	100	97.8	100	94	98.2	97.4	99.4	91.7	100	99	99	95.5	100	90	96.5	99	95.5	100	90	96.5
Heavy Duty Vehicles	3	12	2	0	17	0	16	0	3	19	3	6	2	0	11	1	12	0	1	14	1	12	0	1	14
% Heavy Duty Vehicles	4	3	2	0	2.9	0	2.2	0	6	1.8	2.6	0.6	8.3	0	1	1	4.5	0	10	3.5	1	4.5	0	10	3.5

Start Time	S. Aiken Ave. Southbound												Ellsworth Ave. Westbound												S. Aiken Ave. Northbound												Ellsworth Ave. Eastbound											
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total																							
	Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1	5	114	33	4	156	13	124	2	0	139	17	32	4	1	54	13	124	2	0	139	17	32	4	1	54																						
Peak Hour for Entire Intersection Begins at 07:30 AM	1	81	38	9	129	18	123	3	0	144	14	40	2	1	57	18	123	3	0	144	14	40	2	1	57																							
07:30 AM	4	91	32	6	133	16	104	4	0	124	21	38	3	1	63	16	104	4	0	124	21	38	3	1	63																							
07:45 AM	2	103	33	5	143	20	124	2	0	146	6	37	0	0	43	20	124	2	0	146	6	37	0	0	43																							
08:00 AM	37	212	49	7	305	12	389	136	24	561	67	475	11	0	553	58	147	9	3	217	58	147	9	3	217																							
08:15 AM	12.1	69.5	16.1	2.3	85.8	2.1	69.3	24.2	4.3	98.7	12.1	85.9	2	0	88.0	26.7	67.7	4.1	1.4	94.9	26.7	67.7	4.1	1.4	94.9																							
Total Volume	463	779	817	583	1642	600	853	895	667	1955	838	958	688	000	1526	690	919	563	750	1912	690	919	563	750	1912																							
% App. Total	37	208	47	7	299	12	383	136	24	555	65	470	9	0	544	58	140	9	3	210	58	140	9	3	210																							
Vehicles	100	98.1	95.9	100	98.0	100	98.5	100	100	98.9	97.0	98.9	81.8	0	98.4	100	95.2	100	100	96.8	100	95.2	100	100	96.8																							
% Vehicles	0	4	2	0	6	0	6	0	0	6	2	5	2	0	9	0	7	0	0	7	0	7	0	0	7																							
Heavy Duty Vehicles	0	1.9	4.1	0	2.0	0	1.5	0	0	1.1	3.0	1.1	18.2	0	1.6	0	4.8	0	0	3.2	0	4.8	0	0	3.2																							
% Heavy Duty Vehicles																																																

PHF = 0.78
 %HV = 4.1

PHF = 0.85
 %HV = 0.1

PHF = 0.60
 %HV = 0.1

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Aiken Ave. &
 Ellsworth Ave.
 HARLE00#10244
 Board#4435 JCD

File Name : HARLE00_10244_AM_#12
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 1

Start Time	Groups Printed- Heavy Duty Vehicles																					
	S. Aiken Ave. Southbound				Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
07:00 AM	0	3	0	0	3	0	4	0	0	7	0	1	0	0	1	1	1	0	0	1	3	14
07:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	0	1	4
07:30 AM	0	3	0	0	3	0	2	0	0	2	0	3	0	0	3	0	1	0	0	1	9	
07:45 AM	0	0	1	0	1	0	1	0	0	1	1	2	0	0	3	0	2	0	0	2	7	
Total	0	6	1	0	7	0	10	0	0	13	1	6	0	0	7	1	5	0	1	7	34	
08:00 AM	0	0	1	0	1	0	2	0	0	2	1	0	2	0	3	0	2	0	0	2	8	
08:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4	
08:30 AM	1	1	0	0	2	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	6	
08:45 AM	2	4	0	0	6	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	9	
Total	3	6	1	0	10	0	6	0	0	6	2	0	2	0	4	0	7	0	0	7	27	
Grand Total	3	12	2	0	17	0	16	0	0	19	3	6	2	0	11	1	12	0	1	14	61	
Approch %	17.6	70.6	11.8	0	27.9	0	84.2	0	15.8	31.1	27.3	54.5	18.2	0	18	7.1	85.7	0	7.1	14		
Total %	4.9	19.7	3.3	0	27.9	0	26.2	0	4.9	31.1	4.9	9.8	3.3	0	18	1.6	19.7	0	1.6	23		

Start Time	S. Aiken Ave. Southbound												Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound			
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total			
	07:30 AM	0	3	0	0	3	0	2	0	0	2	0	3	0	0	3	0	1	0	0	1	9		
07:45 AM	0	0	1	0	1	0	1	0	0	1	1	2	0	0	3	0	2	0	0	2	7			
08:00 AM	0	0	1	0	1	0	2	0	0	2	1	0	2	0	3	0	2	0	0	2	8			
08:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4			
Total Volume	0	4	2	0	6	0	6	0	0	6	2	5	2	0	9	0	7	0	0	7	28			
% App. Total	0	66.7	33.3	0	500	0	100	0	0	750	22.2	55.6	22.2	0	750	0	100	0	0	875	778			
PHF	.000	.333	.500	.000	.500	.000	.750	.000	.000	.750	.500	.417	.250	.000	.750	.000	.875	.000	.000	.875	.778			

Start Time	Millvale Ave. Southbound												Millvale Ave. Northbound												Morewood Ave. Westbound												Morewood Ave. Eastbound											
	Left			Thru			Right			Right on Red			App. Total			Left			Thru			Right			Right on Red			App. Total			Left			Thru			Right			Right on Red			App. Total					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total													
07:00 AM	0	42	1	0	43	7	0	3	10	2	26	0	0	28	2	0	1	0	3	28	2	0	1	0	3	84	0	0	0	0	0	0	0	0	0	0	0											
07:15 AM	0	47	0	0	47	3	0	12	15	3	17	0	0	20	3	0	3	0	4	20	1	0	3	0	4	86	0	0	0	0	0	0	0	0	0	0	0											
07:30 AM	0	67	0	0	67	4	2	8	14	3	24	0	0	27	1	0	5	0	6	27	1	0	5	0	6	114	0	0	0	0	0	0	0	0	0	0	0	0										
07:45 AM	0	65	2	0	67	1	1	11	13	4	25	0	0	29	0	0	0	0	5	29	0	0	0	0	5	114	0	0	0	0	0	0	0	0	0	0	0	0										
Total	0	221	3	0	224	15	3	34	52	12	92	0	0	104	4	0	14	0	18	104	4	0	14	0	18	398	0	0	0	0	0	0	0	0	0	0	0	0										
08:00 AM	0	66	0	0	66	3	0	10	13	1	22	0	0	23	1	0	3	0	4	23	1	0	3	0	4	106	0	0	0	0	0	0	0	0	0	0	0	0	0									
08:15 AM	0	62	0	0	62	3	1	10	14	0	23	0	0	23	1	0	9	0	10	23	1	0	9	0	10	109	0	0	0	0	0	0	0	0	0	0	0	0	0									
08:30 AM	0	59	0	0	59	6	0	7	13	1	21	0	0	22	0	0	3	0	3	22	0	0	3	0	3	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
08:45 AM	0	48	1	0	49	2	1	6	9	2	33	0	0	35	1	0	2	0	3	35	1	0	2	0	3	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Total	0	235	1	0	236	14	2	33	49	4	99	0	0	103	3	0	17	0	20	103	3	0	17	0	20	408	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Grand Total	0	456	4	0	460	29	5	67	101	16	191	0	0	207	7	0	31	0	38	207	7	0	31	0	38	806	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Approach %	0	99.1	0.9	0	100	28.7	5	66.3	100	7.7	92.3	0	0	100	18.4	0	81.6	0	100	25.7	0.9	0	3.8	0	4.7	782	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Total %	0	56.6	0.5	0	57.1	3.6	0.6	8.3	12.5	2	23.7	0	0	25.7	0.9	0	3.8	0	4.7	25.7	0.9	0	3.8	0	4.7	782	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Typical Vehicles	0	447	3	0	450	29	4	66	99	13	182	0	0	195	7	0	31	0	38	195	7	0	31	0	38	782	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
% Typical Vehicles	0	98	75	0	97.8	100	80	98.5	98	81.2	95.3	0	0	94.2	100	0	100	0	100	94.2	100	0	100	0	100	782	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
% Heavy Duty Vehicles	0	2	25	0	2.2	0	20	1.5	2	18.8	4.7	0	0	5.8	0	0	0	0	0	5.8	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0								

Start Time	Millvale Ave. Southbound												Millvale Ave. Northbound												Morewood Ave. Westbound												Morewood Ave. Eastbound											
	Left			Thru			Right			Right on Red			App. Total			Left			Thru			Right			Right on Red			App. Total			Left			Thru			Right			Right on Red			App. Total					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total													
07:30 AM	0	67	0	0	67	4	2	8	14	3	24	0	0	27	1	0	5	0	6	27	1	0	5	0	6	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
07:45 AM	0	65	2	0	67	1	1	11	13	4	25	0	0	29	0	0	3	0	5	29	0	0	3	0	5	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
08:00 AM	0	66	0	0	66	3	0	10	13	1	22	0	0	23	1	0	9	0	4	23	1	0	9	0	4	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
08:15 AM	0	62	0	0	62	3	1	10	13	1	21	0	0	22	0	0	3	0	3	22	0	0	3	0	3	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Total	0	260	2	0	262	11	4	39	54	8	94	0	0	102	3	0	22	0	25	102	3	0	22	0	25	443	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
% App. Total	0.000	0.970	0.250	0.000	0.978	20.4	7.4	72.2	0	7.8	92.2	0	0	87.9	7.50	0.000	6.11	0.000	6.25	87.9	7.50	0.000	6.11	0.000	6.25	971	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
PHF	0	255	2	0	257	11	3	38	52	6	91	0	0	97	3	0	22	0	25	97	3	0	22	0	25	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Typical Vehicles	0	98.1	100	0	98.1	100	75.0	97.4	96.3	75.0	96.8	0	0	95.1	100	0	100	0	100	95.1	100	0	100	0	100	97.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
% Heavy Duty Vehicles	0	1.9	0	0	1.9	0	25.0	2.6	3.7	25.0	3.2	0	0	4.9	0	0	0	0	4.9	0	0	0	0	0	0	2.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

Morewood Ave.
 & Millvale Ave.
 HARLE00#10244
 Board#5039 FS

File Name : HARLE00_10244_AM_#16
 Site Code : 10244111
 Start Date : 3/23/2011
 Page No : 1

Groups Printed- Heavy Duty Vehicles

Start Time	Millvale Ave. Southbound					Morewood Ave. Westbound					Millvale Ave. Northbound					Morewood Ave. Eastbound				
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total
	07:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0
07:15 AM	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0
07:30 AM	0	1	0	0	1	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0
07:45 AM	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0
Total	0	5	0	0	5	0	1	1	0	2	3	4	0	0	7	0	0	0	0	0
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	0	0	1	0	0	0	0	0	2	2	0	0	2	0	0	0	0	0
08:30 AM	0	2	0	0	2	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0
08:45 AM	0	0	1	0	1	0	0	0	0	0	2	2	0	0	2	0	0	0	0	0
Total	0	4	1	0	5	0	0	0	0	0	5	5	0	0	5	0	0	0	0	0
Grand Total	0	9	1	0	10	0	1	1	0	2	3	9	0	0	12	0	0	0	0	0
Approch %	0	90	10	0	41.7	0	50	50	0	8.3	25	75	0	0	50	0	0	0	0	0
Total %	0	37.5	4.2	0	41.7	0	4.2	4.2	0	8.3	12.5	37.5	0	0	50	0	0	0	0	0

Start Time	Millvale Ave. Southbound					Morewood Ave. Westbound					Millvale Ave. Northbound					Morewood Ave. Eastbound				
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total
	07:30 AM	0	1	0	0	1	0	1	1	0	2	1	0	0	0	1	0	0	0	0
07:45 AM	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	0	0	1	0	0	0	0	0	2	2	0	0	2	0	0	0	0	0
Total Volume	0	5	0	0	5	0	1	1	0	2	2	3	0	0	5	0	0	0	0	0
% App. Total	0	100	0	0	.625	0	50	50	0	.250	.40	60	0	0	.625	0	0	0	0	0
PHF	.000	.625	.000	.000	.625	.000	.250	.250	.000	.250	.500	.375	.000	.000	.625	.000	.000	.000	.000	.000

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

Employee Garage/ E. D. Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

File Name : HARLE00_10244_AM_#13
 Site Code : 10244013
 Start Date : 3/24/2011
 Page No : 1

Start Time	S. Aiken Ave.												UPMC Shadyside Dwys.												
	Southbound						Westbound						Northbound						Eastbound						
	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
07:00 AM	0	0	26	0	26	0	0	0	0	0	0	0	19	0	0	0	0	19	4	0	4	0	0	8	53
07:15 AM	0	0	31	1	32	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	5	0	0	5	58
07:30 AM	0	0	21	0	21	0	0	0	0	0	0	0	15	0	0	0	0	15	8	0	7	0	0	15	51
07:45 AM	0	0	19	0	19	0	0	0	0	0	0	0	22	0	0	0	0	22	5	0	5	0	0	10	51
Total	0	0	97	1	98	0	0	0	0	0	0	0	77	0	0	0	0	77	17	0	21	0	0	38	213
08:00 AM	0	0	17	0	17	0	0	0	0	0	0	0	20	0	0	0	0	20	3	0	2	0	0	5	42
08:15 AM	0	0	17	0	17	0	0	0	0	0	0	0	12	0	0	0	0	12	3	0	2	0	0	5	34
08:30 AM	0	1	8	0	9	0	0	0	0	0	0	0	10	0	0	0	0	10	2	0	2	0	0	4	23
08:45 AM	0	0	15	0	15	0	0	0	0	0	0	0	8	0	0	0	0	8	2	0	3	0	0	5	28
Total	0	1	57	0	58	0	0	0	0	0	0	0	50	0	0	0	0	50	10	0	9	0	0	19	127
Grand Total	0	1	154	1	156	0	0	0	0	0	0	0	127	0	0	0	0	127	27	0	30	0	0	57	340
Approach %	0	0.6	98.7	0.6		0	0	0	0	0	0	0	100	0	0	0	0	100	47.4	0	52.6	0	0	16.8	
Total %	0	0.3	45.3	0.3	45.9	0	0	0	0	0	0	0	37.4	0	0	0	0	37.4	7.9	0	8.8	0	0	16.8	
Employee Garage/ED Dwy.	0	1	154	0	155	0	0	0	0	0	0	0	126	0	0	0	0	126	26	0	29	0	0	55	336
% Employee Garage/ED Dwy.	0	100	100	0	99.4	0	0	0	0	0	0	0	99.2	0	0	0	0	99.2	96.3	0	96.7	0	0	96.5	98.8
Ambulance	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	2	4
% Ambulance	0	0	0	100	0.6	0	0	0	0	0	0	0	0.8	0	0	0	0	0.8	3.7	0	3.3	0	0	3.5	1.2

Start Time	S. Aiken Ave.												UPMC Shadyside Dwys.												
	Southbound						Westbound						Northbound						Eastbound						
	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour for Entire Intersection Begins at 07:30 AM	0	0	21	0	21	0	0	0	0	0	0	0	15	0	0	0	0	15	8	0	7	0	0	15	51
07:30 AM	0	0	19	0	19	0	0	0	0	0	0	0	22	0	0	0	0	22	5	0	5	0	0	10	51
08:00 AM	0	0	17	0	17	0	0	0	0	0	0	0	20	0	0	0	0	20	3	0	2	0	0	5	42
08:15 AM	0	0	17	0	17	0	0	0	0	0	0	0	12	0	0	0	0	12	3	0	2	0	0	5	34
Total Volume	0	0	74	0	74	0	0	0	0	0	0	0	69	0	0	0	0	69	19	0	16	0	0	35	178
% App. Total	0	0	100	0	100	0	0	0	0	0	0	0	100	0	0	0	0	100	54.3	0	45.7	0	0	583	.873
PHF	.000	.000	.881	.000	.881	.000	.000	.000	.000	.000	.000	.000	.784	.000	.000	.000	.784	.594	.000	.571	.000	.000	.583	.873	
Employee Garage/ED Dwy.	0	0	74	0	74	0	0	0	0	0	0	0	68	0	0	0	0	68	18	0	16	0	0	34	176
% Employee Garage/ED Dwy.	0	0	100	0	100	0	0	0	0	0	0	0	98.6	0	0	0	0	98.6	94.7	0	100	0	0	97.1	98.9
Ambulance	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	2
% Ambulance	0	0	0	0	0	0	0	0	0	0	0	0	1.4	0	0	0	0	1.4	5.3	0	0	0	0	2.9	1.1

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_AM_#13
 Site Code : 10244013
 Start Date : 3/24/2011
 Page No : 1

Employee Garage/ E. D. Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

Start Time	Groups Printed- Ambulance																					
	S. Aiken Ave. Southbound				Westbound				S. Aiken Ave. Northbound				UPMC Shadyside Dwys. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
Grand Total	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	4
Approch %	0	0	0	100	25	0	0	0	0	0	100	0	0	0	0	50	0	0	0	0	50	0
Total %	0	0	0	25	25	0	0	0	0	0	25	0	0	0	0	25	0	0	0	0	50	0

Start Time	S. Aiken Ave. Southbound												Westbound				S. Aiken Ave. Northbound				UPMC Shadyside Dwys. Eastbound			
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total			
	Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour for Entire Intersection Begins at 07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Volume	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	2		
% App. Total	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	100	50		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.000	.250	.000	.000	.000	.000	.250	.500		

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_AM_#14
 Site Code : 10244066
 Start Date : 3/24/2011
 Page No : 1

Claybourne St. at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244
 Board#4436 FS

Groups Printed: Vehicles -

Start Time	S. Aiken Ave. Southbound					Claybourne St. Westbound					S. Aiken Ave. Northbound					Eastbound											
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
	07:00 AM	0	0	0	0	0	2	0	4	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
07:30 AM	0	0	0	0	0	5	1	6	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
07:45 AM	0	0	0	0	0	5	0	5	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Total	0	0	0	0	0	15	1	17	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
08:00 AM	0	0	0	0	0	3	0	6	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
08:15 AM	0	0	0	0	0	3	0	7	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
08:30 AM	0	0	0	0	0	2	0	4	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
08:45 AM	0	0	0	0	0	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	10	0	20	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
Grand Total	0	0	0	0	0	25	1	37	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63
Approch %	0	0	0	0	0	39.7	1.6	58.7	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	39.7	1.6	58.7	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	25	1	37	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63
% Vehicles	0	0	0	0	0	100	100	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	S. Aiken Ave. Southbound					Claybourne St. Westbound					S. Aiken Ave. Northbound					Eastbound											
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
	07:30 AM	0	0	0	0	0	5	1	6	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	5	0	5	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
08:00 AM	0	0	0	0	0	3	0	6	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
08:15 AM	0	0	0	0	0	3	0	7	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Total Volume	0	0	0	0	0	16	1	24	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
% App. Total	0	0	0	0	0	39	2.4	58.5	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
PHF	.000	.000	.000	.000	.000	.800	.250	.857	0	.854	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.854

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Aiken Ave. & UPMC ShadySide
 Hosp. Patient/Visitor Garage Dwy.
 HARLE00#10244
 Board#4437 JR

File Name : HARLE00_10244_AM_#15
 Site Code : 10244077
 Start Date : 3/24/2011
 Page No : 1

Start Time	S. Aiken Ave.												Patient/ Visitor Garage Dwy.												
	Southbound						Westbound						Northbound						Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	73	16	0	89	0	0	0	0	0	0	0	16	93	0	0	109	7	0	0	6	0	0	13	211
07:15 AM	0	67	17	0	84	0	0	0	0	0	0	0	10	125	0	0	135	9	0	0	5	0	0	14	233
07:30 AM	0	90	28	0	118	0	0	0	0	0	0	0	18	138	0	0	156	12	0	0	8	0	0	20	294
07:45 AM	0	98	30	0	128	0	0	0	0	0	0	0	25	144	0	0	169	4	0	0	8	0	0	12	309
Total	0	328	91	0	419	0	0	0	0	0	0	0	69	500	0	0	569	32	0	0	27	0	0	59	1047
08:00 AM	0	76	16	0	92	0	0	0	0	0	0	0	16	129	0	0	145	10	0	0	5	0	0	15	252
08:15 AM	0	96	20	0	116	0	0	0	0	0	0	0	21	133	0	0	154	3	0	0	10	0	0	13	283
08:30 AM	0	91	20	0	111	0	0	0	0	0	0	0	25	161	0	0	186	7	0	0	5	0	0	12	309
08:45 AM	0	104	16	0	120	0	0	0	0	0	0	0	20	138	0	0	158	6	0	0	7	0	0	13	291
Total	0	367	72	0	439	0	0	0	0	0	0	0	82	561	0	0	643	26	0	0	27	0	0	53	1135
Grand Total	0	695	163	0	858	0	0	0	0	0	0	0	151	1061	0	0	1212	58	0	0	54	0	0	112	2182
Approch %	0	81	19	0	39.3	0	0	0	0	0	0	0	12.5	87.5	0	0	55.5	2.7	0	0	48.2	0	0	5.1	
Total %	0	31.9	7.5	0	39.3	0	0	0	0	0	0	0	6.9	48.6	0	0	55.5	2.7	0	0	2.5	0	0	5.1	
Vehicles	0	684	163	0	847	0	0	0	0	0	0	0	151	1056	0	0	1207	58	0	0	54	0	0	112	2166
% Vehicles	0	98.4	100	0	98.7	0	0	0	0	0	0	0	100	99.5	0	0	99.6	100	0	0	100	0	0	100	99.3
Heavy Duty Vehicles	0	11	0	0	11	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	16
% Heavy Duty Vehicles	0	1.6	0	0	1.3	0	0	0	0	0	0	0	0	0.5	0	0	0.4	0	0	0	0	0	0	0	0.7

Start Time	S. Aiken Ave.												Patient/ Visitor Garage Dwy.												
	Southbound						Westbound						Northbound						Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1	0	90	28	0	118	0	0	0	0	0	0	0	18	138	0	0	156	12	0	0	8	0	0	20	294
Peak Hour for Entire Intersection Begins at 07:30 AM	0	98	30	0	128	0	0	0	0	0	0	0	25	144	0	0	169	4	0	0	8	0	0	12	309
07:30 AM	0	76	16	0	92	0	0	0	0	0	0	0	16	129	0	0	145	10	0	0	5	0	0	15	252
07:45 AM	0	96	20	0	116	0	0	0	0	0	0	0	21	133	0	0	154	3	0	0	10	0	0	13	283
Total Volume	0	360	94	0	454	0	0	0	0	0	0	0	80	544	0	0	624	29	0	0	31	0	0	60	1138
% App. Total	0	79.3	20.7	0	88.7	0	0	0	0	0	0	0	12.8	87.2	0	0	92.3	48.3	0	0	51.7	0	0	75.0	.921
PHF	0.000	.918	.783	0.000	.887	0.000	.000	.000	.000	.000	.000	.000	.800	.944	.000	.000	.923	.604	.000	.000	.775	.000	.750	.750	.921
Vehicles	0	357	94	0	451	0	0	0	0	0	0	0	80	540	0	0	620	29	0	0	31	0	0	60	1131
% Vehicles	0	99.2	100	0	99.3	0	0	0	0	0	0	0	100	99.3	0	0	99.4	100	0	0	100	0	0	100	99.4
Heavy Duty Vehicles	0	3	0	0	3	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	7
% Heavy Duty Vehicles	0	0.8	0	0	0.7	0	0	0	0	0	0	0	0	0.7	0	0	0.6	0	0	0	0	0	0	0	0.6

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Aiken Ave. & UPMC Shadyside
 Hosp. Patient/Visitor Garage Dwy.
 HARLE00#10244
 Board#4437 JR

File Name : HARLE00_10244_AM_#15
 Site Code : 10244077
 Start Date : 3/24/2011
 Page No : 1

Start Time	Groups Printed- Heavy Duty Vehicles																		
	S. Aiken Ave. Southbound						S. Aiken Ave. Northbound						Patient/ Visitor Garage Dwy. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:00 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	4
07:45 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	0	3	0	0	3	0	0	0	0	0	5	0	0	0	0	0	0	0	8
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Grand Total	0	11	0	0	11	0	0	0	0	0	5	0	0	0	0	0	0	0	16
Approach %	0	100	0	0	68.8	0	0	0	0	0	100	0	0	0	0	0	0	0	0
Total %	0	68.8	0	0	68.8	0	0	0	0	0	31.2	0	0	0	0	0	0	0	0
S. Aiken Ave. Southbound																			
Start Time	Left	Thru	Right	Right on Red	App. Total	Int. Total	S. Aiken Ave. Northbound												Int. Total
07:30 AM	0	1	0	0	1	0	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0	0	.750	.750	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.333	.000	.000	.000	.000	.438

Start Time	S. Aiken Ave. Southbound												S. Aiken Ave. Northbound						Patient/ Visitor Garage Dwy. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total						
	07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Total Volume	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
% App. Total	0	100	0	0	.750	.750	0	0	0	0	0	0	0	0	0	0	0	0	0					
PHF	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.333	.000	.000	.000	.000	.438					

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Start Time	UPMC Shadyside Hosp. Maint. Dwy.											
	S. Aiken Ave. Southbound						S. Aiken Ave. Northbound					
	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	1	0	1	0	0	0	0	0	0	0
07:30 AM	1	0	1	0	2	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	2	0	3	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	1	0	1	0	0	0	0	0	0	0
08:45 AM	0	0	1	0	1	0	0	0	0	0	0	0
Total	0	0	2	0	2	0	0	0	0	0	0	0
Grand Total	1	0	4	0	5	0	0	0	0	0	0	0
Approach %	20	0	80	0			0	0	0	0	0	0
Total %	14.3	0	57.1	0	71.4		0	0	0	0	0	0
Vehicles	1	0	4	0	5	0	0	0	0	0	0	0
% Vehicles	100	0	100	0	100	0	0	0	0	0	0	0
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	UPMC Shadyside Hosp. Maint. Dwy.											
	S. Aiken Ave. Southbound						S. Aiken Ave. Northbound					
	Left	Thru	Right	Right on red	App. Total	Int. Total	Left	Thru	Right	Right on red	App. Total	Int. Total
07:30 AM	1	0	1	0	2	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	1	0	2	0	0	0	0	0	0	0
% App. Total	50	0	50	0	100	0	0	0	0	0	0	0
PHF	.250	.000	.250	.000	.250	.250	.000	.000	.000	.000	.250	.250
Vehicles	100	0	100	0	100	0	0	0	0	0	100	100
% Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & S Millvale PM
 Site Code : 81720001
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at S. Millvale Ave.
 OXF000#08172 Board#D4-4435 JCD

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	S. Millvale Ave. Southbound						S. Millvale Ave. Northbound						Baum Blvd. Eastbound													
	Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total	Int. Total		
02:00 PM	5	21	4	2	32		20	145	3	1	169		14	14	17	4	49		7	147	11	0	165		415	
02:15 PM	14	21	6	3	44		24	112	5	1	142		19	20	12	0	51		14	157	15	0	186		423	
02:30 PM	9	28	11	4	52		16	164	4	0	181		21	29	14	4	68		13	109	12	1	135		436	
02:45 PM	16	19	16	3	54		21	141	3	2	167		22	27	17	7	73		8	146	11	1	166		460	
Total	44	89	37	12	182		81	562	12	4	659		76	90	60	15	241		42	559	49	2	652		1734	
03:00 PM	6	18	6	0	30		17	161	3	0	181		19	19	14	5	57		11	128	20	1	160		428	
03:15 PM	11	18	21	0	50		19	149	1	1	170		23	23	17	1	57		20	139	18	0	177		454	
03:30 PM	6	38	11	1	56		16	167	3	0	186		21	18	7	2	48		7	151	15	0	173		463	
03:45 PM	16	35	11	1	63		14	148	4	1	167		17	26	11	3	57		12	166	13	0	191		478	
Total	39	109	49	2	199		66	625	11	2	704		73	86	49	11	219		50	584	66	1	701		1823	
04:00 PM	15	28	4	1	48		11	152	0	1	164		15	43	15	4	77		10	185	19	2	216		505	
04:15 PM	11	27	12	3	53		11	174	0	2	187		16	26	19	4	65		9	147	20	1	177		482	
04:30 PM	9	33	11	0	53		18	176	5	2	201		22	32	14	1	69		20	191	13	1	225		548	
04:45 PM	14	37	12	2	65		20	152	4	0	176		14	31	17	2	64		20	212	17	0	249		554	
Total	49	125	39	6	219		60	654	9	5	728		67	132	65	11	275		59	735	69	4	867		2089	
05:00 PM	8	31	5	6	50		17	135	5	0	157		17	34	27	1	79		19	247	22	1	289		575	
05:15 PM	8	23	9	2	42		25	167	5	1	198		18	38	16	1	73		13	253	23	1	290		603	
05:30 PM	14	25	7	2	48		17	139	3	0	159		11	24	31	4	70		17	241	17	3	278		555	
05:45 PM	7	40	5	2	54		17	147	5	3	172		11	32	18	5	66		21	242	27	5	295		587	
Total	37	119	26	12	194		76	588	18	4	686		57	128	92	11	288		70	983	89	10	1152		2320	
Grand Total	169	442	151	32	794		283	2429	50	15	2777		273	436	266	48	1023		221	2861	273	17	3372		7966	
Approach %	21.3	55.7	19	4		10.2	87.5	1.8	0.5		26.7	42.6	26	4.7		6.6	84.8	8.1	0.5		6.6	84.8	8.1	0.5		
Total %	2.1	5.5	1.9	0.4	10	3.6	30.5	0.6	0.2	34.9	3.4	5.5	3.3	0.6	12.8	2.8	35.9	3.4	0.2	42.3	2.8	35.9	3.4	0.2	42.3	
Typical Vehicles	161	424	151	31	767	270	2395	49	15	2729	250	415	263	48	976	219	2818	263	17	3317	219	2818	263	17	3317	7789
% Typical Vehicles	95.3	95.9	100	96.9	96.6	95.4	98.6	98	100	98.3	91.6	95.2	98.9	100	95.4	99.1	98.5	96.3	100	98.4	99.1	98.5	96.3	100	98.4	97.8
Heavy Duty Vehicles	8	18	0	1	27	13	34	1	0	48	23	21	3	0	47	2	43	10	0	55	2	43	10	0	55	177
% Heavy Duty Vehicles	4.7	4.1	0	3.1	3.4	4.6	1.4	2	0	1.7	8.4	4.8	1.1	0	4.6	0.9	1.5	3.7	0	1.6	0.9	1.5	3.7	0	1.6	2.2

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & S Millvale PM
 Site Code : 81720001
 Start Date : 4/8/2008
 Page No : 2

Baum Blvd. at S. Millvale Ave.
 OXF000#08172 Board#D4-4435 JCD

Start Time	S. Millvale Ave. Southbound				Baum Blvd. Westbound				S. Millvale Ave. Northbound				Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	6	18	6	0	17	161	3	0	181	19	19	14	5	11	128	1	160	428
03:15 PM	11	18	21	0	19	149	1	1	170	16	23	17	1	20	139	0	177	454
03:30 PM	6	38	11	1	16	167	3	0	186	21	18	7	2	7	151	0	173	463
03:45 PM	16	35	11	1	14	148	4	1	167	17	26	11	3	12	166	0	191	478
Total Volume	39	109	49	2	66	625	11	2	704	73	86	49	11	50	584	1	701	1823
% App. Total	19.6	54.8	24.6	1	9.4	88.8	1.6	0.3	94.6	33.3	39.3	22.4	5	7.1	83.3	9.4	0.1	95.3
PHF	.609	.717	.583	.500	.868	.936	.688	.500	.946	.869	.827	.721	.550	.625	.880	.825	.250	.918
Typical Vehicles	37	104	49	1	62	614	11	2	689	65	81	47	11	50	579	64	1	694
% Typical Vehicles	94.9	95.4	100	50.0	93.9	98.2	100	100	97.9	89.0	94.2	95.9	100	100	99.1	97.0	100	99.0
Heavy Duty Vehicles	2	5	0	1	4	11	0	0	15	8	5	2	0	0	5	2	0	7
% Heavy Duty Vehicles	5.1	4.6	0	50.0	6.1	1.8	0	0	2.1	11.0	5.8	4.1	0	0	0.9	3.0	0	1.0
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	14	37	12	2	20	152	4	0	176	14	31	17	2	20	212	17	0	249
05:00 PM	8	31	5	6	17	135	5	0	157	17	34	27	1	19	247	22	1	289
05:15 PM	8	23	9	2	25	167	5	1	198	18	38	16	1	13	253	23	1	290
05:30 PM	14	25	7	2	17	139	3	0	159	11	24	31	4	17	241	17	3	278
Total Volume	44	116	33	12	79	593	17	1	690	60	127	91	8	69	953	79	5	1106
% App. Total	21.5	56.6	16.1	5.9	11.4	85.9	2.5	0.1	87.1	21	44.4	31.8	2.8	6.2	86.2	7.1	0.5	93.3
PHF	.786	.784	.688	.500	.790	.888	.850	.250	.871	.833	.836	.734	.500	.863	.942	.859	.417	.953
Typical Vehicles	41	112	33	12	76	589	16	1	682	56	123	91	8	69	941	78	5	1093
% Typical Vehicles	93.2	96.6	100	100	96.2	99.3	94.1	100	98.8	93.3	96.9	100	100	100	98.7	98.7	100	98.8
Heavy Duty Vehicles	3	4	0	0	3	4	1	0	8	4	4	0	0	0	12	1	0	13
% Heavy Duty Vehicles	6.8	3.4	0	0	3.8	0.7	5.9	0	1.2	6.7	3.1	0	0	0	1.3	1.3	0	1.2

PHF = .80
 HV = 3%

PHF = .71
 HV = 3%

PHF = .75
 HV = 6%

PHF = .80
 HV = 0%

PHF = .83
 HV = 1%

PHF = .71
 HV = 0%

PHF = .75
 HV = 6%

PHF = .80
 HV = 0%

4955 Steubenville Pike, Suite 400
 Pittsburg, PA 15205
 412-490-0630

File Name : Baum & S Millvale PM
 Site Code : 81720001
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at S. Millvale Ave.
 OXF00#08172 Board#D4-4435 JCD

Groups Printed- Heavy Duty Vehicles

Start Time	S. Millvale Ave. Southbound				Baum Blvd. Westbound				S. Millvale Ave. Northbound				Baum Blvd. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	0	1	0	0	1	1	6	0	0	7	3	0	0	0	3	0	10	2	0	12	23
02:15 PM	0	1	0	0	1	0	2	0	0	2	1	2	0	0	3	0	7	0	0	7	13
02:30 PM	0	1	0	0	1	0	2	0	0	2	2	3	0	0	5	1	6	1	0	8	16
02:45 PM	1	3	0	0	4	1	3	0	0	4	1	1	0	0	2	0	1	0	0	1	11
Total	1	6	0	0	7	2	13	0	0	15	7	6	0	0	13	1	24	3	0	28	63
03:00 PM	1	1	0	0	2	0	3	0	0	3	4	2	0	0	6	0	1	1	0	2	13
03:15 PM	0	2	0	0	2	2	1	0	0	3	2	1	2	0	5	0	1	0	0	1	11
03:30 PM	0	1	0	0	1	0	3	0	0	3	1	0	0	0	1	0	2	1	0	3	8
03:45 PM	1	1	0	1	3	2	4	0	0	6	1	2	0	0	3	0	1	0	0	1	13
Total	2	5	0	1	8	4	11	0	0	15	8	5	2	0	15	0	5	2	0	7	45
04:00 PM	1	0	0	0	1	1	3	0	0	4	1	2	0	0	3	1	1	1	0	3	11
04:15 PM	0	1	0	0	1	1	1	0	0	2	2	1	0	0	3	0	1	1	0	2	8
04:30 PM	1	1	0	0	2	2	1	0	0	3	1	1	1	0	3	0	0	1	0	1	9
04:45 PM	1	1	0	0	2	1	2	1	0	4	0	1	0	0	1	0	3	0	0	3	10
Total	3	3	0	0	6	5	7	1	0	13	4	5	1	0	10	1	5	3	0	9	38
05:00 PM	0	2	0	0	2	0	1	0	0	1	2	1	0	0	3	0	4	1	0	5	11
05:15 PM	1	0	0	0	1	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	5
05:30 PM	1	1	0	0	2	1	1	0	0	2	1	1	0	0	2	0	4	0	0	4	10
05:45 PM	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	0	0	1	0	1	5
Total	2	4	0	0	6	2	3	0	0	5	4	5	0	0	9	0	9	2	0	11	31
Grand Total	8	18	0	1	27	13	34	1	0	48	23	21	3	0	47	2	43	10	0	55	177
Approach %	29.6	66.7	0	3.7		27.1	70.8	2.1	0		48.9	44.7	6.4	0		3.6	78.2	18.2	0		
Total %	4.5	10.2	0	0.6	15.3	7.3	19.2	0.6	0	27.1	13	11.9	1.7	0	26.6	1.1	24.3	5.6	0	31.1	

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & S Millvale PM
 Site Code : 81720001
 Start Date : 4/8/2008
 Page No : 2

Baum Blvd. at S. Millvale Ave.
 OXF00#08172 Board#D4-4435 JCD

Start Time	S. Millvale Ave. Southbound				Baum Blvd. Westbound				S. Millvale Ave. Northbound				Baum Blvd. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	1	1	0	0	2	0	3	0	0	3	4	2	0	0	6	0	1	1	0	0	2	13
03:15 PM	0	2	0	0	2	2	1	0	0	3	2	1	2	0	5	0	1	0	0	0	1	11
03:30 PM	0	1	0	0	1	0	3	0	0	3	1	0	0	0	1	0	2	1	0	0	3	8
03:45 PM	1	1	0	1	3	2	4	0	0	6	1	2	0	0	3	0	1	0	0	1	1	13
Total Volume	2	5	0	1	8	4	11	0	0	15	8	5	2	0	15	0	5	2	0	0	7	45
% App. Total	25	62.5	0	12.5	.667	26.7	73.3	0	0	.625	53.3	33.3	13.3	0	.625	0	71.4	28.6	0	0	.583	.865
PHF	.500	.625	.000	.250	.667	.500	.688	.000	.000	.625	.500	.625	.250	.000	.625	.000	.625	.500	.000	.000	.583	.865

Start Time	S. Millvale Ave. Southbound				Baum Blvd. Westbound				S. Millvale Ave. Northbound				Baum Blvd. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	1	1	0	0	2	1	2	1	0	4	0	1	0	0	1	0	0	0	0	0	0	10
05:00 PM	0	2	0	0	2	0	1	0	0	1	2	1	0	0	3	0	4	1	0	0	5	11
05:15 PM	1	0	0	0	1	1	0	0	0	1	1	1	0	0	2	0	1	0	0	0	1	5
05:30 PM	1	1	0	0	2	1	1	0	0	2	1	1	0	0	2	0	4	0	0	0	4	10
Total Volume	3	4	0	0	7	3	4	1	0	8	4	4	0	0	8	0	12	1	0	0	13	36
% App. Total	42.9	57.1	0	0	.875	37.5	50	12.5	0	.500	50	50	0	0	.667	0	92.3	7.7	0	0	.650	.818
PHF	.750	.500	.000	.000	.875	.750	.500	.250	.000	.500	.500	1.000	.000	.000	.667	.000	.750	.250	.000	.000	.650	.818

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Morewood PM
 Site Code : 81720002
 Start Date : 4/8/2008
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Baum Blvd. at Morewood Ave.
 OXFOR00#08172 Board#D4-4436 FS

Groups Printed: Typical Vehicles - Heavy Duty Vehicles

Start Time	Morewood Ave. Southbound						Baum Blvd. Westbound						Baum Blvd. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Flight	Right on Red	App. Total	Int. Total				
02:00 PM	0	3	0	0	3	0	27	141	4	0	172	27	10	29	3	69	0	123	22	7	152	396
02:15 PM	1	1	1	0	3	0	26	128	4	1	159	24	14	21	2	61	4	156	22	9	191	414
02:30 PM	3	1	3	0	7	0	27	146	6	1	180	33	10	19	3	65	3	112	21	3	139	391
02:45 PM	1	3	3	0	7	0	32	129	1	2	164	35	13	27	5	80	6	155	20	8	189	440
Total	5	8	7	0	20	0	112	544	15	4	675	119	47	96	13	275	13	546	85	27	671	1641
03:00 PM	4	3	2	1	10	0	19	158	6	0	183	21	16	22	4	63	3	136	19	5	163	419
03:15 PM	1	6	0	0	7	0	28	136	3	0	167	29	18	23	5	75	1	129	19	5	154	403
03:30 PM	3	2	4	0	9	0	44	169	8	0	221	30	14	29	5	78	3	130	16	12	161	469
03:45 PM	3	3	2	0	8	0	38	138	11	0	187	26	16	24	7	73	1	161	26	12	200	468
Total	11	14	8	1	34	0	129	601	28	0	758	106	64	98	21	289	8	556	80	34	678	1759
04:00 PM	0	3	0	0	3	0	32	141	4	0	177	26	12	34	8	80	1	166	37	4	208	468
04:15 PM	6	4	1	1	12	0	26	138	2	1	167	38	10	32	5	85	1	159	25	2	187	451
04:30 PM	2	0	1	1	4	0	26	179	4	0	209	43	7	25	9	84	2	168	31	5	206	503
04:45 PM	0	4	0	0	4	0	27	132	10	0	169	27	15	29	3	74	5	184	36	3	228	475
Total	8	11	2	2	23	0	111	590	20	1	722	134	44	120	25	323	9	677	129	14	829	1897
05:00 PM	9	7	2	1	19	0	22	110	4	1	137	42	9	28	2	81	4	214	33	11	262	499
05:15 PM	4	6	2	2	14	0	29	161	2	0	192	30	19	38	4	91	4	202	35	6	247	544
05:30 PM	4	4	3	0	11	0	19	143	1	1	164	31	10	37	8	86	1	231	33	7	272	533
05:45 PM	2	3	1	1	7	0	16	123	3	0	142	41	4	31	2	78	0	253	35	2	290	517
Total	19	20	8	4	51	0	86	537	10	2	635	144	42	134	16	336	9	900	136	26	1071	2093
Grand Total	43	53	25	7	128	0	438	2272	73	7	2790	503	197	448	75	1223	39	2679	430	101	3249	7390
Approach %	33.6	41.4	19.5	5.5	15.7	0	15.7	81.4	2.6	0.3	41.1	16.1	16.1	36.6	6.1	16.5	1.2	82.5	13.2	3.1	44	7280
Total %	0.6	0.7	0.3	0.1	1.7	0	5.9	30.7	1	0.1	37.8	6.8	2.7	6.1	1	16.5	0.5	36.3	5.8	1.4	44	7280
Typical Vehicles	43	52	25	7	127	0	435	2232	71	6	2744	500	195	442	73	1210	37	2641	423	98	3199	7280
% Typical Vehicles	100	98.1	100	100	99.2	0	99.3	98.2	97.3	85.7	98.4	99.4	99	98.7	97.3	98.9	94.9	98.6	98.4	97	98.5	98.5
Heavy Duty Vehicles	0	1	0	0	1	0	3	40	2	1	46	3	2	6	2	13	2	38	7	3	50	110
% Heavy Duty Vehicles	0	1.9	0	0	0.8	0	0.7	1.8	2.7	14.3	1.6	0.6	1	1.3	2.7	1.1	5.1	1.4	1.6	3	1.5	1.5

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File Name : Baum & Morewood PM
Site Code : 81720002
Start Date : 4/8/2008
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Baum Blvd. at Morewood Ave.
OXFOR00#08172 Board#D4-4436 FS

Start Time	Morewood Ave. Southbound				Baum Blvd. Westbound				Morewood Ave. Northbound				Baum Blvd. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	4	3	2	1	10	19	158	6	0	183	21	16	22	4	63	3	136	19	5	163	419
03:15 PM	1	6	0	0	7	28	136	3	0	167	29	18	23	5	75	1	129	19	5	154	403
03:30 PM	3	2	4	0	9	44	169	8	0	221	30	14	29	5	78	3	130	16	12	161	469
03:45 PM	3	3	2	0	8	38	138	11	0	187	26	16	24	7	73	1	161	26	12	200	468
Total Volume	11	14	8	1	34	129	601	28	0	758	106	64	98	21	289	8	556	80	34	678	1759
% App. Total	32.4	41.2	23.5	2.9		17	79.3	3.7	0		36.7	22.1	33.9	7.3		1.2	82	11.8	5		
PHF	.688	.583	.500	.250	.850	.733	.889	.636	.000	.857	.883	.889	.845	.750	.926	.667	.863	.769	.708	.848	.938
Typical Vehicles	11	14	8	1	34	129	589	27	0	745	105	62	96	21	284	6	551	77	34	668	1731
% Typical Vehicles	100	100	100	100	100	100	98.0	96.4	0	98.3	99.1	96.9	98.0	100	98.3	75.0	99.1	96.3	100	98.5	98.4
Heavy Duty Vehicles	0	0	0	0	0	0	12	1	0	13	1	2	2	0	5	2	5	3	0	10	28
% Heavy Duty Vehicles	0	0	0	0	0	0	2.0	3.6	0	1.7	0.9	3.1	2.0	0	1.7	25.0	0.9	3.8	0	1.5	1.6
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	4	0	0	4	27	132	10	0	169	27	15	29	3	74	5	184	36	3	228	475
05:00 PM	9	7	2	1	19	22	110	4	1	137	42	9	28	2	81	4	214	33	11	262	499
05:15 PM	4	6	2	2	14	29	161	2	0	192	30	19	38	4	91	4	202	35	6	247	544
05:30 PM	4	4	3	0	11	19	143	1	1	164	31	10	37	8	86	1	231	33	7	272	533
Total Volume	17	21	7	3	48	97	546	17	2	662	130	53	132	17	332	14	831	137	27	1009	2051
% App. Total	35.4	43.8	14.6	6.2		14.7	82.5	2.6	0.3		39.2	16	39.8	5.1		1.4	82.4	13.6	2.7		
PHF	.472	.750	.583	.375	.632	.836	.848	.425	.500	.862	.774	.697	.868	.531	.912	.700	.899	.951	.614	.927	.943
Typical Vehicles	17	21	7	3	48	96	539	16	2	653	129	53	131	17	330	14	823	136	26	999	2030
% Typical Vehicles	100	100	100	100	100	99.0	98.7	94.1	100	98.6	99.2	100	99.2	100	99.4	100	99.0	99.3	96.3	99.0	99.0
Heavy Duty Vehicles	0	0	0	0	0	1	7	1	0	9	1	0	1	0	2	0	8	1	1	10	21
% Heavy Duty Vehicles	0	0	0	0	0	1.0	1.3	5.9	0	1.4	0.8	0	0.8	0	0.6	0	1.0	0.7	3.7	1.0	1.0

PHF = 0.88
HV = 2%

PHF = 0.50
HV = 0%

PHF = 0.75
HV = 3%

PHF = .48
% HV = 5%

PHF = .63
% HV = 0%

PHF = .93
% HV = 1%

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File Name : Baum & Morewood PM
 Site Code : 81720002
 Start Date : 4/8/2008
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Baum Blvd. at Morewood Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Morewood Ave. Southbound				Baum Blvd. Westbound				Morewood Ave. Northbound				Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	0	0	0	0	2	0	0	2	1	2	0	0	0	0	0	3	6
03:15 PM	0	0	0	0	0	2	0	0	2	0	0	1	0	1	3	0	1	7
03:30 PM	0	0	0	0	0	4	1	0	5	0	0	0	0	2	1	0	4	9
03:45 PM	0	0	0	0	0	4	0	0	4	0	0	1	0	0	1	0	1	6
Total Volume	0	0	0	0	0	12	1	0	13	1	2	2	0	2	5	3	5	28
% App. Total	0	0	0	0	0	92.3	7.7	0	0	20	40	40	0	20	50	30	0	28
PHF	.000	.000	.000	.000	.000	.750	.250	.000	.650	.250	.250	.500	.000	.500	.417	.750	.000	.778
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	0	0	0	0	0	2	0	0	2	0	0	1	0	0	2	0	1	6
05:00 PM	0	0	0	0	1	2	1	0	4	0	0	0	0	0	3	0	0	7
05:15 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	2
05:30 PM	0	0	0	0	0	2	0	0	2	1	0	0	0	2	1	0	1	6
Total Volume	0	0	0	0	1	7	1	0	9	1	0	1	0	8	1	1	2	21
% App. Total	0	0	0	0	11.1	77.8	11.1	0	0	50	0	50	0	0	80	10	10	21
PHF	.000	.000	.000	.000	.250	.875	.250	.000	.563	.250	.000	.250	.000	.000	.667	.250	.250	.750

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 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Cypress PM
 Site Code : 81720003
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	Cypress St. Southbound						Baum Blvd. Westbound						Cypress St. Northbound						Baum Blvd. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
	02:00 PM	7	8	3	2	20		2	158	2	0	162		11	5	9	1	26		0	135	6	1	142	350
02:15 PM	4	3	7	2	16		10	146	4	0	160		5	3	13	7	28		3	164	11	1	179	383	
02:30 PM	3	7	3	3	16		9	161	3	0	173		8	6	15	4	33		3	128	6	0	137	359	
02:45 PM	6	3	4	3	16		6	154	1	0	161		8	5	8	3	24		4	176	6	1	187	388	
Total	20	21	17	10	68		27	619	10	0	656		32	19	45	15	111		10	603	29	3	645	1480	
03:00 PM	5	0	2	2	9		9	167	3	0	179		19	7	15	2	43		4	158	2	0	164	395	
03:15 PM	6	4	1	5	16		5	153	3	0	161		11	6	10	2	29		4	133	6	0	143	349	
03:30 PM	4	5	7	3	19		11	196	0	0	207		7	7	23	1	42		4	164	1	0	169	437	
03:45 PM	3	4	7	1	15		13	158	3	0	174		14	4	15	5	38		2	191	4	0	197	424	
Total	18	13	17	11	59		38	674	9	0	721		55	24	63	10	152		14	646	13	0	673	1605	
04:00 PM	6	3	4	6	19		5	149	1	0	155		13	10	25	7	55		3	195	8	2	208	437	
04:15 PM	8	4	6	4	22		7	150	2	0	159		15	10	26	4	55		6	182	5	1	194	430	
04:30 PM	9	5	5	5	24		7	174	2	1	184		19	12	28	3	62		8	198	2	0	208	478	
04:45 PM	9	2	7	3	21		4	143	6	1	154		19	10	27	3	59		1	222	7	1	231	465	
Total	32	14	22	18	86		23	616	11	2	652		66	42	106	17	231		18	797	22	4	841	1810	
05:00 PM	4	4	0	4	12		5	132	0	0	137		13	11	22	7	53		1	258	4	0	263	465	
05:15 PM	3	2	3	1	9		4	172	1	1	178		13	8	25	1	47		1	256	5	0	262	496	
05:30 PM	5	9	3	1	18		5	139	1	0	145		11	10	15	1	37		5	277	4	1	287	487	
05:45 PM	5	3	3	5	16		6	125	0	0	131		12	4	14	7	37		5	248	4	0	257	441	
Total	17	18	9	11	55		20	568	2	1	591		49	33	76	16	174		12	1039	17	1	1069	1889	
Grand Total	87	66	65	50	268		108	2477	32	3	2820		202	118	290	58	668		54	3085	81	8	3228	6784	
Approch %	32.5	24.6	24.3	18.7		4.1	94.5	1.2	0.1		30.2	17.7	43.4	8.7		1.7	95.6	2.5	0.2		1.7	95.6	2.5	0.2	
Total %	1.3	1	1	0.7	4		1.6	36.5	0.5	0	38.6		3	1.7	4.3	0.9	9.8		0.8	45.5	1.2	0.1	47.6		
Typical Vehicles	87	64	61	48	260		107	2425	31	3	2566		201	115	288	56	660		52	3037	80	8	3177	6663	
% Typical Vehicles	100	97	93.8	96	97		99.1	97.9	96.9	100	97.9		99.5	97.5	99.3	96.6	98.8		96.3	98.4	98.8	100	98.4	98.2	
Heavy Duty Vehicles	0	2	4	2	8		1	52	1	0	54		1	3	2	2	8		2	48	1	0	51	121	
% Heavy Duty Vehicles	0	3	6.2	4	3		0.9	2.1	3.1	0	2.1		0.5	2.5	0.7	3.4	1.2		3.7	1.6	1.2	0	1.6	1.8	

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File Name : Baum & Cypress PM
Site Code : 81720003
Start Date : 4/8/2008
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Baum Blvd. at Cypress St.
OXFOR008172 Board#D4-4434 JD

Start Time	Cypress St. Southbound				Baum Blvd. Westbound				Cypress St. Northbound				Baum Blvd. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total					
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	5	0	2	2	9	9	167	3	0	179	19	7	15	2	43	4	158	2	0	164	395
03:15 PM	6	4	1	5	16	5	153	3	0	161	11	6	10	2	29	4	133	6	0	143	349
03:30 PM	4	5	7	3	19	11	196	0	0	207	11	7	23	1	42	4	164	1	0	169	437
03:45 PM	3	4	7	1	15	13	158	3	0	174	14	4	15	5	38	2	191	4	0	197	424
Total Volume	18	13	17	11	59	38	674	9	0	721	55	24	63	10	152	14	646	13	0	673	1605
% App. Total	30.5	22	28.8	18.6	77.6	5.3	93.5	1.2	0	871	36.2	15.8	41.4	6.6	884	2.1	96	1.9	0	854	918
PHF	.750	.650	.607	.550	.776	.731	.860	.750	.000	.871	.724	.857	.685	.500	.884	.875	.846	.542	.000	.854	.918
Typical Vehicles	18	12	16	10	56	37	660	9	0	706	55	22	61	10	148	13	640	13	0	666	1576
% Typical Vehicles	100	92.3	94.1	90.9	94.9	97.4	97.9	100	0	97.9	100	91.7	96.8	100	97.4	92.9	99.1	100	0	99.0	98.2
Heavy Duty Vehicles	0	1	1	1	3	1	14	0	0	15	0	2	2	0	4	1	6	0	0	7	29
% Heavy Duty Vehicles	0	7.7	5.9	9.1	5.1	2.6	2.1	0	0	2.1	0	8.3	3.2	0	2.6	7.1	0.9	0	0	1.0	1.8
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	9	2	7	3	21	4	143	6	1	154	19	10	27	3	59	1	222	7	1	231	465
05:00 PM	4	4	0	4	12	5	132	0	0	137	13	11	22	7	53	1	258	4	0	263	465
05:15 PM	3	2	3	1	9	4	172	1	1	178	13	8	25	1	47	1	256	5	0	262	496
05:30 PM	5	9	3	1	18	5	139	1	0	145	11	10	15	1	37	5	277	4	1	287	487
Total Volume	21	17	13	9	60	18	586	8	2	614	56	39	89	12	196	8	1013	20	2	1043	1913
% App. Total	35	28.3	21.7	15	77.4	2.9	95.4	1.3	0.3	862	28.6	19.9	45.4	6.1	831	0.8	97.1	1.9	0.2	909	964
PHF	.583	.472	.464	.563	.714	.900	.852	.333	.500	.862	.737	.886	.824	.429	.831	.400	.914	.714	.500	.909	964
Typical Vehicles	21	16	12	9	58	18	578	7	2	605	56	39	89	12	196	8	1000	19	2	1029	1888
% Typical Vehicles	100	94.1	92.3	100	96.7	100	98.6	87.5	100	98.5	100	100	100	100	100	100	98.7	95.0	100	98.7	98.7
Heavy Duty Vehicles	0	1	1	0	2	0	8	1	0	9	0	0	0	0	0	0	13	1	0	14	25
% Heavy Duty Vehicles	0	5.9	7.7	0	3.3	0	1.4	12.5	0	1.5	0	0	0	0	0	0	1.3	5.0	0	1.3	1.3

PHF = .76
HV = 31%

PHF = .84
HV = 0%

PHF = .36
HV = 10%

PHF = .55
HV = 5%

PHF = .69
% HV = 5%

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Cypress PM
 Site Code : 81720003
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Groups Printed: Heavy Duty Vehicles

Start Time	Cypress St. Southbound				Baum Blvd. Westbound				Cypress St. Northbound				Baum Blvd. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	0	0	1	0	1	0	9	0	0	9	1	0	0	0	1	0	4	0	0	4	15
02:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	8	0	0	9	12
02:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
02:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10
Total	0	0	1	0	1	0	19	0	0	19	1	0	0	0	1	1	21	0	0	22	43
03:00 PM	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	4
03:15 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	6
03:30 PM	0	0	0	0	0	1	5	0	0	6	0	0	1	0	1	0	2	0	0	2	9
03:45 PM	0	0	1	1	2	0	5	0	0	5	0	0	1	0	1	0	2	0	0	2	10
Total	0	1	1	1	3	1	14	0	0	15	0	2	2	0	4	1	6	0	0	7	29
04:00 PM	0	0	0	1	1	0	3	0	0	3	0	1	0	0	1	0	3	0	0	3	8
04:15 PM	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	8
04:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	1	1	0	1	0	0	1	5
04:45 PM	0	0	1	0	1	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	8
Total	0	0	2	1	3	0	13	1	0	14	0	1	0	1	2	0	10	0	0	10	29
05:00 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	6	0	0	6	9
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	5
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	0	1	3
Total	0	1	0	0	1	0	6	0	0	6	0	0	0	1	1	0	11	1	0	12	20
Grand Total	0	2	4	2	8	1	52	1	0	54	1	3	2	2	8	2	48	1	0	51	121
Approach %	0	25	50	25	6.6	1.9	96.3	1.9	0	44.6	12.5	37.5	25	25	6.6	3.9	94.1	2	0	42.1	
Total %	0	1.7	3.3	1.7	6.6	0.8	43	0.8	0	44.6	0.8	2.5	1.7	1.7	6.6	1.7	39.7	0.8	0	42.1	

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Start Time	Cypress St. Southbound				Baum Blvd. Westbound				Cypress St. Northbound				Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	0	0	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0
03:15 PM	0	1	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	1	5	0	0	6	0	0	1	0	2	0	0	2	9
03:45 PM	0	0	1	1	0	0	0	0	5	0	0	0	0	2	0	0	2	10
Total Volume	0	1	1	1	1	14	0	0	15	0	2	2	0	6	0	0	7	29
% App. Total	0	33.3	33.3	33.3	6.7	93.3	0	0	15	0	50	50	0	85.7	0	0	7	29
PHF	.000	.250	.250	.250	.250	.700	.000	.000	.625	.000	.250	.500	.000	.750	.000	.000	.583	.725
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	0	0	1	0	0	3	1	0	4	0	0	0	0	3	0	0	0	8
05:00 PM	0	1	0	0	0	2	0	0	2	0	0	0	0	6	0	0	6	9
05:15 PM	0	0	0	0	0	2	0	0	2	0	0	0	0	2	1	0	3	5
05:30 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	2	3
Total Volume	0	1	1	0	0	8	1	0	9	0	0	0	0	13	1	0	14	25
% App. Total	0	50	50	0	0	88.9	11.1	0	9	0	0	0	0	92.9	7.1	0	14	25
PHF	.000	.250	.250	.000	.500	.667	.250	.000	.563	.000	.000	.000	.000	.542	.250	.000	.583	.694

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

(bank 2 to S. Atlantic)
Baum Blvd. at Liberty Ave./
S. Atlantic Ave.
OXFOR00#08172 Board#D4-4436 FS

File Name : Baum & Liberty PM
Site Code : 81720004
Start Date : 4/23/2008
Page No : 1

Groups Printed: Typical Vehicles - Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound						Baum Blvd. Westbound						Liberty Ave. Northbound						Baum Blvd. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
02:00 PM	3	29	77	14	124	14	129	21	4	169	20	73	3	0	97	11	96	8	2	126	516						
02:15 PM	4	28	98	10	140	6	108	27	4	145	13	79	3	1	96	11	7	125	24	0	167	548					
02:30 PM	2	34	68	6	111	19	121	37	4	182	22	58	4	0	85	9	8	115	20	8	160	538					
02:45 PM	4	41	109	12	167	21	106	31	5	163	18	62	6	1	87	9	13	123	19	0	164	581					
Total	13	132	352	42	542	60	464	116	17	659	73	272	16	2	365	40	37	459	71	10	617	2183					
03:00 PM	5	30	76	14	128	5	136	22	3	166	30	74	1	2	107	10	10	138	20	2	180	581					
03:15 PM	5	35	100	8	148	19	115	24	1	159	21	41	7	2	71	10	4	142	19	1	176	554					
03:30 PM	9	31	69	12	121	15	157	35	5	212	31	69	7	1	108	15	6	197	22	1	241	682					
03:45 PM	5	38	93	13	152	16	125	29	2	174	25	75	7	0	107	4	1	158	18	1	182	615					
Total	24	134	338	47	549	55	533	110	11	711	107	259	22	5	393	39	21	635	79	5	779	2432					
04:00 PM	8	45	92	15	161	14	127	35	2	179	25	80	2	2	109	10	11	209	16	0	246	695					
04:15 PM	5	36	98	7	146	10	122	29	0	161	16	74	6	0	96	17	5	162	19	0	203	606					
04:30 PM	2	41	106	16	165	15	135	30	1	181	16	92	3	1	112	11	7	192	27	1	238	696					
04:45 PM	2	38	97	9	146	14	108	28	3	153	24	63	5	0	92	13	5	207	26	1	252	643					
Total	17	160	393	47	618	53	492	122	6	674	81	309	16	3	409	51	28	770	88	2	939	2640					
05:00 PM	1	47	104	13	166	12	142	37	1	192	25	94	3	0	122	16	8	204	28	0	256	736					
05:15 PM	3	31	77	8	120	7	152	25	3	187	18	66	4	2	90	14	14	233	26	1	288	685					
05:30 PM	3	32	99	9	145	15	133	39	1	188	10	89	9	3	111	12	11	221	35	1	280	724					
05:45 PM	4	48	115	12	180	12	110	36	1	159	29	90	1	1	121	7	11	219	34	1	272	732					
Total	11	158	395	42	611	46	537	137	6	726	82	339	17	6	444	49	44	877	123	3	1096	2877					
Grand Total	65	584	1478	178	2320	214	2026	485	40	2770	343	1179	71	16	1611	179	130	2741	361	20	3431	10132					
Approach %	2.8	25.2	63.7	7.7	0.6	7.7	73.1	17.5	1.4	0.2	21.3	73.2	4.4	1	0.1	5.2	3.8	79.9	10.5	0.6							
Total %	0.6	5.8	14.6	1.8	0.1	22.9	2.1	20	4.8	0.4	3.4	11.6	0.7	0.2	15.9	1.8	1.3	27.1	3.6	0.2	33.9						
Typical Vehicles	65	579	1465	173	2297	204	1984	475	40	2708	337	1155	71	16	1581	176	130	2710	359	20	3395	9981					
% Typical Vehicles	100	99.1	99.1	97.2	100	95.3	97.9	97.9	100	97.8	98.3	98	100	100	98.1	98.3	100	98.9	99.4	100	99	98.5					
Heavy Duty Vehicles	0	5	13	5	23	10	42	10	0	62	6	24	0	0	30	3	0	31	2	0	36	151					
% Heavy Duty Vehicles	0	0.9	0.9	2.8	0	4.7	2.1	2.1	0	2.2	1.7	2	0	0	1.9	1.7	0	1.1	0.6	0	1	1.5					

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Baum & Liberty PM
Site Code : 81720004
Start Date : 4/23/2008
Page No : 2

(bank 2 to S. Atlantic)
Baum Blvd. at Liberty Ave./
S. Atlantic Ave.
OXFOR00#08172 Board#D4-4436 FS

Start Time	Liberty Ave. Southbound						Baum Blvd. Westbound						Liberty Ave. Northbound						Baum Blvd. Eastbound																						
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left					
	Left to S. Atlantic						Left to S. Atlantic						Left to S. Atlantic						Left to S. Atlantic						Left to S. Atlantic						Left to S. Atlantic						Left to S. Atlantic				
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 03:00 PM																																									
03:00 PM	5	30	76	14	3	128	5	136	22	3	0	166	30	74	1	2	0	107	10	10	138	20	2	180	10	10	10	138	20	2	180	10	10	138	20	2	180				
03:15 PM	5	35	100	8	0	148	19	115	24	1	0	159	21	41	7	2	0	71	10	4	142	19	1	176	10	4	142	19	1	176	10	4	142	19	1	176					
03:30 PM	9	31	69	12	0	121	15	157	35	5	0	212	31	69	7	1	0	108	15	6	197	22	1	241	15	6	197	22	1	241	15	6	197	22	1	241					
03:45 PM	5	38	93	13	3	152	16	125	29	2	2	174	25	75	7	0	0	107	4	1	158	18	1	182	4	1	158	18	1	182	4	1	158	18	1	182					
Total Volume	24	134	338	47	6	549	55	533	110	11	2	711	107	259	22	5	0	393	39	21	635	79	5	779	39	21	635	79	5	779	39	21	635	79	5	779					
% App. Total	4.4	24.4	61.6	8.6	1.1	903	7.7	75	15.5	1.5	0.3	838	27.2	65.9	5.6	1.3	0	910	5	2.7	81.5	10.1	0.6	808	5	2.7	81.5	10.1	0.6	808	5	2.7	81.5	10.1	0.6	808					
PHF	.667	.882	.845	.839	.500	.903	.724	.849	.786	.550	.250	.838	.863	.863	.786	.625	.000	.910	.650	.525	.806	.898	.625	.808	.650	.525	.806	.898	.625	.808	.650	.525	.806	.898	.625	.808					
Typical Vehicles	24	132	333	45	6	540	52	522	107	11	2	694	104	254	22	5	0	385	38	21	625	78	5	767	38	21	625	78	5	767	38	21	625	78	5	767					
% Typical Vehicles	100	98.5	98.5	95.7	100	98.4	94.5	97.9	97.3	100	100	97.6	97.2	98.1	100	100	0	98.0	97.4	100	98.4	98.7	100	98.5	97.4	100	98.4	98.7	100	98.5	97.4	100	98.5	97.4	100	98.5					
Heavy Duty Vehicles	0	2	5	2	0	9	3	11	3	0	0	17	3	5	0	0	0	8	1	0	10	1	0	12	1	0	10	1	0	12	1	0	10	1	0	12					
% Heavy Duty Vehicles	0	1.5	1.5	4.3	0	1.6	5.5	2.1	2.7	0	0	2.4	2.8	1.9	0	0	0	2.0	2.6	0	1.6	1.3	0	1.5	2.6	0	1.6	1.3	0	1.5	2.6	0	1.6	1.3	0	1.5					
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 04:45 PM																																									
04:45 PM	2	38	97	9	0	146	14	108	28	3	0	153	24	63	5	0	92	13	5	207	26	1	252	13	5	207	26	1	252	13	5	207	26	1	252						
05:00 PM	1	47	104	13	1	166	12	142	37	1	0	192	25	94	3	0	0	122	16	8	204	28	0	256	16	8	204	28	0	256	16	8	204	28	0	256					
05:15 PM	3	31	77	8	1	120	7	152	25	3	0	187	18	66	4	2	0	90	14	14	233	26	1	288	14	14	233	26	1	288	14	14	233	26	1	288					
05:30 PM	3	32	99	9	2	145	15	133	39	1	0	188	10	89	9	3	0	111	12	11	221	35	1	280	12	11	221	35	1	280	12	11	221	35	1	280					
Total Volume	9	148	377	39	4	577	48	535	129	8	0	720	77	312	21	5	0	415	55	38	865	115	3	1076	55	38	865	115	3	1076	55	38	865	115	3	1076					
% App. Total	1.6	25.6	65.3	6.8	0.7	869	6.7	74.3	17.9	1.1	0	938	18.6	75.2	5.1	1.2	0	850	5.1	3.5	80.4	10.7	0.3	934	5.1	3.5	80.4	10.7	0.3	934	5.1	3.5	80.4	10.7	0.3	934					
PHF	.750	.787	.906	.750	.500	.869	.800	.880	.827	.667	.000	.938	.770	.830	.583	.417	.000	.850	.859	.679	.928	.821	.750	.934	.859	.679	.928	.821	.750	.934	.859	.679	.928	.821	.750	.934					
Typical Vehicles	9	148	374	39	4	574	46	525	126	8	0	705	76	307	21	5	0	409	53	38	857	115	3	1066	53	38	857	115	3	1066	53	38	857	115	3	1066					
% Typical Vehicles	100	100	99.2	100	100	99.5	95.8	98.1	97.7	100	0	97.9	98.7	98.4	100	100	0	98.6	96.4	100	99.1	100	100	99.1	96.4	100	99.1	100	100	99.1	96.4	100	99.1	96.4	100	99.1					
Heavy Duty Vehicles	0	0	3	0	0	3	2	10	3	0	0	15	1	5	0	0	0	6	2	0	8	0	0	10	2	0	8	0	0	10	2	0	8	0	0	10					
% Heavy Duty Vehicles	0	0	0.8	0	0	0.5	4.2	1.9	2.3	0	0	2.1	1.3	1.6	0	0	0	1.4	3.6	0	0.9	0	0	0.9	3.6	0	0.9	0	0	0.9	3.6	0	0.9	3.6	0	0.9					

PHF = .91
HV = 1.1

PHF = .65
HV = 0.1

PHF = .88
HV = 0.1

PHF = .77
HV = 0.1

11 0115 030000000000

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Baum & Liberty PM
Site Code : 81720004
Start Date : 4/23/2008
Page No : 1

(bank 2 to S. Atlantic)
Baum Blvd. at Liberty Ave./
S. Atlantic Ave.
OXFOR00#08172 Board#D4-4436 FS

Groups Printed- Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound				Baum Blvd. Westbound				Liberty Ave. Northbound				Baum Blvd. Eastbound					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
02:00 PM	0	1	0	2	0	2	1	3	0	1	0	1	0	0	0	0	0	6
02:15 PM	0	1	0	2	0	4	1	5	0	2	0	2	0	0	1	0	1	10
02:30 PM	0	1	0	2	0	3	0	3	0	2	0	2	0	0	4	1	5	12
02:45 PM	0	0	1	2	0	1	1	2	0	2	0	2	0	0	3	0	3	9
Total	0	3	2	8	0	10	3	13	0	7	0	7	0	0	8	1	9	37
03:00 PM	0	1	2	4	0	2	0	2	1	2	0	3	0	0	1	0	1	10
03:15 PM	0	1	1	2	1	3	1	5	1	0	0	1	1	0	2	0	3	11
03:30 PM	0	0	1	1	1	2	1	4	0	3	0	3	0	0	5	1	6	14
03:45 PM	0	0	1	2	1	4	1	6	1	0	0	1	0	0	2	0	2	11
Total	0	2	5	9	3	11	3	17	3	5	0	8	1	0	10	1	12	46
04:00 PM	0	0	1	1	1	3	1	5	1	3	0	4	0	0	0	0	0	10
04:15 PM	0	0	1	1	2	5	0	7	1	3	0	4	0	0	1	0	1	13
04:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	3	5
04:45 PM	0	0	1	1	1	3	0	4	1	1	0	2	0	0	2	0	2	9
Total	0	0	3	3	6	11	1	18	3	7	0	10	0	0	6	0	6	37
05:00 PM	0	0	0	0	1	3	1	5	0	2	0	2	1	0	3	0	4	11
05:15 PM	0	0	0	0	0	1	2	3	0	1	0	1	0	0	2	0	2	6
05:30 PM	0	0	2	2	0	3	0	3	0	1	0	1	1	0	1	0	2	8
05:45 PM	0	0	1	1	0	3	0	3	0	1	0	1	0	0	1	0	1	6
Total	0	0	3	3	1	10	3	14	0	5	0	5	2	0	7	0	9	31
Grand Total	0	5	13	23	10	42	10	62	6	24	0	30	3	0	31	2	36	151
Approach %	0	21.7	56.5	21.7	16.1	67.7	16.1	41.1	20	80	0	19.9	8.3	0	86.1	5.6	23.8	
Total %	0	3.3	8.6	3.3	6.6	27.8	6.6	15.2	4	15.9	0	4.5	2	0	20.5	1.3	6.6	

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Liberty PM
 Site Code : 81720004
 Start Date : 4/23/2008
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(bank 2 to S. Atlantic)
 Baum Blvd. at Liberty Ave./
 S. Atlantic Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Liberty Ave. Southbound				Baum Blvd. Westbound				Liberty Ave. Northbound				Baum Blvd. Eastbound							
	Left to S. Atlantic	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left to S. Atlantic	Left	Thru	Right	Right on Red	App. Total	Int. Total		
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 03:00 PM																				
03:00 PM	0	1	2	1	0	4	0	2	0	0	2	1	2	0	0	0	3	0	0	
03:15 PM	0	1	1	0	0	2	1	3	1	0	5	1	0	0	0	0	1	1	0	
03:30 PM	0	0	1	0	0	1	1	2	1	0	4	0	3	0	0	0	3	0	0	
03:45 PM	0	0	1	1	0	2	1	4	1	0	6	1	0	0	0	1	1	0	0	
Total Volume	0	2	5	2	0	9	3	11	3	0	17	3	5	0	0	8	1	0	10	
% App. Total	0	22.2	55.6	22.2	0	17.6	64.7	17.6	0	0	37.5	62.5	0	0	0	8.3	0	83.3	8.3	
PHF	.000	.500	.625	.500	.000	.563	.750	.688	.750	.000	.708	.750	.417	.000	.000	.667	.250	.000	.500	.821
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 04:45 PM																				
04:45 PM	0	0	1	0	0	1	1	3	0	0	4	1	1	0	0	0	2	0	0	
05:00 PM	0	0	0	0	0	0	1	3	1	0	5	0	2	0	0	0	2	1	0	
05:15 PM	0	0	0	0	0	0	0	1	2	0	3	0	1	0	0	0	1	0	0	
05:30 PM	0	0	2	0	0	2	0	3	0	0	3	0	1	0	0	0	1	1	0	
Total Volume	0	0	3	0	0	3	2	10	3	0	15	1	5	0	0	6	2	0	8	
% App. Total	0	0	100	0	0	13.3	66.7	20	0	0	16.7	83.3	0	0	0	20	0	80	0	
PHF	.000	.000	.375	.000	.000	.375	.500	.833	.375	.000	.750	.250	.625	.000	.000	.750	.500	.000	.625	.773

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & S Aiken PM
 Site Code : 81720005
 Start Date : 4/23/2008
 Page No : 1

Baum Blvd. at S. Aiken Ave.
 OXF00#08172 Board#D4-4434 JD

Groups Printed- Typical Vehicles - Heavy Duty Vehicles

Start Time	S. Aiken Ave. Southbound						Baum Blvd. Westbound						S. Aiken Ave. Northbound						Baum Blvd. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	6	0	8	8	22	0	0	153	1	0	154	0	0	1	13	9	23	0	2	136	0	0	138	337
02:15 PM	4	0	6	4	14	0	0	132	2	0	134	0	2	1	11	13	27	0	0	147	0	0	147	322
02:30 PM	6	0	7	9	22	0	0	157	2	0	159	0	3	5	18	8	34	0	2	149	0	0	151	366
02:45 PM	5	0	4	2	11	0	0	156	0	0	156	0	4	2	10	15	31	0	0	155	0	0	155	353
Total	21	0	25	23	69	0	0	598	5	0	603	0	9	9	52	45	115	0	4	587	0	0	591	1378
03:00 PM	3	0	3	4	10	0	0	171	0	0	171	0	0	6	22	11	39	0	2	186	0	0	188	408
03:15 PM	5	0	6	12	23	0	0	151	1	2	154	0	0	6	19	8	33	0	4	181	0	0	185	395
03:30 PM	6	0	12	17	35	0	0	169	4	0	173	0	0	9	20	15	44	0	18	183	0	0	201	453
03:45 PM	6	0	5	4	15	0	0	166	4	0	170	0	1	11	10	21	43	0	5	199	0	0	204	432
Total	20	0	26	37	83	0	0	657	9	2	668	0	1	32	71	55	159	0	29	749	0	0	778	1688
04:00 PM	5	0	10	5	20	0	0	162	1	0	163	0	2	7	31	14	54	0	4	257	0	0	261	498
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	4	0	10	1	15	0	0	174	0	0	174	0	0	14	26	8	48	0	3	220	0	0	223	460
04:45 PM	6	0	5	8	19	0	0	148	2	0	150	0	2	7	18	15	42	0	2	249	0	0	251	462
Total	15	0	25	14	54	0	0	484	3	0	487	0	4	28	75	37	144	0	9	726	0	0	735	1420
05:00 PM	8	0	8	6	22	0	0	178	6	0	184	0	0	6	11	17	34	0	3	259	0	0	262	502
05:15 PM	3	0	2	7	12	0	0	173	3	0	176	0	1	5	18	11	35	0	3	255	0	0	258	481
05:30 PM	10	0	8	2	20	0	0	181	0	0	181	0	0	9	20	6	35	0	3	247	0	0	250	486
05:45 PM	5	0	9	11	25	0	0	134	1	1	136	0	1	7	21	11	40	0	4	261	0	0	265	466
Total	26	0	27	26	79	0	0	666	10	1	677	0	2	27	70	45	144	0	13	1022	0	0	1035	1935
Grand Total	82	0	103	100	285	0	0	2405	27	3	2435	0	16	96	268	182	562	0	55	3084	0	0	3139	6421
Approach %	28.8	0	36.1	35.1		0	0	98.8	1.1	0.1		2.8	17.1	47.7	32.4			0	1.8	98.2	0	0		
Total %	1.3	0	1.6	1.6	4.4	0	0	37.5	0.4	0	37.9	0.2	1.5	4.2	2.8	8.8	0	0.9	48	0	0	48.9	0	
Typical Vehicles	79	0	100	98	277	0	0	2323	27	0	2350	0	16	95	255	170	536	0	54	3026	0	0	3080	6243
% Typical Vehicles	96.3	0	97.1	98	97.2	0	0	96.6	100	0	96.5	0	100	99	95.1	93.4	95.4	0	98.2	98.1	0	0	98.1	97.2
Heavy Duty Vehicles	3	0	3	2	8	0	0	82	0	3	85	0	0	1	13	12	26	0	1	58	0	0	59	178
% Heavy Duty Vehicles	3.7	0	2.9	2	2.8	0	0	3.4	0	100	3.5	0	0	1	4.9	6.6	4.6	0	1.8	1.9	0	0	1.9	2.8

Start Time	S. Aiken Ave. Southbound				Baum Blvd. Westbound				S. Aiken Ave. Northbound				Baum Blvd. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	3	0	3	4	10	0	171	0	0	0	0	6	22	11	39	2	186	0	0	0	188	408
03:15 PM	5	0	6	12	23	0	151	1	2	154	0	6	19	8	33	4	181	0	0	0	185	395
03:30 PM	6	0	12	17	35	0	169	4	0	173	0	9	20	15	44	18	183	0	0	0	201	453
03:45 PM	6	0	5	4	15	0	166	4	0	170	1	11	10	21	43	5	199	0	0	0	204	432
Total Volume	20	0	26	37	83	0	657	9	2	668	1	32	71	55	159	29	749	0	0	0	778	1688
% App. Total	24.1	0	31.3	44.6	593	0	98.4	1.3	0.3	965	0.6	20.1	44.7	34.6	903	3.7	96.3	0	0	0	953	932
PHF	.833	.000	.542	.544	.593	.000	.961	.563	.250	.965	.260	.727	.807	.655	.903	.403	.941	.000	.000	.000	.953	.932
Typical Vehicles	20	0	25	37	82	0	631	9	0	640	1	32	65	52	150	29	729	0	0	0	758	1630
% Typical Vehicles	100	0	96.2	100	98.8	0	96.0	100	0	95.8	100	100	91.5	94.5	94.3	100	97.3	0	0	0	97.4	96.6
Heavy Duty Vehicles	0	0	1	0	1	0	26	0	2	28	0	0	6	3	9	0	20	0	0	0	20	58
% Heavy Duty Vehicles	0	0	3.8	0	1.2	0	4.0	0	100	4.2	0	0	8.5	5.5	5.7	0	2.7	0	0	0	2.6	3.4
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	6	0	5	8	19	0	148	2	0	150	2	7	18	15	42	2	249	0	0	0	251	462
05:00 PM	8	0	8	6	22	0	178	6	0	184	0	6	11	17	34	3	259	0	0	0	262	502
05:15 PM	3	0	2	7	12	0	173	3	0	176	1	5	18	11	35	3	255	0	0	0	258	481
05:30 PM	10	0	8	2	20	0	181	0	0	181	0	9	20	6	35	3	247	0	0	0	250	486
Total Volume	27	0	23	23	73	0	680	11	0	691	3	27	67	49	146	11	1010	0	0	0	1021	1931
% App. Total	37	0	31.5	31.5	830	0	98.4	1.6	0	939	2.1	18.5	45.9	33.6	869	1.1	98.9	0	0	0	974	962
PHF	.675	.000	.719	.719	.830	.000	.939	.458	.000	.939	.375	.750	.838	.721	.869	.917	.975	.000	.000	.000	.974	.962
Typical Vehicles	26	0	21	23	70	0	664	11	0	675	3	27	66	45	141	11	997	0	0	0	1008	1894
% Typical Vehicles	96.3	0	91.3	100	95.9	0	97.6	100	0	97.7	100	100	98.5	91.8	96.6	100	98.7	0	0	0	98.7	98.1
Heavy Duty Vehicles	1	0	2	0	3	0	16	0	0	16	0	0	1	4	5	0	13	0	0	0	13	37
% Heavy Duty Vehicles	3.7	0	8.7	0	4.1	0	2.4	0	0	2.3	0	0	1.5	8.2	3.4	0	1.3	0	0	0	1.3	1.9

PHF = .69
HV = 13.1%

PHF = .54
HV = 7.1%

PHF = .88
HV = 4.1%

PHF = .82
HV = 4.1%

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & S Aiken PM
 Site Code : 81720005
 Start Date : 4/23/2008
 Page No : 1

Baum Blvd. at S. Aiken Ave.
 OXF0R00#08172 Board#D4-4434 JD

Groups Printed- Heavy Duty Vehicles

Start Time	S. Aiken Ave. Southbound					Baum Blvd. Westbound					S. Aiken Ave. Northbound					Baum Blvd. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
02:00 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	1	0	1	0	0	0	1	10
02:15 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	4	0	0	0	4	12
02:30 PM	0	0	0	1	1	0	4	0	0	4	0	1	1	1	3	0	5	0	0	0	5	13
02:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	1	1	2	0	5	0	0	0	5	12
Total	2	0	0	1	3	0	23	0	0	23	0	1	2	3	6	0	15	0	0	0	15	47
03:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	2	0	0	0	2	7
03:15 PM	0	0	0	0	0	0	5	0	2	7	0	0	3	0	3	0	7	0	0	0	7	17
03:30 PM	0	0	0	0	0	0	10	0	0	10	0	0	2	1	3	0	6	0	0	0	6	19
03:45 PM	0	0	1	0	1	0	7	0	0	7	0	0	0	2	2	0	5	0	0	0	5	15
Total	0	0	1	0	1	0	26	0	2	28	0	0	6	3	9	0	20	0	0	0	20	58
04:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	1	2	3	0	2	0	0	0	2	13
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	6	0	0	6	0	0	2	0	2	1	4	0	0	0	5	13
04:45 PM	0	0	1	0	1	0	4	0	0	4	0	0	0	1	1	0	1	0	0	0	1	7
Total	0	0	1	0	1	0	18	0	0	18	0	0	3	3	6	1	7	0	0	0	8	33
05:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	1	2	0	7	0	0	0	7	13
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	1	1	0	3	0	0	0	3	6
05:30 PM	1	0	1	0	2	0	6	0	0	6	0	0	0	1	2	0	2	0	0	0	2	11
05:45 PM	0	0	0	1	1	0	3	0	1	4	0	0	1	0	1	0	4	0	0	0	4	10
Total	1	0	1	1	3	0	15	0	1	16	0	0	2	3	5	0	16	0	0	0	16	40
Grand Total	3	0	3	2	8	0	82	0	3	85	0	1	13	12	26	1	58	0	0	0	59	178
Approach %	37.5	0	37.5	25		0	96.5	0	3.5		0	3.8	50	46.2		1.7	98.3	0	0	0		
Total %	1.7	0	1.7	1.1	4.5	0	46.1	0	1.7	47.8	0	0.6	7.3	6.7	14.6	0.6	32.6	0	0	0	33.1	

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Baum & S Aiken PM
Site Code : 81720005
Start Date : 4/23/2008
Page No : 2

Baum Blvd. at S. Aiken Ave.
OXFOR00#08172 Board#D4-4434 JD

Start Time	S. Aiken Ave. Southbound				Baum Blvd. Westbound				S. Aiken Ave. Northbound				Baum Blvd. Eastbound						
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 03:00 PM																			
03:00 PM	0	0	0	0	0	4	0	0	4	0	0	0	0	0	2	0	0	2	7
03:15 PM	0	0	0	0	0	5	0	2	7	0	0	0	0	0	7	0	0	7	17
03:30 PM	0	0	0	0	0	10	0	0	10	0	0	2	1	3	6	0	0	6	19
03:45 PM	0	0	1	0	0	7	0	0	7	0	0	2	2	2	5	0	0	5	15
Total Volume	0	0	1	0	0	26	0	2	28	0	0	6	3	9	20	0	0	20	58
% App. Total	0	0	100	0	0	92.9	0	7.1	100	0	0	66.7	33.3	100	100	0	0	100	100
PHF	.000	.000	.250	.000	.250	.650	.000	.250	.700	.000	.000	.500	.375	.750	.714	.000	.000	.714	.763
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:45 PM																			
04:45 PM	0	0	1	0	0	4	0	0	4	0	0	0	1	1	1	0	0	1	7
05:00 PM	0	0	0	0	0	4	0	0	4	0	0	1	1	2	0	0	0	7	13
05:15 PM	0	0	0	0	0	2	0	0	2	0	0	0	1	1	3	0	0	3	6
05:30 PM	1	0	1	0	0	6	0	0	6	0	0	0	1	1	2	0	0	2	11
Total Volume	1	0	2	0	0	16	0	0	16	0	0	1	4	5	13	0	0	13	37
% App. Total	33.3	0	66.7	0	0	100	0	0	100	0	0	20	80	62.5	100	0	0	100	100
PHF	.250	.000	.500	.000	.375	.667	.000	.000	.667	.000	.000	.250	1.000	.625	.464	.000	.000	.464	.712

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																				
	Morewood Ave. Southbound				Centre Ave. Westbound				Morewood Ave. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	11	46	6	3	66	12	88	11	1	112	9	50	20	2	81	9	76	12	1	98	357
02:15 PM	15	46	11	1	73	18	57	5	1	81	7	55	18	0	80	9	89	9	1	108	342
02:30 PM	12	37	6	0	55	22	73	10	1	106	2	57	27	0	86	8	82	12	0	102	349
02:45 PM	5	37	9	0	51	17	65	10	0	92	5	55	26	0	86	5	80	14	0	99	328
Total	43	166	32	4	245	69	283	36	3	391	23	217	91	2	333	31	327	47	2	407	1376
03:00 PM	13	51	9	0	73	15	79	11	0	105	6	54	23	0	83	13	99	14	0	126	387
03:15 PM	10	39	10	1	60	14	72	12	0	98	6	74	27	0	107	9	101	12	1	123	388
03:30 PM	8	50	10	0	68	30	81	18	0	129	8	48	27	0	83	11	100	12	0	123	403
03:45 PM	13	61	10	0	84	24	90	13	1	128	4	44	15	0	63	8	105	18	1	132	407
Total	44	201	39	1	285	83	322	54	1	460	24	220	92	0	336	41	405	56	2	504	1585
04:00 PM	13	59	9	0	81	22	73	12	3	110	8	61	23	0	92	14	112	11	1	138	421
04:15 PM	12	52	15	0	79	23	68	15	2	108	10	58	20	1	89	23	95	10	0	128	404
04:30 PM	11	50	10	0	71	28	92	25	3	148	4	50	24	0	78	11	109	8	0	128	425
04:45 PM	7	63	11	1	82	23	71	9	0	103	9	58	18	0	85	16	106	14	1	137	407
Total	43	224	45	1	313	96	304	61	8	469	31	227	85	1	344	64	422	43	2	531	1657
05:00 PM	6	63	12	1	82	18	88	11	1	118	8	55	23	1	87	21	102	14	0	137	424
05:15 PM	14	64	15	0	93	26	80	12	1	119	7	73	18	0	98	17	105	23	0	145	455
05:30 PM	8	62	14	0	84	16	78	16	1	111	3	79	24	0	106	13	106	16	0	135	436
05:45 PM	13	69	8	1	91	26	60	5	1	92	5	59	24	0	88	16	112	18	0	146	417
Total	41	258	49	2	350	86	306	44	4	440	23	266	89	1	379	67	425	71	0	563	1732
Grand Total	171	849	165	8	1193	334	1215	195	16	1760	101	930	357	4	1392	203	1579	217	6	2005	6350
Approach %	14.3	71.2	13.8	0.7	18.8	19	69	11.1	0.9	27.7	7.3	66.8	25.6	0.3	21.9	10.1	78.8	10.8	0.3	31.6	
Total %	2.7	13.4	2.6	0.1	18.8	5.3	19.1	3.1	0.3	27.7	1.6	14.6	5.6	0.1	21.9	3.2	24.9	3.4	0.1	31.6	
Typical Vehicles	168	846	165	6	1185	324	1150	194	15	1683	101	928	342	2	1373	203	1515	211	6	1935	6176
% Typical Vehicles	98.2	99.6	100	75	99.3	97	94.7	98.5	93.8	95.6	100	99.8	95.8	50	98.6	100	95.9	97.2	100	96.5	97.3
Heavy Duty Vehicles	3	3	0	2	8	10	65	1	1	77	0	2	15	2	19	0	64	6	0	70	174
% Heavy Duty Vehicles	1.8	0.4	0	25	0.7	3	5.3	0.5	6.2	4.4	0	0.2	4.2	50	1.4	0	4.1	2.8	0	3.5	2.7

Start Time	Morewood Ave. Southbound				Centre Ave. Westbound				Morewood Ave. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	13	51	9	0	73	15	79	11	0	105	6	54	23	0	83	13	99	14	0	126	387
03:15 PM	10	39	10	1	60	14	72	12	0	98	6	74	27	0	107	9	101	12	1	123	388
03:30 PM	8	50	10	0	68	30	81	18	0	129	8	48	27	0	83	11	100	12	0	123	403
03:45 PM	13	61	10	0	84	24	90	13	1	128	4	44	15	0	63	8	105	18	1	132	407
Total Volume	44	201	39	1	285	83	322	54	1	460	24	220	92	0	336	41	405	56	2	504	1585
% App. Total	15.4	70.5	13.7	0.4		18	70	11.7	0.2		7.1	65.5	27.4	0		8.1	80.4	11.1	0.4		
PHF	.846	.824	.975	.250	.848	.692	.894	.750	.250	.891	.750	.743	.852	.000	.785	.788	.964	.778	.500	.955	.974
Typical Vehicles	43	200	39	1	283	81	303	54	1	439	24	220	87	0	331	41	388	55	2	486	1539
% Typical Vehicles	97.7	99.5	100	100	99.3	97.6	94.1	100	100	95.4	100	100	94.6	0	98.5	100	95.8	98.2	100	96.4	97.1
Heavy Duty Vehicles	1	1	0	0	2	2	19	0	0	21	0	0	5	0	5	0	17	1	0	18	46
% Heavy Duty Vehicles	2.3	0.5	0	0	0.7	2.4	5.9	0	0	4.6	0	0	5.4	0	1.5	0	4.2	1.8	0	3.6	2.9
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	7	63	11	1	82	23	71	9	0	103	9	58	18	0	85	16	106	14	1	137	407
05:00 PM	6	63	12	1	82	18	88	11	1	118	8	55	23	1	87	21	102	14	0	137	424
05:15 PM	14	64	15	0	93	26	80	12	1	119	7	73	18	0	98	17	105	23	0	145	455
05:30 PM	8	62	14	0	84	16	78	16	1	111	3	79	24	0	106	13	106	16	0	135	436
Total Volume	35	252	52	2	341	83	317	48	3	451	27	265	83	1	376	67	419	67	1	554	1722
% App. Total	10.3	73.9	15.2	0.6		18.4	70.3	10.6	0.7		7.2	70.5	22.1	0.3		12.1	75.6	12.1	0.2		
PHF	.625	.984	.867	.500	.917	.798	.901	.750	.750	.947	.750	.839	.865	.250	.887	.798	.988	.728	.250	.955	.946
Typical Vehicles	35	251	52	2	340	80	303	48	3	434	27	265	80	1	373	67	405	65	1	538	1685
% Typical Vehicles	100	99.6	100	100	99.7	96.4	95.6	100	100	96.2	100	100	96.4	100	99.2	100	96.7	97.0	100	97.1	97.9
Heavy Duty Vehicles	0	1	0	0	1	3	14	0	0	17	0	0	3	0	3	0	14	2	0	16	37
% Heavy Duty Vehicles	0	0.4	0	0	0.3	3.6	4.4	0	0	3.8	0	0	3.6	0	0.8	0	3.3	3.0	0	2.9	2.1

PHF = .76
 HV = 2.1

PHF = .76
 HV = 0.1

PHF = .91
 HV = 9.4

PHF = .74
 HV = 3.1

PHF = .88
 HV = 4.1

PHF = .75
 HV = 0.1

PHF = .96
 HV = 0.1

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Centre & Morewood PM
 Site Code : 81720008
 Start Date : 4/17/2008
 Page No : 1

Centre Ave. at Morewood Ave.
 OXF000#08172 Board#D4-4436 FS

Groups Printed- Heavy Duty Vehicles

Start Time	Morewood Ave. Southbound				Centre Ave. Westbound				Morewood Ave. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	0	0	0	1	1	1	4	0	0	6	0	0	1	2	3	0	3	0	0	3	13
02:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	5	0	0	5	12
02:30 PM	1	1	0	0	2	1	3	0	0	4	0	1	1	0	2	0	3	1	0	4	12
02:45 PM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	5	0	0	5	10
Total	1	1	0	1	3	3	17	0	1	21	0	1	3	2	6	0	16	1	0	17	47
03:00 PM	0	1	0	0	1	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	10
03:15 PM	1	0	0	0	1	2	4	0	0	6	0	0	3	0	3	0	5	0	0	5	15
03:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	2	1	0	3	8
03:45 PM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	6	0	0	6	13
Total	1	1	0	0	2	2	19	0	0	21	0	0	5	0	5	0	17	1	0	18	46
04:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	7	0	0	7	12
04:15 PM	1	0	0	0	1	0	4	1	0	5	0	1	0	0	1	0	2	0	0	2	9
04:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	2	0	2	0	4	1	0	5	14
04:45 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	4	1	0	5	8
Total	1	0	0	0	1	1	17	1	0	19	0	1	3	0	4	0	17	2	0	19	43
05:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	0	3	0	0	3	8
05:15 PM	0	1	0	0	1	2	7	0	0	9	0	0	0	0	0	0	2	1	0	3	13
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	5	0	0	5	8
05:45 PM	0	0	0	1	1	2	0	0	0	2	0	0	1	0	1	0	4	1	0	5	9
Total	0	1	0	1	2	4	12	0	0	16	0	0	4	0	4	0	14	2	0	16	38
Grand Total	3	3	0	2	8	10	65	1	1	77	0	2	15	2	19	0	64	6	0	70	174
Approach %	37.5	37.5	0	25	4.6	13	84.4	1.3	1.3	44.3	0	10.5	78.9	10.5	10.9	0	91.4	8.6	0	40.2	
Total %	1.7	1.7	0	1.1	4.6	5.7	37.4	0.6	0.6	44.3	0	1.1	8.6	1.1	10.9	0	36.8	3.4	0		

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Centre & Morewood PM
 Site Code : 81720008
 Start Date : 4/17/2008
 Page No : 2

Centre Ave. at Morewood Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Morewood Ave. Southbound				Centre Ave. Westbound				Morewood Ave. Northbound				Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	1	0	0	0	2	4	0	0	6	0	0	3	0	0	0	0	3	15
03:30 PM	0	0	0	0	0	4	0	0	4	0	0	1	0	0	2	1	0	8
03:45 PM	0	0	0	0	0	6	0	0	6	0	0	1	0	0	6	0	0	13
Total Volume	1	1	0	0	2	19	0	0	21	0	0	5	0	0	17	1	0	46
% App. Total	50	50	0	0	9.5	90.5	0	0	0	0	0	100	0	0	94.4	5.6	0	18
PHF	.250	.250	.000	.000	.250	.792	.000	.000	.875	.000	.000	.417	.000	.708	.250	.000	.750	.767
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4	1	0	8
05:00 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	0	0	8
05:15 PM	0	1	0	0	2	7	0	0	9	0	0	0	0	2	1	0	0	13
05:30 PM	0	0	0	0	0	2	0	0	2	0	0	1	0	0	5	0	0	8
Total Volume	0	1	0	0	3	14	0	0	17	0	0	3	0	14	2	0	0	37
% App. Total	0	100	0	0	17.6	82.4	0	0	0	0	0	100	0	87.5	12.5	0	0	37
PHF	.000	.250	.000	.000	.375	.500	.000	.000	.472	.000	.000	.375	.000	.700	.500	.000	.800	.712

Start Time	Groups Printed: Typical Vehicles - Heavy Duty Vehicles																				
	Cypress St. Southbound				Centre Ave. Westbound				UPMC Hospital Dwy. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	12	7	8	0	27	8	80	15	0	103	14	12	15	0	41	6	104	8	0	118	289
02:15 PM	11	8	9	0	28	8	65	9	1	83	11	5	18	1	35	11	111	13	1	136	282
02:30 PM	8	10	12	0	30	10	74	5	1	90	11	15	22	2	50	9	95	7	1	112	282
02:45 PM	3	2	5	0	10	14	57	7	0	78	13	10	17	0	40	9	100	7	1	117	245
Total	34	27	34	0	95	40	276	36	2	354	49	42	72	3	166	35	410	35	3	483	1098
03:00 PM	8	4	5	1	18	13	66	12	0	91	20	17	16	0	53	12	132	5	0	149	311
03:15 PM	5	5	3	1	14	6	87	8	0	101	11	9	21	0	41	8	119	7	0	134	290
03:30 PM	4	5	5	0	14	11	80	15	0	106	21	16	18	2	57	19	130	5	0	154	331
03:45 PM	2	2	2	0	6	9	78	3	0	90	26	20	25	0	71	7	120	8	0	135	302
Total	19	16	15	2	52	39	311	38	0	388	78	62	80	2	222	46	501	25	0	572	1234
04:00 PM	6	4	9	0	19	4	73	12	0	89	18	24	22	0	64	15	121	9	0	145	317
04:15 PM	4	2	8	0	14	5	74	14	1	94	21	25	15	0	61	14	124	7	0	145	314
04:30 PM	6	4	6	0	16	6	87	16	0	109	15	32	22	2	71	24	129	6	0	159	355
04:45 PM	5	4	11	1	21	3	63	9	1	76	18	25	16	1	60	9	136	3	0	148	305
Total	21	14	34	1	70	18	297	51	2	368	72	106	75	3	256	62	510	25	0	587	1291
05:00 PM	5	4	7	0	16	1	92	16	2	111	24	19	30	0	73	9	111	4	0	124	324
05:15 PM	13	5	6	1	25	4	94	17	0	115	23	26	20	0	69	15	137	6	0	158	367
05:30 PM	3	2	9	1	15	3	73	4	0	80	6	25	25	0	56	14	116	6	0	136	287
05:45 PM	10	2	6	1	19	3	64	7	1	75	13	15	13	1	42	10	131	5	0	146	282
Total	31	13	28	3	75	11	323	44	3	381	66	85	88	1	240	48	495	21	0	564	1260
Grand Total	105	70	111	6	292	108	1207	169	7	1491	265	295	315	9	884	191	1916	106	3	2216	4883
Approach %	36	24	38	2.1	36	7.2	81	11.3	0.5	30.5	30	33.4	35.6	1	18.1	8.6	86.5	4.8	0.1	45.4	
Total %	2.2	1.4	2.3	0.1	6	2.2	24.7	3.5	0.1	30.5	5.4	6	6.5	0.2	18.1	3.9	39.2	2.2	0.1	45.4	
Typical Vehicles	102	62	111	6	281	108	1152	169	7	1436	244	295	313	9	861	189	1837	93	3	2122	4700
% Typical Vehicles	97.1	88.6	100	100	96.2	100	95.4	100	100	96.3	92.1	100	99.4	100	97.4	99	95.9	87.7	100	95.8	96.3
Heavy Duty Vehicles	3	8	0	0	11	0	55	0	0	55	21	0	2	0	23	2	79	13	0	94	183
% Heavy Duty Vehicles	2.9	11.4	0	0	3.8	0	4.6	0	0	3.7	7.9	0	0.6	0	2.6	1	4.1	12.3	0	4.2	3.7

Start Time	Cypress St. Southbound				Centre Ave. Westbound				UPMC Hospital Dwy. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	8	4	5	1	18	13	66	12	0	91	20	17	16	0	53	12	132	5	0	149	311	
03:15 PM	5	5	3	1	14	6	87	8	0	101	11	9	21	0	41	8	119	7	0	134	290	
03:30 PM	4	5	5	0	14	11	80	15	0	106	21	16	18	2	57	19	130	5	0	154	331	
03:45 PM	2	2	2	0	6	9	78	3	0	90	26	20	25	0	71	7	120	8	0	135	302	
Total Volume	19	16	15	2	52	39	311	38	0	388	78	62	80	2	222	46	501	25	0	572	1234	
% App. Total	36.5	30.8	28.8	3.8		10.1	80.2	9.8	0		35.1	27.9	36	0.9		8	87.6	4.4	0			
PHF	.594	.800	.750	.500	.722	.750	.894	.633	.000	.915	.750	.775	.800	.250	.782	.605	.949	.781	.000	.929	.932	
Typical Vehicles	17	14	15	2	48	39	295	38	0	372	73	62	79	2	216	45	480	21	0	546	1182	
% Typical Vehicles	89.5	87.5	100	100	92.3	100	94.9	100	0	95.9	93.6	100	98.8	100	97.3	97.8	95.8	84.0	0	0	95.5	95.8
Heavy Duty Vehicles	2	2	0	0	4	0	16	0	0	16	5	0	1	0	6	1	21	4	0	26	52	
% Heavy Duty Vehicles	10.5	12.5	0	0	7.7	0	5.1	0	0	4.1	6.4	0	1.3	0	2.7	2.2	4.2	16.0	0	4.5	4.2	
PHF = .71 HV = 0% PHF = .71 HV = 0%																						
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	5	4	11	1	21	3	63	9	1	76	18	25	16	1	60	9	136	3	0	148	305	
05:00 PM	5	4	7	0	16	1	92	16	2	111	24	19	30	0	73	9	111	4	0	124	324	
05:15 PM	13	5	6	1	25	4	94	17	0	115	23	26	20	0	69	15	137	6	0	158	367	
05:30 PM	3	2	9	1	15	3	73	4	0	80	6	25	25	0	56	14	116	6	0	136	287	
Total Volume	26	15	33	3	77	11	322	46	3	382	71	95	91	1	258	47	500	19	0	566	1283	
% App. Total	33.8	19.5	42.9	3.9		2.9	84.3	12	0.8		27.5	36.8	35.3	0.4		8.3	88.3	3.4	0			
PHF	.500	.750	.750	.750	.770	.688	.856	.676	.375	.830	.740	.913	.758	.250	.884	.783	.912	.792	.000	.896	.874	
Typical Vehicles	26	12	33	3	74	11	309	46	3	369	66	95	91	1	253	47	484	17	0	548	1244	
% Typical Vehicles	100	80.0	100	100	96.1	100	96.0	100	100	96.6	93.0	100	100	100	98.1	100	96.8	89.5	0	0	96.8	97.0
Heavy Duty Vehicles	0	3	0	0	3	0	13	0	0	13	5	0	0	0	5	0	16	2	0	18	39	
% Heavy Duty Vehicles	0	20.0	0	0	3.9	0	4.0	0	0	3.4	7.0	0	0	0	1.9	0	3.2	10.5	0	3.2	3.0	
PHF = .76 HV = 0% PHF = .68 HV = 0% PHF = .77 HV = 0%																						

11:00 AM 03/03/2008

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Centre & Cypress PM
Site Code : 81720007
Start Date : 4/17/2008
Page No : 1

Centre Ave. at Cypress St.
OXFOR00#08172 Board#D4-4435 JCD

Groups Printed- Heavy Duty Vehicles

Start Time	Cypress St. Southbound						Centre Ave. Westbound						UPMC Hospital Dwy. Northbound						Centre Ave. Eastbound							
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total		
02:00 PM	0	1	0	0	1	0	0	1	0	0	1	0	2	0	0	0	0	2	0	0	3	0	0	0	3	7
02:15 PM	0	1	0	0	1	0	0	5	0	0	5	0	2	0	0	0	0	2	0	0	5	1	0	0	6	14
02:30 PM	0	0	0	0	0	0	0	2	0	0	2	0	1	0	1	0	0	2	0	0	6	1	0	0	7	11
02:45 PM	0	1	0	0	1	0	0	3	0	0	3	0	1	0	0	0	0	1	0	0	7	1	0	0	8	13
Total	0	3	0	0	3	0	0	11	0	0	11	0	6	0	1	0	7	0	0	21	3	0	0	24	45	
03:00 PM	0	0	0	0	0	0	0	4	0	0	4	0	1	0	0	0	0	1	0	0	5	0	0	0	5	10
03:15 PM	2	0	0	0	2	0	0	4	0	0	4	0	2	0	0	0	0	2	0	1	7	3	0	0	11	19
03:30 PM	0	1	0	0	1	0	0	4	0	0	4	0	1	0	1	0	0	2	0	0	4	0	0	0	4	11
03:45 PM	0	1	0	0	1	0	0	4	0	0	4	0	1	0	0	0	0	1	0	0	5	1	0	0	6	12
Total	2	2	0	0	4	0	0	16	0	0	16	0	5	0	1	0	6	0	1	21	4	0	0	26	52	
04:00 PM	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	0	0	1	0	1	6	0	0	0	7	11
04:15 PM	1	0	0	0	1	0	0	4	0	0	4	0	2	0	0	0	0	2	0	0	2	2	0	0	4	11
04:30 PM	0	0	0	0	0	0	0	5	0	0	5	0	1	0	0	0	0	1	0	0	8	1	0	0	9	15
04:45 PM	0	1	0	0	1	0	0	3	0	0	3	0	1	0	0	0	0	1	0	0	3	1	0	0	4	9
Total	1	1	0	0	2	0	0	15	0	0	15	0	5	0	0	0	0	5	0	1	19	4	0	0	24	46
05:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	0	0	1	0	0	4	0	0	0	4	7
05:15 PM	0	1	0	0	1	0	0	6	0	0	6	0	2	0	0	0	0	2	0	0	3	1	0	0	4	13
05:30 PM	0	1	0	0	1	0	0	2	0	0	2	0	1	0	0	0	0	1	0	0	6	0	0	0	6	10
05:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	0	0	1	0	0	5	1	0	0	6	10
Total	0	2	0	0	2	0	0	13	0	0	13	0	5	0	0	0	0	5	0	0	18	2	0	0	20	40
Grand Total	3	8	0	0	11	0	0	55	0	0	55	0	21	0	2	0	23	0	2	79	13	0	0	94	183	
Approch %	27.3	72.7	0	0	0	0	0	100	0	0	91.3	0	91.3	0	8.7	0	12.6	0	2.1	84	13.8	0	0	51.4	183	
Total %	1.6	4.4	0	0	0	0	0	30.1	0	0	30.1	0	11.5	0	1.1	0	12.6	0	1.1	43.2	7.1	0	0	51.4	183	

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Centre & Cypress PM
 Site Code : 81720007
 Start Date : 4/17/2008
 Page No : 2

Centre Ave. at Cypress St.
 OXF00#08172 Board#D4-4435 JCD

Start Time	Cypress St. Southbound				Centre Ave. Westbound				UPMC Hospital Dwy. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:15 PM	2	0	0	0	2	0	4	0	0	4	2	0	0	0	2	1	7	3	0	0	11	19
03:30 PM	0	1	0	0	1	0	4	0	0	4	1	0	1	0	2	0	4	0	0	0	4	11
03:45 PM	0	1	0	0	1	0	4	0	0	4	1	0	0	0	1	0	5	1	0	0	6	12
Total Volume	2	2	0	0	4	0	16	0	0	16	5	0	1	0	6	1	21	4	0	0	26	52
% App. Total	50	50	0	0	500	0	100	0	0	1000	83.3	0	16.7	0	750	3.8	80.8	15.4	0	0	26	684
PHF	.250	.500	.000	.000	.500	.000	1.000	.000	.000	1.000	.625	.000	.250	.000	.750	.250	.750	.333	.000	.000	.591	.684

Start Time	Cypress St. Southbound				Centre Ave. Westbound				UPMC Hospital Dwy. Northbound				Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	1	0	0	1	0	3	0	0	3	1	0	0	0	1	0	0	3	1	0	4	9
05:00 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	4	0	0	0	4	7
05:15 PM	0	1	0	0	1	0	6	0	0	6	2	0	0	0	2	0	3	1	0	0	4	13
05:30 PM	0	1	0	0	1	0	2	0	0	2	1	0	0	0	1	0	6	0	0	0	6	10
Total Volume	0	3	0	0	3	0	13	0	0	13	5	0	0	0	5	0	16	2	0	0	18	39
% App. Total	0	100	0	0	750	0	100	0	0	542	100	0	0	0	625	0	88.9	11.1	0	0	18	39
PHF	.000	.750	.000	.000	.750	.000	.542	.000	.000	.542	.625	.000	.000	.000	.625	.000	.667	.500	.000	.000	.750	.750

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Liberty & Centre PM
Site Code : 8172_6p1
Start Date : 4/23/2008
Page No : 1

need to add #6 part 2
Centre Ave. at S. Aiken
Ave./Liberty Ave.
OXFOR00#08172 Board#D4-4437 JR

Groups Printed- Typical Vehicles - Heavy Duty Vehicles																								
Start Time	Liberty Ave. Southbound						Centre Ave. Westbound						S. Aiken Ave. Northbound						Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total		Left	Thru	Right	Right on Red	App. Total	Int. Total						
02:00 PM	26	59	14	0	99		6	59	18	1	84		24	80	24	0	128	7	86	26	0	119	430	
02:15 PM	35	78	13	0	126		16	61	26	2	105		35	83	16	0	134	17	82	24	0	123	488	
02:30 PM	12	86	20	0	118		15	56	21	2	94		20	74	27	0	121	18	88	39	0	145	478	
02:45 PM	31	95	12	1	139		11	51	21	2	85		21	79	20	0	120	11	103	29	1	144	488	
Total	104	318	59	1	482		48	227	86	7	368		100	316	87	0	503	53	359	118	1	531	1884	
03:00 PM	23	75	8	0	106		5	51	24	0	80		23	111	28	0	162	14	83	23	2	122	470	
03:15 PM	23	96	21	1	141		11	52	23	2	88		21	78	25	0	124	14	87	28	0	129	482	
03:30 PM	23	73	11	0	107		7	56	17	1	81		32	120	23	0	175	18	82	31	0	131	494	
03:45 PM	24	86	11	0	121		4	66	18	2	90		25	104	13	0	142	18	83	40	1	142	495	
Total	93	330	51	1	475		27	225	82	5	339		101	413	89	0	603	64	335	122	3	524	1941	
04:00 PM	23	88	13	1	125		8	42	10	2	62		28	102	30	0	160	28	98	38	0	164	511	
04:15 PM	25	90	12	0	127		11	60	24	0	95		25	92	26	0	143	13	106	17	1	137	502	
04:30 PM	33	114	11	0	158		9	53	14	2	78		21	122	24	0	167	20	114	33	0	167	570	
04:45 PM	28	98	11	0	137		13	46	26	0	85		25	90	27	0	142	18	95	31	0	144	508	
Total	109	390	47	1	547		41	201	74	4	320		99	406	107	0	612	79	413	119	1	612	2091	
05:00 PM	21	111	10	0	142		9	63	18	2	92		23	106	25	1	155	23	92	30	0	145	534	
05:15 PM	18	76	22	0	116		11	51	16	1	79		22	86	28	0	136	21	97	39	0	157	488	
05:30 PM	20	122	9	0	151		15	50	13	2	80		24	118	28	0	170	22	95	23	0	140	541	
05:45 PM	37	108	3	0	148		12	54	21	0	87		15	100	22	0	137	16	90	28	2	136	508	
Total	96	417	44	0	557		47	218	68	5	338		84	410	103	1	598	82	374	120	2	578	2071	
Grand Total	402	1455	201	3	2061		163	871	310	21	1365		384	1545	386	1	2316	278	1481	479	7	2245	7987	
Approch %	19.5	70.6	9.8	0.1			11.9	63.8	22.7	1.5			16.6	66.7	16.7	0		12.4	66	21.3	0.3			
Total %	5	18.2	2.5	0	25.8		2	10.9	3.9	0.3	17.1		4.8	19.3	4.8	0	29	3.5	18.5	6	0.1	28.1		
Typical Vehicles	390	1449	189	3	2031		163	829	302	21	1315		374	1532	385	1	2292	247	1421	475	7	2150	7788	
% Typical Vehicles	97	99.6	94	100	98.5		100	95.2	97.4	100	96.3		97.4	99.2	99.7	100	99	88.8	95.9	99.2	100	95.8	97.5	
Heavy Duty Vehicles	12	6	12	0	30		0	42	8	0	50		10	13	1	0	24	31	60	4	0	95	199	
% Heavy Duty Vehicles	3	0.4	6	0	1.5		0	4.8	2.6	0	3.7		2.6	0.8	0.3	0	1	11.2	4.1	0.8	0	4.2	2.5	

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Liberty & Centre PM
Site Code : 8172_6p1
Start Date : 4/23/2008
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need to add #6 part 2
Centre Ave. at S. Aiken
Ave./Liberty Ave.
OXFOR00#08172 Board#D4-4437 JR

Start Time	Liberty Ave. Southbound				Centre Ave. Westbound				S. Aiken Ave. Northbound				Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	23	75	8	0	106	5	51	24	0	80	23	111	28	0	162	14	83	23	2	122	470
03:15 PM	23	96	21	1	141	11	52	23	2	88	21	78	25	0	124	14	87	28	0	129	482
03:30 PM	23	73	11	0	107	7	56	17	1	81	32	120	23	0	175	18	82	31	1	131	494
03:45 PM	24	86	11	0	121	4	66	18	2	90	25	104	13	0	142	18	83	40	1	142	495
Total Volume	93	330	51	1	475	27	225	82	5	339	101	413	89	0	603	64	335	122	3	524	1941
% App. Total	19.6	69.5	10.7	0.2		8	66.4	24.2	1.5		16.7	68.5	14.8	0		12.2	63.9	23.3	0.6		
PHF	.969	.859	.607	.250	.842	.614	.852	.854	.625	.942	.789	.860	.795	.000	.861	.889	.963	.763	.375	.923	.980
Typical Vehicles	89	328	47	1	465	27	215	81	5	328	98	405	89	0	592	52	318	120	3	493	1878
% Typical Vehicles	95.7	99.4	92.2	100	97.9	100	95.6	98.8	100	96.8	97.0	98.1	100	0	98.2	81.3	94.9	98.4	100	94.1	96.8
Heavy Duty Vehicles	4	2	4	0	10	0	10	1	0	11	3	8	0	0	11	12	17	2	0	31	63
% Heavy Duty Vehicles	4.3	0.6	7.8	0	2.1	0	4.4	1.2	0	3.2	3.0	1.9	0	0	1.8	18.8	5.1	1.6	0	5.9	3.2
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	28	98	11	0	137	13	46	26	0	85	25	90	27	0	142	18	95	31	0	144	508
05:00 PM	21	111	10	0	142	9	63	18	2	92	23	106	25	1	155	23	92	30	0	145	534
05:15 PM	18	76	22	0	116	11	51	16	1	79	22	86	28	0	136	21	97	39	0	157	488
05:30 PM	20	122	9	0	151	15	50	13	2	80	24	118	28	0	170	22	95	23	0	140	541
Total Volume	87	407	52	0	546	48	210	73	5	336	94	400	108	1	603	84	379	123	0	586	2071
% App. Total	15.9	74.5	9.5	0		14.3	62.5	21.7	1.5		15.6	66.3	17.9	0.2		14.3	64.7	21	0		
PHF	.777	.834	.591	.000	.904	.800	.833	.702	.625	.913	.940	.847	.964	.250	.887	.913	.977	.788	.000	.933	.957
Typical Vehicles	85	406	49	0	540	48	196	72	5	321	91	399	108	1	599	77	368	121	0	566	2026
% Typical Vehicles	97.7	99.8	94.2	0	98.9	100	93.3	98.6	100	95.5	96.8	99.8	100	100	99.3	91.7	97.1	98.4	0	96.6	97.8
Heavy Duty Vehicles	2	1	3	0	6	0	14	1	0	15	3	1	0	0	4	7	11	2	0	20	45
% Heavy Duty Vehicles	2.3	0.2	5.8	0	1.1	0	6.7	1.4	0	4.5	3.2	0.3	0	0	0.7	8.3	2.9	1.6	0	3.4	2.2

PHF = 0.86
HV = 1%

PHF = .59 HV = 8.1%

PHF = .76
HV = 2.1%

PHF = 0.75
HV = 1%

PHF = .97
HV = 0%

Groups Printed- Heavy Duty Vehicles

Start Time	Liberty Ave. Southbound						Centre Ave. Westbound						S. Aiken Ave. Northbound						Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	2	0	0	0	2	0	0	1	1	0	2	0	1	0	0	0	1	0	1	4	0	0	5	10
02:15 PM	1	1	0	0	2	0	0	3	0	0	3	0	2	2	0	0	2	0	0	5	0	0	5	12
02:30 PM	0	1	0	0	1	0	0	1	1	0	2	0	1	1	1	0	3	0	2	4	0	0	6	12
02:45 PM	1	0	0	0	1	0	0	3	1	0	4	0	0	0	0	0	0	0	2	4	0	0	6	11
Total	4	2	0	0	6	0	0	8	3	0	11	0	2	3	1	0	6	0	5	17	0	0	22	45
03:00 PM	0	1	0	0	1	0	0	2	0	0	2	0	1	1	0	0	2	0	5	8	0	0	13	18
03:15 PM	1	1	1	0	3	0	0	2	0	0	2	0	1	1	0	0	2	0	3	4	1	0	8	15
03:30 PM	1	0	2	0	3	0	0	3	1	0	4	0	1	4	0	0	5	0	2	3	0	0	5	17
03:45 PM	2	0	1	0	3	0	0	3	0	0	3	0	0	2	0	0	2	0	2	2	1	0	5	13
Total	4	2	4	0	10	0	0	10	1	0	11	0	3	8	0	0	11	0	12	17	2	0	31	63
04:00 PM	0	1	1	0	2	0	0	4	1	0	5	0	1	1	0	0	2	0	2	7	0	0	9	18
04:15 PM	1	0	2	0	3	0	0	2	1	0	3	0	0	0	0	0	0	0	2	2	0	0	4	10
04:30 PM	0	0	2	0	2	0	0	2	0	0	2	0	1	0	0	0	1	0	2	3	0	0	5	10
04:45 PM	1	0	1	0	2	0	0	4	0	0	4	0	0	0	0	0	0	0	2	5	2	0	9	15
Total	2	1	6	0	9	0	0	12	2	0	14	0	2	1	0	0	3	0	8	17	2	0	27	53
05:00 PM	0	0	1	0	1	0	0	3	1	0	4	0	1	1	0	0	2	0	3	2	0	0	5	12
05:15 PM	0	0	0	0	0	0	0	6	0	0	6	0	1	0	0	0	1	0	0	1	0	0	1	8
05:30 PM	1	1	1	0	3	0	0	1	0	0	1	0	1	0	0	0	1	0	2	3	0	0	5	10
05:45 PM	1	0	0	0	1	0	0	2	1	0	3	0	0	0	0	0	0	0	1	3	0	0	4	8
Total	2	1	2	0	5	0	0	12	2	0	14	0	3	1	0	0	4	0	6	9	0	0	15	38
Grand Total	12	6	12	0	30	0	0	42	8	0	50	0	10	13	1	0	24	0	31	60	4	0	95	199
Approch %	40	20	40	0	15.1	0	0	84	16	0	25.1	0	41.7	54.2	4.2	0	12.1	0	32.6	63.2	4.2	0	47.7	0
Total %	6	3	6	0	5	0	0	21.1	4	0	5	0	5	6.5	0.5	0	12.1	0	15.6	30.2	2	0	47.7	0

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & Centre PM
 Site Code : 8172_6p1
 Start Date : 4/23/2008
 Page No : 2

need to add #6 part 2
 Centre Ave. at S. Aiken
 Ave./Liberty Ave.
 OXF0R00#08172 Board#D4-4437 JR

Start Time	Liberty Ave. Southbound				Centre Ave. Westbound				S. Aiken Ave. Northbound				Centre Ave. Eastbound					
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	1	0	0	0	2	0	0	0	2	0	0	1	1	0	0	2	18
03:15 PM	1	1	1	0	0	2	0	0	0	2	0	0	1	1	0	0	2	15
03:30 PM	1	0	2	0	0	3	1	0	4	1	4	0	1	4	0	5	17	
03:45 PM	2	0	1	0	0	3	0	0	3	0	2	0	2	2	1	0	5	13
Total Volume	4	2	4	0	0	10	1	0	11	3	8	0	0	12	17	2	31	63
% App. Total	40	20	40	0	0	90.9	9.1	0	0	27.3	72.7	0	0	38.7	54.8	6.5	0	63
PHF	.500	.500	.500	.000	.833	.250	.000	.688	.750	.500	.000	.000	.550	.600	.531	.500	.000	.875
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	1	0	1	0	0	4	0	0	4	0	0	0	0	2	5	2	0	15
05:00 PM	0	0	1	0	0	3	1	0	4	1	1	0	0	3	2	0	0	12
05:15 PM	0	0	0	0	0	6	0	0	6	1	0	0	1	0	1	0	0	8
05:30 PM	1	1	1	0	0	1	0	0	1	1	0	0	1	2	3	0	0	10
Total Volume	2	1	3	0	0	14	1	0	15	3	1	0	0	7	11	2	0	45
% App. Total	33.3	16.7	50	0	0	93.3	6.7	0	0	75	25	0	0	35	55	10	0	45
PHF	.500	.250	.750	.000	.500	.583	.250	.625	.750	.250	.000	.000	.500	.583	.550	.250	.000	.750

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

(part 2 of intersection #6)
Only entering S. Aiken Ave., btwn.
Liberty Ave. and Baum Blvd.
OXFOR00#08172 Board#D4-4435 JCD

File Name : Liberty & S Aiken PM
Site Code : 8172_6p2
Start Date : 4/23/2008
Page No : 1

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																				
	From Liberty Ave. Southbound				From Centre Ave. Westbound				From S. Aiken Ave. Northbound				From Centre Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	2	0	0	0	2	0	0	2	0	2	0	16	0	0	16	3	0	0	0	3	23
02:15 PM	2	0	0	0	2	0	2	0	0	2	0	15	0	0	15	8	0	0	0	8	27
02:30 PM	1	0	0	0	1	0	2	0	0	2	0	19	0	0	19	11	0	0	0	11	33
02:45 PM	1	0	0	0	1	0	1	0	0	1	0	17	0	0	17	9	0	0	0	9	28
Total	6	0	0	0	6	0	7	0	0	7	0	67	0	0	67	31	0	0	0	31	111
03:00 PM	1	0	0	0	1	0	1	0	0	1	0	34	0	0	34	4	0	0	0	4	40
03:15 PM	3	0	0	0	3	0	0	0	0	0	0	25	0	0	25	6	0	0	0	6	34
03:30 PM	1	0	0	0	1	0	1	0	0	1	0	33	0	0	33	10	0	0	0	10	45
03:45 PM	2	0	0	0	2	0	0	0	0	0	0	27	0	0	27	10	0	0	0	10	39
Total	7	0	0	0	7	0	2	0	0	2	0	119	0	0	119	30	0	0	0	30	158
04:00 PM	2	0	0	0	2	0	1	0	0	1	0	33	0	0	33	16	0	0	0	16	52
04:15 PM	3	0	0	0	3	0	3	0	0	3	0	23	0	0	23	9	0	0	0	9	38
04:30 PM	2	0	0	0	2	0	2	0	0	2	0	35	0	0	35	6	0	0	0	6	45
04:45 PM	1	0	0	0	1	0	1	0	0	1	0	29	0	0	29	12	0	0	0	12	43
Total	8	0	0	0	8	0	7	0	0	7	0	120	0	0	120	43	0	0	0	43	178
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	24	0	0	24	13	0	0	0	13	39
05:15 PM	2	0	0	0	2	0	1	0	0	1	0	23	0	0	23	10	0	0	0	10	36
05:30 PM	1	0	0	0	1	0	0	0	0	0	0	25	0	0	25	9	0	0	0	9	35
05:45 PM	5	0	0	0	5	0	1	0	0	1	0	25	0	0	25	8	0	0	0	8	39
Total	8	0	0	0	8	0	4	0	0	4	0	97	0	0	97	40	0	0	0	40	149
Grand Total	29	0	0	0	29	0	20	0	0	20	0	403	0	0	403	144	0	0	0	144	596
Approch %	100	0	0	0	100	0	100	0	0	100	0	100	0	0	100	100	0	0	0	100	
Total %	4.9	0	0	0	4.9	0	3.4	0	0	3.4	0	67.6	0	0	67.6	24.2	0	0	0	24.2	
Typical Vehicles	29	0	0	0	29	0	20	0	0	20	0	399	0	0	399	125	0	0	0	125	573
% Typical Vehicles	100	0	0	0	100	0	100	0	0	100	0	99	0	0	99	86.8	0	0	0	86.8	96.1
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	19	0	0	0	19	23
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	13.2	0	0	0	13.2	3.9

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & S Aiken PM
 Site Code : 8172_6p2
 Start Date : 4/23/2008
 Page No : 2

(part 2 of intersection #6)
 Only entering S. Aiken Ave., btwn.
 Liberty Ave. and Baum Blvd.
 OXF00#08172 Board#D4-4435 JCD

Start Time	From Liberty Ave. Southbound				From Centre Ave. Westbound				From S. Aiken Ave. Northbound				From Centre Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	4	40
03:15 PM	3	0	0	0	3	0	0	0	0	0	0	25	0	0	0	6	0	0	0	0	6	34
03:30 PM	1	0	0	0	1	0	0	1	0	0	0	33	0	0	0	10	0	0	0	0	10	45
03:45 PM	2	0	0	0	2	0	0	0	0	0	0	27	0	0	0	10	0	0	0	0	10	39
Total Volume	7	0	0	0	7	0	0	2	0	0	0	119	0	0	0	30	0	0	0	0	30	158
% App. Total	100	0	0	0	100	0	0	100	0	0	0	100	0	0	0	100	0	0	0	0	100	158
PHF	.583	.000	.000	.000	.583	.000	.000	.500	.000	.000	.000	.875	.000	.000	.000	.750	.000	.000	.000	.000	.750	.878
Typical Vehicles	7	0	0	0	7	0	0	2	0	0	0	115	0	0	0	25	0	0	0	0	25	149
% Typical Vehicles	100	0	0	0	100	0	0	100	0	0	0	96.6	0	0	0	83.3	0	0	0	0	83.3	94.3
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	0	0	5	9
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	3.4	0	0	0	16.7	0	0	0	0	16.7	5.7
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	1	0	0	0	1	0	0	1	0	0	0	29	0	0	0	12	0	0	0	0	12	43
05:00 PM	0	0	0	0	0	0	2	0	0	0	0	24	0	0	0	13	0	0	0	0	13	39
05:15 PM	2	0	0	0	2	0	0	1	0	0	0	23	0	0	0	10	0	0	0	0	10	36
05:30 PM	1	0	0	0	1	0	0	0	0	0	0	25	0	0	0	9	0	0	0	0	9	35
Total Volume	4	0	0	0	4	0	0	4	0	0	0	101	0	0	0	44	0	0	0	0	44	153
% App. Total	100	0	0	0	100	0	0	100	0	0	0	100	0	0	0	100	0	0	0	0	100	153
PHF	.500	.000	.000	.000	.500	.000	.000	.500	.000	.000	.000	.871	.000	.000	.000	.846	.000	.000	.000	.000	.846	.890
Typical Vehicles	4	0	0	0	4	0	0	4	0	0	0	101	0	0	0	40	0	0	0	0	40	149
% Typical Vehicles	100	0	0	0	100	0	0	100	0	0	0	100	0	0	0	90.9	0	0	0	0	90.9	97.4
Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	4
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.1	0	0	0	0	9.1	2.6

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & S Aiken PM
 Site Code : 8172_6p2
 Start Date : 4/23/2008
 Page No : 1

(part 2 of intersection #6)
 Only entering S. Aiken Ave., btwn.
 Liberty Ave. and Baum Blvd.
 OXF00#08172 Board#D4-4435 JCD

Groups Printed- Heavy Duty Vehicles

Start Time	From Liberty Ave. Southbound					From Centre Ave. Westbound					From S. Aiken Ave. Northbound					From Centre Ave. Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	2
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	2
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	2	3
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	0	0	5	9
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7	7
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	4
Grand Total	0	0	0	0	0	0	0	0	0	0	4	4	0	0	4	19	0	0	0	0	19	23
Approch %	0	0	0	0	0	0	0	0	0	0	100	100	0	0	17.4	100	0	0	0	0	19	82.6
Total %	0	0	0	0	0	0	0	0	0	0	0	17.4	0	0	17.4	82.6	0	0	0	0	82.6	82.6

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & S Millvale PM
 Site Code : 81720010
 Start Date : 9/3/2008
 Page No : 1

S. Millvale Av. at Liberty Ave.
 OXF0R00#08172 Board#D4-4436 FS

Start Time	S. Millvale Ave.												Liberty Ave.											
	Southbound						Westbound						Northbound						Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	11	20	12	0	43	0	5	97	4	0	106	0	23	13	3	0	39	0	6	91	7	0	104	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	16	19	12	1	48	0	2	78	1	0	81	0	19	26	8	0	53	0	10	95	11	0	116	0
02:45 PM	13	9	12	1	35	0	6	100	5	0	111	0	22	22	10	0	54	0	9	89	17	0	115	0
Total	40	48	36	2	126	0	13	275	10	0	298	0	64	61	21	0	146	0	25	275	35	0	335	0
03:00 PM	12	11	21	0	44	0	3	87	6	0	96	0	24	27	5	0	56	0	12	81	18	0	111	0
03:15 PM	13	17	19	0	49	0	5	75	6	0	86	0	24	31	8	0	63	0	8	114	14	0	136	0
03:30 PM	15	10	17	0	42	0	2	81	6	1	90	0	17	20	5	0	42	0	4	95	14	2	115	0
03:45 PM	14	13	18	0	45	0	4	102	5	0	111	0	18	29	14	0	61	0	4	111	7	0	122	0
Total	54	51	75	0	180	0	14	345	23	1	383	0	83	107	32	0	222	0	28	401	53	2	484	0
04:00 PM	19	12	19	1	51	0	3	106	3	0	112	0	20	27	4	0	51	0	13	124	12	1	150	0
04:15 PM	6	13	13	0	32	0	5	105	3	0	113	0	21	43	11	0	75	0	8	99	8	0	115	0
04:30 PM	12	11	13	0	36	0	4	96	3	0	103	0	34	35	9	1	79	0	5	98	14	0	117	0
04:45 PM	7	14	8	0	29	0	2	96	2	1	101	0	32	57	10	0	99	0	6	111	9	0	126	0
Total	44	50	53	1	148	0	14	403	11	1	429	0	107	162	34	1	304	0	32	432	43	1	508	0
05:00 PM	9	12	12	0	33	0	2	107	6	0	115	0	26	47	13	0	86	0	9	122	11	0	142	0
05:15 PM	9	13	16	0	38	0	6	105	5	0	116	0	35	66	11	0	112	0	11	145	8	0	164	0
05:30 PM	10	9	15	0	34	0	1	98	3	0	102	0	32	42	12	0	86	0	8	140	11	1	160	0
05:45 PM	12	5	10	1	28	0	3	96	3	0	102	0	28	35	7	0	70	0	4	132	11	0	147	0
Total	40	39	53	1	133	0	12	406	17	0	435	0	121	190	43	0	354	0	32	539	41	1	613	0
Grand Total	178	188	217	4	587	0	53	1429	61	2	1545	0	375	520	130	1	1026	0	117	1647	172	4	1940	0
Approch %	30.3	32	37	0.7	11.5	0	3.4	92.5	3.9	0.1	30.3	0	36.5	50.7	12.7	0.1	20.1	0	6	84.9	8.9	0.2	38.1	0
Total %	3.5	3.7	4.3	0.1	11.5	0	1	28	1.2	0	30.3	0	7.4	10.2	2.6	0	20.1	0	2.3	32.3	3.4	0.1	38.1	0
Typical Vehicles	178	185	214	4	581	0	53	1403	59	2	1517	0	346	518	130	1	995	0	117	1624	158	2	1901	0
% Typical Vehicles	100	98.4	98.6	100	99	0	100	98.2	96.7	100	98.2	0	92.3	99.6	100	100	97	0	100	98.6	91.9	50	98	0
% Heavy Duty Vehicles	0	1.6	1.4	0	1	0	0	1.8	3.3	0	1.8	0	7.7	0.4	0	0	3	0	0	1.4	8.1	50	2	0

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & S Millvale PM
 Site Code : 81720010
 Start Date : 9/3/2008
 Page No : 2

S. Millvale Av. at Liberty Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	S. Millvale Ave. Southbound WB				Liberty Ave. Westbound WB				S. Millvale Ave. Northbound EB				Liberty Ave. Eastbound SB			
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 03:00 PM																
03:00 PM	12	11	21	0	44	3	87	6	0	96	24	27	5	0	56	307
03:15 PM	13	17	19	0	49	5	75	6	0	86	24	31	8	0	63	334
03:30 PM	15	10	17	0	42	2	81	6	1	90	17	20	5	0	42	289
03:45 PM	14	13	18	0	45	4	102	5	0	111	18	29	14	0	61	339
Total Volume	54	51	75	0	180	14	345	23	1	383	83	107	32	0	222	1269
% App. Total	30	28.3	41.7	0	918	3.7	90.1	6	0.3	863	37.4	48.2	14.4	0	881	936
PHF	.900	.750	.893	.000	.918	.700	.846	.958	.250	.863	.865	.863	.571	.000	.881	.936
Typical Vehicles	54	49	73	0	176	14	337	22	1	374	77	107	32	0	216	1238
% Typical Vehicles	100	96.1	97.3	0	97.8	100	97.7	95.7	100	97.7	92.8	100	100	0	97.3	97.6
Heavy Duty Vehicles	0	2	2	0	4	0	8	1	0	9	6	0	0	0	6	31
% Heavy Duty Vehicles	0	3.9	2.7	0	2.2	0	2.3	4.3	0	2.3	7.2	0	0	0	2.7	2.4
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	7	14	8	0	29	2	96	2	1	101	32	57	10	0	99	355
05:00 PM	9	12	12	0	33	2	107	6	0	115	26	47	13	0	86	376
05:15 PM	9	13	16	0	38	6	105	5	0	116	35	66	11	0	112	430
05:30 PM	10	9	15	0	34	1	98	3	0	102	32	42	12	0	86	382
Total Volume	35	48	51	0	134	11	406	16	1	434	125	212	46	0	383	1543
% App. Total	26.1	35.8	38.1	0	882	2.5	93.5	3.7	0.2	935	32.6	55.4	12	0	855	902
PHF	.875	.857	.797	.000	.882	.458	.949	.667	.250	.935	.893	.803	.885	.000	.855	.902
Typical Vehicles	35	48	50	0	133	11	400	16	1	428	120	212	46	0	378	897
% Typical Vehicles	100	100	98.0	0	99.3	100	98.5	100	100	98.6	96.0	100	100	0	98.7	1519
Heavy Duty Vehicles	0	0	1	0	1	0	6	0	0	6	5	0	0	0	5	98.4
% Heavy Duty Vehicles	0	0	2.0	0	0.7	0	1.5	0	0	1.4	4.0	0	0	0	1.3	2.4

PHF = .74
 HV = 13%

PHF = .86
 HV = 4%

PHF = .83
 HV = 8%

PHF = .71
 HV = 0%

S. Millvale Av. at Liberty Ave.
 OXF0R00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Heavy Duty Vehicles																				
	S. Millvale Ave. Southbound					Liberty Ave. Westbound					S. Millvale Ave. Northbound					Liberty Ave. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	0	1	0	0	1	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	5
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	2	0	3	7
02:45 PM	0	0	0	0	0	0	1	1	0	2	3	1	0	0	4	0	2	1	0	3	9
Total	0	1	0	0	1	0	5	1	0	6	6	1	0	0	7	0	4	3	0	7	21
03:00 PM	0	1	0	0	1	0	2	1	0	3	0	0	0	0	0	0	1	1	0	2	6
03:15 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	2	0	3	6
03:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	1	2	3	6
03:45 PM	0	0	2	0	2	0	4	0	0	4	3	0	0	0	3	0	3	1	0	4	13
Total	0	2	2	0	4	0	8	1	0	9	6	0	0	0	6	0	5	5	2	12	31
04:00 PM	0	0	0	0	0	0	3	0	0	3	4	0	0	0	4	0	1	0	0	1	8
04:15 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	1	0	1	4
04:30 PM	0	0	0	0	0	0	2	0	0	2	3	0	0	0	3	0	3	1	0	4	9
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	5
Total	0	0	0	0	0	0	8	0	0	8	9	0	0	0	9	0	6	3	0	9	26
05:00 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	7
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	1	0	4	5
05:30 PM	0	0	0	0	0	0	2	0	0	2	4	0	0	0	4	0	0	1	0	1	7
05:45 PM	0	0	0	0	0	0	1	0	0	1	3	1	0	0	4	0	1	1	0	2	7
Total	0	0	1	0	1	0	5	0	0	5	8	1	0	0	9	0	8	3	0	11	26
Grand Total	0	3	3	0	6	0	26	2	0	28	29	2	0	0	31	0	23	14	2	39	104
Approch %	0	50	50	0		0	92.9	7.1	0		93.5	6.5	0	0		0	59	35.9	5.1		
Total %	0	2.9	2.9	0	5.8	0	25	1.9	0	26.9	27.9	1.9	0	0	29.8	0	22.1	13.5	1.9	37.5	

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Liberty & S Millvale PM
 Site Code : 81720010
 Start Date : 9/3/2008
 Page No : 2

S. Millvale Av. at Liberty Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	S. Millvale Ave. Southbound				Liberty Ave. Westbound				S. Millvale Ave. Northbound				Liberty Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	0	1	0	0	1	0	2	1	0	3	0	0	0	0	0	0	0	1	0	0	2	6
03:15 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	3	6
03:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	1	0	2	3	6
03:45 PM	0	0	2	0	2	0	4	0	0	4	0	0	0	0	0	0	3	1	0	4	13	31
Total Volume	0	2	2	0	4	0	8	1	0	9	6	0	0	0	6	0	5	5	2	12	31	
% App. Total	0	50	50	0	100	0	88.9	11.1	0	100	100	0	0	0	0	0	41.7	41.7	16.7	16.7	59.6	
PHF	.000	.500	.250	.000	.500	.000	.500	.250	.000	.563	.500	.000	.000	.000	.500	.000	.417	.625	.250	.250	.750	.596

Start Time	S. Millvale Ave. Southbound				Liberty Ave. Westbound				S. Millvale Ave. Northbound				Liberty Ave. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	2	0	0	3	5
05:00 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	4	0	0	4	7
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	1	0	4	5	
05:30 PM	0	0	0	0	0	0	2	0	0	2	4	0	0	0	4	0	0	1	0	1	7	
Total Volume	0	0	1	0	1	0	6	0	0	6	5	0	0	0	5	0	9	3	0	12	24	
% App. Total	0	0	100	0	100	0	100	0	0	100	100	0	0	0	0	0	75	25	0	0	12	
PHF	.000	.000	.250	.000	.250	.000	.750	.000	.000	.750	.313	.000	.000	.000	.313	.000	.563	.750	.000	.750	.857	

Start Time	Groups Printed- Typical Vehicles - Heavy Duty Vehicles																	
	S. Millvale Ave. Southbound						S. Millvale Ave. Northbound						Cypress St. Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	1	30	0	0	31	17	2	33	5	0	40	0	0	3	0	2	5	93
02:15 PM	2	20	2	0	24	23	2	41	8	0	51	1	1	1	3	1	6	104
02:30 PM	3	34	0	0	37	18	1	52	7	1	61	0	0	3	0	1	4	120
02:45 PM	0	28	2	0	30	20	0	41	6	0	47	1	3	2	0	0	6	103
Total	6	112	4	0	122	78	5	167	26	1	199	2	10	5	4	21	420	
03:00 PM	1	26	1	0	28	23	2	53	8	0	63	0	1	0	0	0	1	115
03:15 PM	0	26	0	0	26	25	2	42	4	0	48	1	3	1	1	1	6	105
03:30 PM	2	21	1	0	24	20	4	42	6	0	52	3	2	0	4	9	105	
03:45 PM	2	26	0	0	28	20	0	53	4	2	59	0	3	3	1	1	5	112
Total	5	99	2	0	106	88	8	190	22	2	222	4	9	2	6	21	437	
04:00 PM	3	22	3	0	28	19	3	54	8	0	65	0	2	2	2	1	5	117
04:15 PM	2	22	0	0	24	16	0	66	6	0	72	1	1	1	1	1	4	116
04:30 PM	3	32	1	0	36	19	1	83	5	0	89	0	1	1	1	0	2	146
04:45 PM	2	24	0	0	26	29	0	94	8	0	102	1	5	1	1	2	9	166
Total	10	100	4	0	114	83	4	297	27	0	328	2	9	5	4	20	545	
05:00 PM	5	23	0	0	28	24	2	81	3	0	86	2	2	0	0	1	5	143
05:15 PM	3	23	0	0	26	20	2	95	1	2	100	0	3	0	2	2	5	151
05:30 PM	1	24	1	0	26	15	0	63	3	3	68	1	1	1	2	1	5	114
05:45 PM	3	18	1	0	22	11	3	59	6	0	68	0	0	2	0	2	2	103
Total	12	88	2	0	102	70	7	298	13	4	322	3	6	4	4	17	511	
Grand Total	33	399	12	0	444	319	24	952	88	7	1071	11	34	16	18	79	1913	
Approach %	7.4	89.9	2.7	0	12.5	16.7	2.2	88.9	8.2	0.7	22.8	13.9	43	20.3	22.8	4.1	79	
Total %	1.7	20.9	0.6	0	23.2	16.7	1.3	49.8	4.6	0.4	56	0.6	1.8	0.8	0.9	4.1	1862	
% Typical Vehicles	33	380	12	0	425	315	24	925	87	7	1043	11	34	16	18	79	1862	
% Heavy Duty Vehicles	100	95.2	100	0	95.7	98.7	100	97.2	98.9	100	97.4	100	100	100	100	100	97.3	
% Heavy Duty Vehicles	0	4.8	0	0	4.3	1.3	0	2.8	1.1	0	2.6	0	0	0	0	0	2.7	

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : S Millvale & Cypress PM
 Site Code : 81720018
 Start Date : 9/3/2008
 Page No : 2

Cypress St. at S. Millvale Ave.
 OXF00#08172 Board#D4-4435 JCD

Start Time	S. Millvale Ave. Southbound				Cypress St. Westbound				S. Millvale Ave. Northbound				Cypress St. Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 03:00 PM																
03:00 PM	1	26	1	0	28	9	3	7	4	23	2	53	8	0	0	63
03:15 PM	0	26	0	0	26	11	2	9	3	25	2	42	4	0	0	48
03:30 PM	2	21	1	0	24	10	3	3	4	20	4	42	6	0	0	52
03:45 PM	2	26	0	0	28	8	3	6	3	20	0	53	4	2	2	59
Total Volume	5	99	2	0	106	38	11	25	14	88	8	190	22	2	2	222
% App. Total	4.7	93.4	1.9	0	100	43.2	12.5	28.4	15.9	88	3.6	85.6	9.9	0.9	0.9	250
PHF	.625	.952	.500	.000	.946	.864	.917	.694	.875	.880	.500	.896	.688	.250	.881	.881
Typical Vehicles																
% Typical Vehicles	100	92.9	100	0	93.4	38	11	25	14	88	8	187	22	2	2	219
Heavy Duty Vehicles	0	7	0	0	7	0	0	0	0	0	0	3	0	0	0	3
% Heavy Duty Vehicles	0	7.1	0	0	6.6	0	0	0	0	0	0	1.6	0	0	0	1.4
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	2	24	0	0	26	11	8	9	1	29	0	94	8	0	0	102
05:00 PM	5	23	0	0	28	8	4	6	6	24	2	81	3	0	0	86
05:15 PM	3	23	0	0	26	11	4	5	0	20	2	95	1	2	2	100
05:30 PM	1	24	1	0	26	4	1	9	1	15	0	63	3	2	2	68
Total Volume	11	94	1	0	106	34	17	29	8	88	4	333	15	4	4	356
% App. Total	10.4	88.7	0.9	0	100	38.6	19.3	33	9.1	88	1.1	93.5	4.2	1.1	1.1	873
PHF	.550	.979	.250	.000	.946	.773	.531	.806	.333	.759	.500	.876	.469	.500	.750	.864
Typical Vehicles																
% Typical Vehicles	11	90	1	0	102	33	17	29	8	87	4	329	15	4	3	352
Heavy Duty Vehicles	100	95.7	100	0	96.2	97.1	100	100	100	98.9	100	98.8	100	100	100	98.9
% Heavy Duty Vehicles	0	4.3	0	0	3.8	2.9	0	0	0	1.1	0	1.2	0	0	0	1.1

pmf = .50
 hv = 0%

pmf = .75
 hv = 0%

pmf = .81
 hv = 0%

pmf = .75
 hv = 0%

pmf = .59
 hv = 0%

pmf = .77
 hv = 0%

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : S Millvale & Cypress PM
 Site Code : 81720018
 Start Date : 9/3/2008
 Page No : 1

Cypress St. at S. Millvale Ave.
 OXF0R00#08172 Board#D4-4435 JCD

Start Time	Groups Printed- Heavy Duty Vehicles																					
	S. Millvale Ave. Southbound				Cypress St. Westbound				S. Millvale Ave. Northbound				Cypress St. Eastbound									
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
02:00 PM	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	4
02:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
02:30 PM	0	2	0	0	2	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	6
02:45 PM	0	1	0	0	1	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	5
Total	0	5	0	0	5	2	0	1	0	3	0	8	1	0	9	0	0	0	0	0	0	17
03:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:15 PM	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	4
03:30 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
03:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Total	0	7	0	0	7	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	10
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
Total	0	3	0	0	3	0	0	0	0	0	11	0	0	0	11	0	0	0	0	0	0	14
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4
Total	0	4	0	0	4	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	0	10
Grand Total	0	19	0	0	19	3	0	1	0	4	0	27	1	0	28	0	0	0	0	0	0	51
Approch %	0	100	0	0	75	0	25	0	0	96.4	3.6	0	0	0	54.9	0	0	0	0	0	0	
Total %	0	37.3	0	0	37.3	5.9	2	0	0	7.8	52.9	2	0	0	54.9	0	0	0	0	0	0	

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : S Millvale & Cypress PM
 Site Code : 81720018
 Start Date : 9/3/2008
 Page No : 2

Cypress St. at S. Millvale Ave.
 OXF0R00#08172 Board#D4-4435 JCD

Start Time	S. Millvale Ave. Southbound				Cypress St. Westbound				S. Millvale Ave. Northbound				Cypress St. Eastbound						
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 03:00 PM																			
03:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:15 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	4
03:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2
03:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2
Total Volume	0	7	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	10
% App. Total	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	750	0	625
PHF	.000	.583	.000	.000	.000	.000	.000	.000	.000	.750	.000	.000	.000	.000	.000	.000	.750	.000	.625
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:45 PM																			
04:45 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	3
05:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	3
05:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2
Total Volume	0	4	0	0	1	0	0	0	1	4	0	0	0	0	0	0	4	0	9
% App. Total	0	100	0	0	250	0	0	0	250	100	0	0	0	0	0	0	500	0	750
PHF	.000	1.000	.000	.000	.250	.000	.000	.000	.250	.500	.000	.000	.000	.000	.000	.000	.500	.000	.750

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#12
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 1

S. Aiken Ave. &
 Ellsworth Ave.
 HARLE00#10244
 Board#4435 JCD

Start Time	Groups Printed- Vehicles - Heavy Duty Vehicles																			
	S. Aiken Ave. Southbound						S. Aiken Ave. Northbound						Ellsworth Ave. Eastbound							
	Left	Thru	Right	Right on red	App. Total	Right on red	Left	Thru	Right	Right on red	App. Total	Right on red	Left	Thru	Right	Right on red	App. Total	Right on red		
02:00 PM	20	88	15	3	126	5	34	14	4	57	7	67	8	1	83	18	48	5	0	71
02:15 PM	18	88	13	0	119	3	46	15	4	68	12	80	1	1	94	15	36	4	0	55
02:30 PM	24	101	18	1	144	4	49	17	7	77	8	63	2	0	73	9	52	3	1	65
02:45 PM	31	106	15	2	154	4	40	13	3	60	7	81	3	2	93	17	58	6	0	81
Total	93	383	61	6	543	16	169	59	18	262	34	291	14	4	343	59	194	18	1	272
03:00 PM	22	111	24	3	160	3	32	11	6	52	13	66	3	0	82	13	58	10	1	82
03:15 PM	21	90	21	2	134	5	45	14	6	70	7	59	11	2	79	16	67	7	0	90
03:30 PM	37	126	25	1	189	1	48	16	4	69	9	63	4	1	77	19	102	11	0	132
03:45 PM	37	116	16	3	172	2	65	18	7	92	6	55	6	0	67	12	69	6	0	87
Total	117	443	86	9	655	11	190	59	23	283	35	243	24	3	305	60	296	34	1	391
04:00 PM	28	129	17	1	175	5	65	32	7	109	17	61	5	1	84	21	87	7	0	115
04:15 PM	32	124	19	3	178	5	50	16	4	75	6	48	5	2	61	20	78	13	0	111
04:30 PM	49	124	14	3	190	1	44	19	5	69	5	62	5	0	72	20	102	4	0	126
04:45 PM	35	129	17	0	181	5	48	17	6	76	11	58	6	1	76	23	98	16	0	137
Total	144	506	67	7	724	16	207	84	22	329	39	229	21	4	293	84	365	40	0	489
05:00 PM	38	118	17	1	174	3	55	18	7	83	10	65	2	1	78	12	88	11	1	112
05:15 PM	34	112	15	1	162	2	41	20	5	68	12	90	5	0	107	26	108	7	0	141
05:30 PM	40	109	20	0	169	3	55	23	4	85	13	76	5	0	94	32	93	10	0	135
05:45 PM	49	106	8	0	163	3	48	16	11	78	9	61	5	0	75	18	90	3	1	112
Total	161	445	60	2	668	11	199	77	27	314	44	292	17	1	354	88	379	31	2	500
Grand Total	515	1777	274	24	2590	54	765	279	90	1188	152	1055	76	12	1295	291	1234	123	4	1652
Approch %	19.9	68.6	10.6	0.9		4.5	64.4	23.5	7.6		11.7	81.5	5.9	0.9		17.6	74.7	7.4	0.2	
Total %	7.7	26.4	4.1	0.4	38.5	0.8	11.4	4.1	1.3	17.7	2.3	15.7	1.1	0.2	19.3	4.3	18.3	1.8	0.1	24.6
% Vehicles	510	1768	273	23	2574	54	747	276	89	1166	151	1051	75	12	1289	291	1214	122	4	1631
% Heavy Duty Vehicles	99	99.5	99.6	95.8	99.4	100	97.6	98.9	98.1	98.1	99.3	99.6	98.7	100	99.5	100	98.4	99.2	100	98.7
% Heavy Duty Vehicles	5	9	1	1	16	0	18	3	1	22	1	4	1	0	6	0	20	1	0	21
% Heavy Duty Vehicles	1	0.5	0.4	4.2	0.6	0	2.4	1.1	1.1	1.9	0.7	0.4	1.3	0	0.5	0	1.6	0.8	0	1.3

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburg, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#12
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 2

S. Aiken Ave. &
 Ellsworth Ave.
 HARLE00#10244
 Board#4435 JCD

Start Time	S. Aiken Ave. Southbound				Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound								
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total					
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	22	111	24	3	160	3	32	11	6	52	13	66	3	0	82	13	58	10	1	82	376
03:15 PM	21	90	21	2	134	5	45	14	6	70	7	59	11	2	79	16	67	7	0	90	373
03:30 PM	37	126	25	1	189	1	48	16	4	69	9	63	4	1	77	19	102	11	0	132	467
03:45 PM	37	116	16	3	172	2	65	18	7	92	6	55	6	0	67	12	69	6	0	87	418
Total Volume	117	443	86	9	655	11	190	59	23	283	35	243	24	3	305	60	296	34	1	391	1634
% App. Total	17.9	67.6	13.1	1.4		3.9	67.1	20.8	8.1		11.5	79.7	7.9	1		15.3	75.7	8.7	0.3		
PHF	.791	.879	.860	.750	.866	.550	.731	.819	.821	.769	.673	.920	.545	.375	.930	.789	.725	.773	.250	.741	.875
Vehicles	115	440	86	8	649	11	186	58	22	277	35	241	24	3	303	60	291	33	1	385	1614
% Vehicles	98.3	99.3	100	88.9	99.1	100	97.9	98.3	95.7	97.9	100	99.2	100	100	99.3	100	98.3	97.1	100	98.5	98.8
Heavy Duty Vehicles	2	3	0	1	6	0	4	1	1	6	0	2	0	0	2	0	5	1	0	6	20
% Heavy Duty Vehicles	1.7	0.7	0	11.1	0.9	0	2.1	1.7	4.3	2.1	0	0.8	0	0	0.7	0	1.7	2.9	0	1.5	1.2
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	35	129	17	0	181	5	48	17	6	76	11	58	6	1	76	23	98	16	0	137	470
05:00 PM	38	118	17	1	174	3	55	18	7	83	10	65	2	1	78	12	88	11	1	112	447
05:15 PM	34	112	15	1	162	2	41	20	5	68	12	90	5	0	107	26	108	7	0	141	478
05:30 PM	40	109	20	0	169	3	55	23	4	85	13	76	5	0	94	32	93	10	0	135	483
Total Volume	147	468	69	2	686	13	199	78	22	312	46	289	18	2	355	93	387	44	1	525	1878
% App. Total	21.4	68.2	10.1	0.3		4.2	63.8	25	7.1		13	81.4	5.1	0.6		17.7	73.7	8.4	0.2		
PHF	.919	.907	.863	.500	.948	.650	.905	.848	.786	.918	.885	.803	.750	.500	.829	.727	.896	.688	.250	.931	.972
Vehicles	146	466	69	2	683	13	194	78	22	307	46	289	18	2	355	93	383	44	1	521	1866
% Vehicles	99.3	99.6	100	100	99.6	100	97.5	100	100	98.4	100	100	100	100	100	100	99.0	100	100	99.2	99.4
Heavy Duty Vehicles	1	2	0	0	3	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	12
% Heavy Duty Vehicles	0.7	0.4	0	0	0.4	0	2.5	0	0	1.6	0	0	0	0	0	0	1.0	0	0	0.8	0.6

PHF = .80
 HV = 3%

PHF = .50
 HV = 0%

PHF = .80
 HV = 2%

PHF = .88
 HV = 1%

PHF = .70
 HV = 0%

PHF = .71
 HV = 0%

PHF = .93
 HV = 0%

PHF = .89
 HV = 0%

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Aiken Ave. &
 Ellsworth Ave.
 HARLE00#10244
 Board#4435 JCD

File Name : HARLE00_10244_PM_#12
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 1

Start Time	Groups Printed- Heavy Duty Vehicles																					
	S. Aiken Ave. Southbound				Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
02:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	0	0	0	2	4
02:15 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3
02:30 PM	1	1	1	0	3	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	6
02:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	4
Total	2	2	1	0	5	0	3	0	0	3	1	1	1	0	3	0	6	0	0	0	6	17
03:00 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	4
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
03:30 PM	1	1	0	0	2	0	2	0	1	3	0	1	0	0	1	0	1	0	0	0	1	7
03:45 PM	1	1	0	0	2	0	1	1	0	2	0	1	0	0	1	0	2	0	0	0	2	7
Total	2	3	0	1	6	0	4	1	1	6	0	2	0	0	2	0	5	1	0	0	6	20
04:00 PM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	3	5
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	3
04:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
Total	0	2	0	0	2	0	6	2	0	8	0	1	0	0	1	0	5	0	0	0	5	16
05:00 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
05:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2	4
05:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
Total	1	2	0	0	3	0	5	0	0	5	0	0	0	0	0	0	4	0	0	0	4	12
Grand Total	5	9	1	1	16	0	18	3	1	22	1	4	1	0	6	0	20	1	0	0	21	65
Approch %	31.2	56.2	6.2	6.2	24.6	0	81.8	13.6	4.5	33.8	16.7	66.7	16.7	0	9.2	0	95.2	4.8	0	0	32.3	
Total %	7.7	13.8	1.5	1.5	24.6	0	27.7	4.6	1.5	33.8	1.5	6.2	1.5	0	9.2	0	30.8	1.5	0	0	32.3	

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#12
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 2

S. Aiken Ave. &
 Ellsworth Ave.
 HARLE00#10244
 Board#4435 JCD

Start Time	S. Aiken Ave. Southbound				Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound						
	Left	Thru	Right	Right on red	Left	Thru	Right	Right on red	Left	Thru	Right	Right on red	Left	Thru	Right	Right on red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 03:00 PM																			
03:00 PM	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
03:30 PM	1	1	0	1	2	0	1	1	3	0	1	0	0	1	0	0	1	0	7
03:45 PM	1	1	0	0	0	1	1	0	2	0	1	0	0	2	0	0	2	0	7
Total Volume	2	3	0	1	0	4	1	1	6	0	2	0	0	2	5	1	0	0	20
% App. Total	33.3	50	0	16.7	66.7	16.7	16.7	0	100	0	100	0	0	83.3	16.7	0	0	0	714
PHF	.500	.750	.000	.250	.000	.500	.250	.250	.500	.000	.500	.000	.000	.625	.250	.000	.000	.750	.714
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:45 PM																			
04:45 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3
05:00 PM	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	3
05:15 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	2	0	0	2	0	0	0	0	2	0	0	0	0	4
Total Volume	1	2	0	0	0	5	0	0	5	0	0	0	0	4	0	0	0	0	12
% App. Total	33.3	66.7	0	0	0	100	0	0	62.5	0	0	0	0	100	0	0	0	0	12
PHF	.250	.500	.000	.000	.000	.625	.000	.000	.625	.000	.000	.000	.000	.500	.000	.000	.000	.500	.750

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Cypress & Gross PM
 Site Code : 81720014
 Start Date : 9/9/2008
 Page No : 2

Cypress St. at Gross St.
 OXF0R00#08172 Board#D4-4436 FS

Start Time	Gross St. Southbound WB				Cypress St. Westbound NB				Gross St. Northbound EB				Cypress St. Eastbound SB					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	1	1	2	4	1	8	0	9	8	0	3	0	11	1	8	4	13	37
03:15 PM	2	0	2	4	0	11	0	11	3	0	1	0	4	0	2	8	10	29
03:30 PM	3	0	2	5	0	15	0	15	7	0	1	0	8	0	5	1	6	34
03:45 PM	2	0	2	4	2	9	0	11	3	0	2	0	5	0	4	2	6	26
Total Volume	8	1	8	17	3	43	0	46	21	0	7	0	28	1	19	15	35	126
% App. Total	47.1	5.9	47.1	0	6.5	93.5	0	0	75	0	25	0	0	2.9	54.3	42.9	0	851
PHF	.667	.250	1.000	.850	.375	.717	.000	.767	.656	.000	.583	.000	.636	.250	.594	.469	.000	.673
Typical Vehicles	8	1	8	17	3	43	0	46	21	0	7	0	28	1	19	15	0	126
% Typical Vehicles	100	100	100	100	100	100	0	100	100	0	100	0	100	100	100	100	0	100
% Heavy Duty Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	6	0	3	9	1	14	0	15	3	0	2	0	5	0	8	1	0	38
05:00 PM	2	0	2	4	0	12	0	12	4	0	1	0	5	0	4	2	0	27
05:15 PM	3	0	1	4	1	11	0	12	5	0	0	0	5	0	8	3	0	32
05:30 PM	1	0	3	4	0	13	0	13	4	0	1	0	5	0	9	2	0	33
Total Volume	12	0	9	21	2	50	0	52	16	0	4	0	20	0	29	8	0	130
% App. Total	57.1	0	42.9	0	3.8	96.2	0	0	80	0	20	0	0	0	78.4	21.6	0	855
PHF	.500	.000	.750	.583	.500	.893	.000	.867	.800	.000	.500	.000	1.000	.000	.806	.667	.000	.841
Typical Vehicles	11	0	9	20	2	50	0	52	16	0	4	0	20	0	28	8	0	128
% Typical Vehicles	91.7	0	100	95.2	100	100	0	100	100	0	100	0	100	0	96.6	100	0	98.5
% Heavy Duty Vehicles	8.3	0	0	4.8	0	0	0	0	0	0	0	0	0	0	3.4	0	0	1.5

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Cypress & Gross PM
 Site Code : 81720014
 Start Date : 9/9/2008
 Page No : 1

Cypress St. at Gross St.
 OXF00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Heavy Duty Vehicles															
	Gross St. Southbound				Cypress St. Westbound				Gross St. Northbound				Cypress St. Eastbound			
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
Total	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	4
Grand Total	1	1	0	0	2	0	2	0	0	2	0	1	1	0	0	7
Approch %	50	50	0	0	0	0	100	0	0	0	0	50	50	0	0	0
Total %	14.3	14.3	0	0	28.6	0	28.6	0	0	28.6	0	14.3	14.3	0	0	14.3

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Cypress & Gross PM
 Site Code : 81720014
 Start Date : 9/9/2008
 Page No : 2

Cypress St. at Gross St.
 OXF00#08172 Board#D4-4436 FS

Start Time	Gross St. Southbound				Cypress St. Westbound				Gross St. Northbound				Cypress St. Eastbound					
	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	Left	Thru	Right	Right on Red	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:45 PM																		
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
% App. Total	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	2
PHF	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250

Start Time	Groups Printed- Vehicles - Heavy Duty Vehicles																				
	S. Millvale Ave. Southbound						S. Millvale Ave. Northbound						Morewood Ave. Eastbound								
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total					
02:00 PM	0	35	0	0	35	2	0	5	0	7	2	35	0	0	37	1	0	2	0	3	82
02:15 PM	0	43	0	0	43	3	1	8	0	12	4	38	0	0	42	2	0	2	0	4	101
02:30 PM	0	42	0	0	42	4	1	13	0	18	1	54	0	0	55	0	0	4	0	4	119
02:45 PM	0	33	1	0	34	4	1	3	0	8	3	48	0	0	51	0	1	2	1	4	97
Total	0	153	1	0	154	13	3	29	0	45	10	175	0	0	185	3	1	10	1	15	399
03:00 PM	0	42	0	0	42	5	0	9	0	14	2	44	0	0	46	0	0	1	0	0	103
03:15 PM	0	41	1	0	42	7	0	11	0	18	2	40	0	0	42	1	0	2	0	3	105
03:30 PM	0	46	0	0	46	5	1	15	0	21	5	33	0	0	38	2	0	1	0	3	108
03:45 PM	0	56	0	0	56	3	2	14	0	19	2	52	0	0	54	1	0	4	0	5	134
Total	0	185	1	0	186	20	3	49	0	72	11	169	0	0	180	4	0	8	0	12	450
04:00 PM	0	49	0	0	49	4	2	17	0	23	1	57	0	0	58	1	0	2	0	3	133
04:15 PM	0	40	1	0	41	4	1	17	0	22	3	73	0	0	76	3	0	2	0	5	144
04:30 PM	0	71	0	0	71	6	1	20	0	27	5	60	0	0	65	2	0	1	0	3	166
04:45 PM	0	62	3	0	65	3	0	31	0	34	2	77	0	0	79	5	0	1	0	6	184
Total	0	222	4	0	226	17	4	85	0	106	11	267	0	0	278	11	0	6	0	17	627
05:00 PM	1	41	3	0	45	9	1	23	0	33	5	87	0	0	92	6	0	3	0	9	179
05:15 PM	0	42	2	0	44	3	2	17	0	22	3	88	0	0	91	3	0	2	0	5	162
05:30 PM	0	44	0	0	44	4	0	26	0	30	5	87	0	0	92	2	0	4	0	6	172
05:45 PM	0	41	3	0	44	3	1	20	0	24	4	78	0	0	82	3	0	3	0	6	156
Total	1	168	8	0	177	19	4	86	0	109	17	340	0	0	357	14	0	12	0	26	689
Grand Total	1	728	14	0	743	69	14	249	0	332	49	951	0	0	1000	32	1	36	1	70	2145
Approach %	0.1	98	1.9	0	100	20.8	4.2	75	0	45.7	4.9	95.1	0	0	45.7	1.4	51.4	1.4	0	3.3	
Total % Vehicles	0	33.9	0.7	0	34.6	3.2	0.7	11.6	0	15.5	2.3	44.3	0	0	46.6	1.5	0	1.7	0	6.6	
% Heavy Duty Vehicles	100	97.1	100	0	97.2	97.1	100	100	0	99.4	100	97.9	0	0	98	100	100	100	100	98.6	2101
% Heavy Duty Vehicles	0	21	0	0	21	2	0	0	0	2	0	20	0	0	20	0	1	0	0	1	44
% Heavy Duty Vehicles	0	2.9	0	0	2.8	2.9	0	0	0	0.6	0	2.1	0	0	2	0	100	0	0	1.4	2.1

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#16
 Site Code : 10244016
 Start Date : 3/22/2011
 Page No : 2

S. Millvale Ave. &
 Morewood Ave.
 HARLE00#10244
 Board#4436 FS

Start Time	S. Millvale Ave. Southbound				Morewood Ave. Westbound				S. Millvale Ave. Northbound				Morewood Ave. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	0	42	0	0	42	5	0	9	0	14	2	44	0	0	46	0	0	1	0	0	1	103
03:15 PM	0	41	1	0	42	7	0	11	0	18	2	40	0	0	42	1	0	2	0	0	3	105
03:30 PM	0	46	0	0	46	5	1	15	0	21	5	33	0	0	38	2	0	1	0	0	3	108
03:45 PM	0	56	0	0	56	3	2	14	0	19	2	52	0	0	54	1	0	4	0	0	5	134
Total Volume	0	185	1	0	186	20	3	49	0	72	11	169	0	0	180	4	0	8	0	0	12	450
% App. Total	0	99.5	0.5	0	100	27.8	4.2	68.1	0	39.2	6.1	93.9	0	0	100	33.3	0	66.7	0	0	0	26.7
PHF	.000	.826	.250	.000	.830	.714	.375	.817	.000	.857	.550	.813	.000	.000	.833	.500	.000	.500	.000	.000	.600	.840
Vehicles	0	179	1	0	180	18	3	49	0	70	11	166	0	0	177	4	0	8	0	0	12	439
% Vehicles	0	96.8	100	0	96.8	90.0	100	100	0	97.2	100	98.2	0	0	98.3	100	0	100	0	0	100	97.6
Heavy Duty Vehicles	0	6	0	0	6	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	11
% Heavy Duty Vehicles	0	3.2	0	0	3.2	10.0	0	0	0	2.8	0	1.8	0	0	1.7	0	0	0	0	0	0	2.4
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	62	3	0	65	3	0	31	0	34	2	77	0	0	79	5	0	1	0	0	6	184
05:00 PM	1	41	3	0	45	9	1	23	0	33	5	87	0	0	92	6	0	3	0	0	9	179
05:15 PM	0	42	2	0	44	3	2	17	0	22	3	88	0	0	91	3	0	2	0	0	5	162
05:30 PM	0	44	0	0	44	4	0	26	0	30	5	87	0	0	92	2	0	4	0	0	6	172
Total Volume	1	189	8	0	198	19	3	97	0	119	15	339	0	0	354	16	0	10	0	0	26	697
% App. Total	0.5	95.5	4	0	96.0	16	2.5	81.5	0	60.5	4.2	95.8	0	0	96.2	61.5	0	38.5	0	0	722	947
PHF	.250	.762	.667	.000	.762	.528	.375	.782	.000	.875	.750	.963	.000	.000	.962	.667	.000	.625	.000	.000	.722	.947
Vehicles	1	185	8	0	194	19	3	97	0	119	15	335	0	0	350	16	0	10	0	0	26	689
% Vehicles	100	97.9	100	0	98.0	100	100	100	0	100	100	98.8	0	0	98.9	100	0	100	0	0	100	98.9
Heavy Duty Vehicles	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8
% Heavy Duty Vehicles	0	2.1	0	0	2.0	0	0	0	0	0	0	1.2	0	0	1.1	0	0	0	0	0	0	1.1

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Millvale Ave. &
 Morewood Ave.
 HARLE00#10244
 Board#4436 FS

File Name : HARLE00_10244_PM_#16
 Site Code : 10244016
 Start Date : 3/22/2011
 Page No : 1

Start Time	Groups Printed: Heavy Duty Vehicles																					
	S. Millvale Ave. Southbound				Morewood Ave. Westbound				S. Millvale Ave. Northbound				Morewood Ave. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
02:00 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4
02:15 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
02:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45 PM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	0	1	0	0	0	1	5
Total	0	7	0	0	7	0	0	0	0	0	5	0	0	0	5	0	1	0	0	0	1	13
03:00 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
03:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
03:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:45 PM	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	4
Total	0	6	0	0	6	2	0	0	0	2	3	0	0	0	3	0	0	0	0	0	0	11
04:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
04:15 PM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
04:30 PM	0	1	0	0	1	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	5
04:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Total	0	4	0	0	4	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	12
05:00 PM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
05:30 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
05:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Total	0	4	0	0	4	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	8
Grand Total	0	21	0	0	21	2	0	0	0	2	20	0	0	0	20	0	1	0	0	0	1	44
Approch %	0	100	0	0	100	0	0	0	0	0	100	0	0	0	100	0	100	0	0	0	0	
Total %	0	47.7	0	0	47.7	4.5	0	0	0	4.5	45.5	0	0	0	45.5	0	2.3	0	0	0	2.3	

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

S. Millvale Ave. &
 Morewood Ave.
 HARLE00#10244
 Board#4436 FS

File Name : HARLE00_10244_PM_#16
 Site Code : 10244016
 Start Date : 3/22/2011
 Page No : 2

Start Time	S. Millvale Ave. Southbound				Morewood Ave. Westbound				S. Millvale Ave. Northbound				Morewood Ave. Eastbound						
	Left	Thru	Right	Right on red	Left	Thru	Right	Right on red	Left	Thru	Right	Right on red	Left	Thru	Right	Right on red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 03:00 PM																			
03:00 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
03:15 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	3
03:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2
03:45 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	4
Total Volume	0	6	0	0	6	0	0	0	2	0	0	0	0	3	0	0	3	0	11
% App. Total	0	100	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	11
PHF	.000	.750	.000	.000	.750	.000	.000	.000	.500	.000	.000	.000	.000	.375	.000	.000	.375	.000	.688
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 04:45 PM																			
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
05:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1
05:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
Total Volume	0	4	0	0	4	0	0	0	0	0	0	0	0	4	0	0	4	0	8
% App. Total	0	100	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	8
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000	1.000	.000	.667

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#15
 Site Code : 10244077
 Start Date : 3/24/2011
 Page No : 1

S. Aiken Ave. & UPMC Shadyside
 Hosp. Patient/Visitor Garage Dwy.
 HARLE00#10244
 Board#4437 JR

Start Time	S. Aiken Ave.										Patient/ Visitor Garage Dwy.										
	Southbound					Westbound					Northbound					Eastbound					
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total
02:00 PM	0	96	15	0	111	0	0	0	0	0	17	81	0	0	98	15	0	21	0	36	245
02:15 PM	0	109	16	0	125	0	0	0	0	0	13	124	0	0	137	11	0	14	0	25	287
02:30 PM	0	127	13	0	140	0	0	0	0	0	16	83	0	0	99	12	0	13	0	25	264
02:45 PM	0	126	19	0	145	0	0	0	0	0	13	106	0	0	119	18	0	15	0	33	297
Total	0	458	63	0	521	0	0	0	0	0	59	394	0	0	453	56	0	63	0	119	1093
03:00 PM	0	104	4	0	108	0	0	0	0	0	7	111	0	0	118	14	0	24	0	38	264
03:15 PM	0	95	9	0	104	0	0	0	0	0	6	111	0	0	117	23	0	28	0	51	272
03:30 PM	0	138	5	0	143	0	0	0	0	0	11	125	0	0	136	23	0	25	0	48	327
03:45 PM	0	122	4	0	126	0	0	0	0	0	7	112	0	0	119	20	0	22	0	42	287
Total	0	459	22	0	481	0	0	0	0	0	31	459	0	0	490	80	0	99	0	179	1150
04:00 PM	0	131	3	0	134	0	0	0	0	0	3	145	0	0	148	20	0	29	0	49	331
04:15 PM	0	135	4	0	139	0	0	0	0	0	6	111	0	0	117	20	0	22	0	42	298
04:30 PM	0	152	5	0	157	0	0	0	0	0	1	159	0	0	160	18	0	13	0	31	348
04:45 PM	0	136	6	0	142	0	0	0	0	0	2	141	0	0	143	14	0	16	0	30	315
Total	0	554	18	0	572	0	0	0	0	0	12	556	0	0	568	72	0	80	0	152	1292
05:00 PM	0	155	6	0	161	0	0	0	0	0	4	139	0	0	143	20	0	11	0	31	335
05:15 PM	0	138	6	0	144	0	0	0	0	0	7	162	0	0	169	11	0	19	0	30	343
05:30 PM	0	144	13	0	157	0	0	0	0	0	5	151	0	0	156	13	0	10	0	23	336
05:45 PM	0	147	10	0	157	0	0	0	0	0	9	124	0	0	133	13	0	8	0	21	311
Total	0	584	35	0	619	0	0	0	0	0	25	576	0	0	601	57	0	48	0	105	1325
Grand Total	0	2055	138	0	2193	0	0	0	0	0	127	1985	0	0	2112	265	0	290	0	555	4860
Approch %	0	93.7	6.3	0		0	0	0	0	0	6	94	0	0		47.7	0	52.3	0		
Total %	0	42.3	2.8	0	45.1	0	0	0	0	0	2.6	40.8	0	0	43.5	5.5	0	6	0	11.4	
Vehicles	0	2046	138	0	2184	0	0	0	0	0	127	1979	0	0	2106	265	0	290	0	555	4845
% Vehicles	0	99.6	100	0	99.6	0	0	0	0	0	100	99.7	0	0	99.7	100	0	100	0	100	99.7
Heavy Duty Vehicles	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	15
% Heavy Duty Vehicles	0	0.4	0	0	0.4	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0.3

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#15
 Site Code : 10244077
 Start Date : 3/24/2011
 Page No : 1

S. Aiken Ave. & UPMC Shadyside
 Hosp. Patient/Visitor Garage Dwy.
 HARLE00#10244
 Board#4437 JR

Start Time	S. Aiken Ave.										Patient/ Visitor Garage Dwy.											
	Southbound					Westbound					Northbound					Eastbound						
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Int. Total	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
02:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
03:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
03:45 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4
Total	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	6
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	15
Approch %	0	100	0	0	60	0	0	0	0	0	100	0	0	0	40	0	0	0	0	0	0	0
Total %	0	60	0	0	60	0	0	0	0	0	40	0	0	0	40	0	0	0	0	0	0	0

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#18
 Site Code : 10244018
 Start Date : 3/24/2011
 Page No : 2

Doctor Bldg. Drop-off Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

Start Time	S. Aiken Ave. Southbound				Westbound				S. Aiken Ave. Northbound				UPMC Shadyside Dwys. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
	Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	0	0	2	0	2	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0	3	6
03:15 PM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	3
03:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	3
03:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	5	0	5	0	0	0	0	0	2	0	0	0	2	4	0	2	0	0	6	13
% App. Total	0	0	100	0	100	0	0	0	0	0	100	0	0	0	66.7	0	33.3	0	0	0	6	13
PHF	.000	.000	.625	.000	.625	.000	.000	.000	.000	.000	.500	.000	.250	.000	.500	.000	.250	.000	.000	.000	.500	.542
S. Aiken Drop-off Dwy.																						
% S. Aiken Drop-off Dwy.																						
%																						
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	4
05:15 PM	0	0	1	0	1	0	0	0	0	0	4	0	0	0	4	2	0	3	0	0	5	10
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	0	2	0	0	0	0	0	5	0	0	0	5	3	0	4	0	0	7	14
% App. Total	0	0	100	0	100	0	0	0	0	0	100	0	0	0	42.9	0	57.1	0	0	0	7	14
PHF	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.313	.000	.333	.000	.350	.000	.333	.000	.000	.000	.350	.350
S. Aiken Drop-off Dwy.																						
% S. Aiken Drop-off Dwy.																						
%																						

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#14
 Site Code : 10244066
 Start Date : 3/24/2011
 Page No : 2

Claybourne St. at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244
 Board#4436 FS

Start Time	S. Aiken Ave. Southbound					Claybourne St. Westbound					S. Aiken Ave. Northbound					Eastbound								
	Left	Thru	Right	right on red	App. Total	Left	Thru	Right	right on red	App. Total	Left	Thru	Right	right on red	App. Total	Left	Thru	Right	right on red	App. Total	Int. Total			
	Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 03:00 PM																							
03:00 PM	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
03:15 PM	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
03:30 PM	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
03:45 PM	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total Volume	0	0	0	0	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
% App. Total	0	0	0	0	0	50	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91.7
PHF	.000	.000	.000	.000	.000	.688	.000	.688	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.917
Vehicles	0	0	0	0	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
% Vehicles	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 04:45 PM																								
04:45 PM	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
05:00 PM	0	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
05:15 PM	0	0	0	0	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
05:30 PM	0	0	0	0	0	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Total Volume	0	0	0	0	0	15	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
% App. Total	0	0	0	0	0	46.9	0	53.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88.9
PHF	.000	.000	.000	.000	.000	.625	.000	.607	.000	.531	.000	.000	.607	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.889
Vehicles	0	0	0	0	0	15	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
% Vehicles	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#13
 Site Code : 10244013
 Start Date : 3/24/2011
 Page No : 1

Employee Garage/ E. D. Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

Start Time	Groups Printed- Employee Garage/ED Dwy. - Ambulance																	
	S. Aiken Ave. Southbound						S. Aiken Ave. Northbound						UPMC Shadyside Dwys. Eastbound					
	Left	Thru	Right	Right on red	App. Total		Left	Thru	Right	Right on red	App. Total		Left	Thru	Right	Right on red	App. Total	
02:00 PM	0	0	5	0	5	0	0	0	0	0	0	0	9	0	10	0	19	33
02:15 PM	0	0	5	0	5	0	0	0	0	0	0	0	5	0	9	0	22	32
02:30 PM	0	0	9	0	9	0	0	0	0	0	0	0	6	0	7	0	12	27
02:45 PM	0	0	4	0	4	0	0	0	0	0	0	0	8	0	8	0	17	29
Total	0	0	23	0	23	0	0	0	0	0	0	0	28	0	34	0	70	121
03:00 PM	0	0	3	0	3	0	0	0	0	0	0	0	3	0	10	0	31	37
03:15 PM	0	0	2	0	2	0	0	0	0	0	0	0	3	0	13	0	26	31
03:30 PM	0	0	3	0	3	0	0	0	0	0	0	0	3	0	11	0	40	46
03:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	2	0	10	0	29	32
Total	0	0	9	0	9	0	0	0	0	0	0	0	11	0	44	0	126	146
04:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	4	0	11	0	37	42
04:15 PM	0	0	4	0	4	0	0	0	0	0	0	0	3	0	16	0	30	37
04:30 PM	0	0	4	0	4	0	0	0	0	0	0	0	2	0	15	0	44	50
04:45 PM	0	0	5	0	5	0	0	0	0	0	0	0	2	0	12	0	39	44
Total	0	0	14	0	14	0	0	0	0	0	0	0	9	0	54	0	150	173
05:00 PM	0	0	8	0	8	0	0	0	0	0	0	0	2	0	14	0	40	50
05:15 PM	0	0	4	0	4	0	0	0	0	0	0	0	4	0	13	0	36	44
05:30 PM	0	0	5	0	5	0	0	0	0	0	0	0	2	0	6	0	20	27
05:45 PM	0	0	3	0	3	0	0	0	0	0	0	0	2	0	10	0	31	36
Total	0	0	20	0	20	0	0	0	0	0	0	0	10	0	43	0	127	157
Grand Total	0	0	66	0	66	0	0	0	0	0	0	0	58	0	175	0	473	597
Approach %	0	0	100	0	11.1	0	0	0	0	0	0	0	100	0	37	0	79.2	
Total %	0	0	11.1	0	11.1	0	0	0	0	0	0	0	9.7	0	29.3	0	79.2	
Employee Garage/ED Dwy.	0	0	54	0	54	0	0	0	0	0	0	0	45	0	159	0	444	543
% Employee Garage/ED Dwy.	0	0	81.8	0	81.8	0	0	0	0	0	0	0	77.6	0	90.9	0	93.9	91
Ambulance	0	0	12	0	12	0	0	0	0	0	0	0	13	0	16	0	29	54
% Ambulance	0	0	18.2	0	18.2	0	0	0	0	0	0	0	22.4	0	9.1	0	6.1	9

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

Employee Garage/ E. D. Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

File Name : HARLE00_10244_PM_#13
 Site Code : 10244013
 Start Date : 3/24/2011
 Page No : 2

Start Time	S. Aiken Ave. Southbound				Westbound				S. Aiken Ave. Northbound				UPMC Shadyside Dwys. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	0	0	3	0	3	0	0	0	0	0	3	0	0	0	3	21	0	10	0	0	31	37
03:15 PM	0	0	2	0	2	0	0	0	0	0	3	0	0	0	3	13	0	13	0	0	26	31
03:30 PM	0	0	3	0	3	0	0	0	0	0	3	0	0	0	3	29	0	11	0	0	40	46
03:45 PM	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	19	0	10	0	0	29	32
Total Volume	0	0	9	0	9	0	0	0	0	0	11	0	0	0	11	82	0	44	0	0	126	146
% App. Total	0	0	100	0	100	0	0	0	0	0	100	0	0	0	100	65.1	0	34.9	0	0	126	146
PHF	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.917	.000	.000	.000	.917	.707	.000	.846	.000	.000	.788	.793
Employee Garage/ED Dwy.	0	0	8	0	8	0	0	0	0	0	6	0	0	0	6	78	0	37	0	0	115	129
% Employee Garage/ED Dwy.	0	0	88.9	0	88.9	0	0	0	0	0	54.5	0	0	0	54.5	95.1	0	84.1	0	0	91.3	88.4
Ambulance	0	0	1	0	1	0	0	0	0	0	5	0	0	0	5	4	0	7	0	0	11	17
% Ambulance	0	0	11.1	0	11.1	0	0	0	0	0	45.5	0	0	0	45.5	4.9	0	15.9	0	0	8.7	11.6
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	27	0	12	0	0	39	44
05:00 PM	0	0	8	0	8	0	0	0	0	0	2	0	0	0	2	26	0	14	0	0	40	50
05:15 PM	0	0	4	0	4	0	0	0	0	0	4	0	0	0	4	23	0	13	0	0	36	44
05:30 PM	0	0	5	0	5	0	0	0	0	0	2	0	0	0	2	14	0	6	0	0	20	27
Total Volume	0	0	22	0	22	0	0	0	0	0	8	0	0	0	8	90	0	45	0	0	135	165
% App. Total	0	0	100	0	100	0	0	0	0	0	100	0	0	0	100	66.7	0	33.3	0	0	135	165
PHF	.000	.000	.688	.000	.688	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.833	.000	.804	.000	.000	.844	.825
Employee Garage/ED Dwy.	0	0	20	0	20	0	0	0	0	0	7	0	0	0	7	88	0	42	0	0	130	157
% Employee Garage/ED Dwy.	0	0	90.9	0	90.9	0	0	0	0	0	87.5	0	0	0	87.5	97.8	0	93.3	0	0	96.3	95.2
Ambulance	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	2	0	3	0	0	5	8
% Ambulance	0	0	9.1	0	9.1	0	0	0	0	0	12.5	0	0	0	12.5	2.2	0	6.7	0	0	3.7	4.8

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#13
 Site Code : 10244013
 Start Date : 3/24/2011
 Page No : 1

Employee Garage/ E. D. Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

Start Time	S. Aiken Ave.										UPMC Shadyside Dwys.									
	Southbound					Westbound					Northbound					Eastbound				
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total
02:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
02:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	0	3	0	7
02:30 PM	0	0	2	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
02:45 PM	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	0	1	0	1	4
Total	0	0	5	0	5	0	0	0	0	0	4	0	0	0	4	5	0	5	0	10
03:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	2	0	3	0	5
03:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	2	0	4
03:30 PM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Total	0	0	1	0	1	0	0	0	0	0	5	0	0	0	5	4	0	7	0	11
04:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1
04:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	2	0	2	0	0	0	0	0	3	0	0	0	3	2	0	2	0	4
05:00 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	2
05:45 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	4	0	4	0	0	0	0	0	1	0	0	0	1	2	0	2	0	4
Grand Total	0	0	12	0	12	0	0	0	0	0	13	0	0	0	13	13	0	16	0	29
Apprch %	0	0	100	0	100	0	0	0	0	0	100	0	0	0	100	44.8	0	55.2	0	53.7
Total %	0	0	22.2	0	22.2	0	0	0	0	0	24.1	0	0	0	24.1	24.1	0	29.6	0	53.7

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_PM_#13
 Site Code : 10244013
 Start Date : 3/24/2011
 Page No : 2

Employee Garage/ E. D. Dwy.
 at S. Aiken Ave.
 turns only, no S. Aiken Ave. thru
 HARLE00#10244 Board#4436 FS

Start Time	S. Aiken Ave. Southbound				Westbound				S. Aiken Ave. Northbound				UPMC Shadyside Dwys. Eastbound									
	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Left	Thru	Right	Right on red	App. Total	Int. Total	
	Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																						
03:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	3	0	0	5	8
03:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	2	0	0	4	5
03:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total Volume	0	0	1	0	0	5	0	0	0	0	5	0	0	0	0	4	0	7	0	0	11	17
% App. Total	0	0	100	0	0	100	0	0	0	0	100	0	0	0	0	36.4	0	63.6	0	0	11	17
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.417	.000	.000	.000	.000	.500	.000	.583	.000	.000	.550	.531
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0	0	2	3
Total Volume	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	2	0	3	0	0	5	8
% App. Total	0	0	100	0	0	100	0	0	0	0	100	0	0	0	0	40	0	60	0	0	5	8
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.000	.000	.000	.500	.000	.750	.000	.000	.625	.667

Your Company Name Here

This is your address
Your City, State, Zip Code
Your Tagline Here

Baum Blvd and S Millvale Ave
Pedestrian Count Only
HARLE00#10244

File Name : HARLE00_10244_Baum Millvale Peds AM
Site Code : 00001234
Start Date : 4/7/2011
Page No : 1

Start Time	S. Millvale Southbound				Baum Blvd Westbound				S. Millvale Northbound				Baum Blvd Eastbound			
	NE-NW	NW-NE	App. Total	SE-NE	NE-SE	App. Total	SW-SE	SE-SW	App. Total	NW-SW	SW-NW	App. Total	NW-SW	SW-NW	App. Total	Int. Total
07:30 AM	3	1	4	2	6	8	2	1	3	11	0	11	11	0	11	26
07:45 AM	1	1	2	0	2	2	0	2	2	10	2	18	10	2	12	18
Total	4	2	6	2	8	10	2	3	5	21	2	23	21	2	23	44
08:00 AM	0	1	1	0	6	6	1	1	2	7	0	7	7	0	7	16
08:15 AM	2	5	7	0	3	3	1	1	2	7	2	9	7	2	9	21
Grand Total	6	8	14	2	17	19	4	5	9	35	4	39	35	4	39	81
Approch %	42.9	57.1		10.5	89.5		44.4	55.6		89.7	10.3		89.7	10.3		
Total %	7.4	9.9	17.3	2.5	21	23.5	4.9	6.2	11.1	43.2	4.9	48.1	43.2	4.9	48.1	

Start Time	Southbound				Westbound				Northbound				Eastbound			
	NE-NW	NW-NE	App. Total	SE-NE	NE-SE	App. Total	SW-SE	SE-SW	App. Total	NW-SW	SW-NW	App. Total	NW-SW	SW-NW	App. Total	Int. Total
07:30 AM	3	1	4	2	6	8	2	1	3	11	0	11	11	0	11	26
07:45 AM	1	1	2	0	2	2	0	2	2	10	2	12	10	2	12	18
08:00 AM	0	1	1	0	6	6	1	1	2	7	0	7	7	0	7	16
08:15 AM	2	5	7	0	3	3	1	1	2	7	2	9	7	2	9	21
Total Volume	6	8	14	2	17	19	4	5	9	35	4	39	35	4	39	81
% App. Total	42.9	57.1		10.5	89.5		44.4	55.6		89.7	10.3		89.7	10.3		
PHF	.500	.400	.500	.250	.708	.594	.500	.625	.750	.795	.500	.813	.795	.500	.813	.779

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Morewood AM Peds
 Site Code : 8172ped2
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at Morewood Ave.
 OXF0R00#08172 Board#D4-4436 JR

Groups Printed- Peds

Start Time	Morewood Ave. Southbound		Baum Blvd. Westbound		Morewood Ave. Northbound		Baum Blvd. Eastbound		Int. Total
	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	
07:00 AM	1	1	2	2	1	1	1	1	5
07:15 AM	4	4	7	7	5	5	2	2	18
07:30 AM	2	2	5	5	7	7	4	4	18
07:45 AM	5	5	6	6	3	3	3	3	17
Total	12	12	20	20	16	16	10	10	58
08:00 AM	4	4	7	7	9	9	7	7	27
08:15 AM	2	2	5	5	4	4	6	6	17
08:30 AM	12	12	7	7	4	4	9	9	32
08:45 AM	3	3	3	3	3	3	6	6	15
Total	21	21	22	22	20	20	28	28	91
Grand Total	33	33	42	42	36	36	38	38	149
Approch %	100		100		100		100		
Total %	22.1	22.1	28.2	28.2	24.2	24.2	25.5	25.5	

Start Time	Morewood Ave. Southbound		Baum Blvd. Westbound		Morewood Ave. Northbound		Baum Blvd. Eastbound		Int. Total
	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	
07:30 AM	2	2	5	5	7	7	4	4	18
07:45 AM	5	5	6	6	3	3	3	3	17
08:00 AM	4	4	7	7	9	9	7	7	27
08:15 AM	2	2	5	5	4	4	6	6	17
Total Volume	13	13	23	23	23	23	20	20	79
% App. Total	100		100		100		100		
PHF	.650	.650	.821	.821	.639	.639	.714	.714	.731

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Cypress AM Peds
 Site Code : 8082ped8
 Start Date : 7/10/2008
 Page No : 1

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Groups Printed- Pedestrians -

Start Time	Cypress St. Southbound				Baum Blvd. Westbound				Cypress St. Northbound				Baum Blvd. Eastbound			
	WB	EB	App. Total	Total	NB	SB	App. Total	Total	EB	WB	App. Total	Total	SB	NB	App. Total	Total
07:00 AM	2	2	4	4	1	2	3	3	1	2	3	3	3	2	5	15
07:15 AM	2	3	5	5	0	1	1	1	0	3	3	3	2	0	2	11
07:30 AM	1	1	2	2	0	3	3	3	4	1	5	5	6	1	7	17
07:45 AM	3	0	3	3	0	2	2	2	1	0	1	1	5	0	5	11
Total	8	6	14	14	1	8	9	9	6	6	12	12	16	3	19	54
08:00 AM	2	2	4	4	1	5	6	6	0	3	3	3	4	0	4	17
08:15 AM	3	1	4	4	1	0	1	1	1	3	4	4	10	0	10	19
08:30 AM	2	2	4	4	2	2	4	4	0	3	3	3	6	3	9	20
08:45 AM	2	2	4	4	1	2	3	3	0	2	2	2	2	0	2	11
Total	9	7	16	16	5	9	14	14	1	11	12	12	22	3	25	67
Grand Total	17	13	30	30	6	17	23	23	7	17	24	24	38	6	44	121
Approch %	56.7	43.3			26.1	73.9			29.2	70.8			86.4	13.6		
Total %	14	10.7	24.8	24.8	5	14	19	19	5.8	14	19.8	19.8	31.4	5	36.4	
Pedestrians	17	13	30	30	6	17	23	23	7	17	24	24	38	6	44	121
% Pedestrians	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Cypress St. Southbound				Baum Blvd. Westbound				Cypress St. Northbound				Baum Blvd. Eastbound			
	WB	EB	App. Total	Total	NB	SB	App. Total	Total	EB	WB	App. Total	Total	SB	NB	App. Total	Total
07:30 AM	1	1	2	2	0	3	3	3	4	1	5	5	6	1	7	17
07:45 AM	3	0	3	3	0	2	2	2	1	0	1	1	5	0	5	11
08:00 AM	2	2	4	4	1	5	6	6	0	3	3	3	4	0	4	17
08:15 AM	3	1	4	4	1	0	1	1	1	3	4	4	10	0	10	19
Total Volume	9	4	13	13	2	10	12	12	6	7	13	13	25	1	26	64
% App. Total	69.2	30.8			16.7	83.3			46.2	53.8			96.2	3.8		
PHF	.750	.500	.813	.813	.500	.500	.500	.500	.375	.583	.650	.650	.625	.250	.650	.842

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Your Company Name Here

This is your address
Your City, State, Zip Code
Your Tagline Here

File Name : Baum & Liberty AM Peds
Site Code : 8082ped1
Start Date : 6/19/2008
Page No : 1

Baum Blvd. at Liberty Av./S Atlantic Av.
OXFOR00#08172 Board#D4-4436 FS

Groups Printed- Pedestrians

Start Time	Liberty Ave. Southbound			Baum Blvd. Westbound			Liberty Ave. Northbound			Baum Blvd. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
07:00 AM	1	0	1	2	3	5	0	2	2	1	0	1	9
07:15 AM	2	1	3	4	10	14	2	2	4	1	2	3	24
07:30 AM	0	0	0	7	8	15	2	3	5	1	1	2	22
07:45 AM	2	0	2	4	10	14	1	5	6	3	3	6	28
Total	5	1	6	17	31	48	5	12	17	6	6	12	83
08:00 AM	1	1	2	6	9	15	1	4	5	3	2	5	27
08:15 AM	1	0	1	6	8	14	0	2	2	4	2	6	23
08:30 AM	4	0	4	2	11	13	0	4	4	5	2	7	28
08:45 AM	4	2	6	8	10	18	1	2	3	3	7	10	37
Total	10	3	13	22	38	60	2	12	14	15	13	28	115
Grand Total	15	4	19	39	69	108	7	24	31	21	19	40	198
Apprch %	78.9	21.1	9.6	36.1	63.9	54.5	22.6	77.4	15.7	52.5	47.5	20.2	
Total %	7.6	2		19.7	34.8		3.5	12.1		10.6	9.6		

Start Time	Liberty Ave. Southbound			Baum Blvd. Westbound			Liberty Ave. Northbound			Baum Blvd. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
07:30 AM	0	0	0	7	8	15	2	3	5	1	1	2	22
07:45 AM	2	0	2	4	10	14	1	5	6	3	3	6	28
08:00 AM	1	1	2	6	9	15	1	4	5	3	2	5	27
08:15 AM	1	0	1	6	8	14	0	2	2	4	2	6	23
Total	4	1	5	23	35	58	4	14	18	11	8	19	100
% App. Total	80	20	62.5	39.7	60.3	67.8	22.2	77.8	75.0	57.9	42.1	79.2	89.3
PHF	.500	.250	.625	.821	.875	.967	.500	.700	.750	.688	.667	.792	.893

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Your Company Name Here

This is your address
Your City, State, Zip Code
Your Tagline Here

File Name : Baum & Liberty AM Peds
Site Code : 8082ped1
Start Date : 6/19/2008
Page No : 1

Baum Blvd. at Liberty Av./S Atlantic Av.
OXFOR00#08172 Board#D4-4436 FS

Groups Printed- Peds S. Atlantic

Start Time	Liberty Ave. Southbound			Baum Blvd. Westbound			Liberty Ave. Northbound			Baum Blvd. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
07:00 AM	0	0	0	1	2	3	0	0	0	0	0	0	3
07:15 AM	0	0	0	3	8	11	0	0	0	0	0	0	11
07:30 AM	0	0	0	5	3	8	0	0	0	0	0	0	8
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	9	13	22	0	0	0	0	0	0	22
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	7	3	10	0	0	0	0	0	0	10
08:30 AM	0	0	0	5	2	7	0	0	0	0	0	0	7
08:45 AM	0	0	0	7	2	9	0	0	0	0	0	0	9
Total	0	0	0	19	7	26	0	0	0	0	0	0	26
Grand Total	0	0	0	28	20	48	0	0	0	0	0	0	48
Apprch %	0	0	0	58.3	41.7	100	0	0	0	0	0	0	0
Total %	0	0	0	58.3	41.7	100	0	0	0	0	0	0	0

Start Time	Liberty Ave. Southbound			Baum Blvd. Westbound			Liberty Ave. Northbound			Baum Blvd. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
07:30 AM	0	0	0	5	3	8	0	0	0	0	0	0	8
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	7	3	10	0	0	0	0	0	0	10
Total Volume	0	0	0	12	6	18	0	0	0	0	0	0	18
% App. Total	.000	.000	.000	66.7	33.3	.450	.000	.000	.000	.000	.000	.000	.450
PHF				.429	.500	.450							.450

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

11 0115 033001473

4955 Steubenville Pike, Suite 400
Pittsburgh, PA 15205
412-490-0630

File Name : Centre & Morewood AM Peds
Site Code : 8172ped8
Start Date : 4/17/2008
Page No : 1

Centre Ave. at Morewood Ave.
OXFOR00#08172 Board#D4-4436 JR

Groups Printed- Pedestrians

Start Time	Morewood Ave. Southbound		Centre Ave. Westbound		Morewood Ave. Northbound		Centre Ave. Eastbound	
	peds	App. Total	peds	App. Total	peds	App. Total	peds	App. Total
07:00 AM	4	4	5	5	2	2	2	2
07:15 AM	6	6	6	6	6	6	0	0
07:30 AM	7	7	8	8	7	7	2	2
07:45 AM	6	6	7	7	8	8	1	1
Total	23	23	26	26	23	23	5	5
08:00 AM	6	6	6	6	7	7	8	8
08:15 AM	4	4	10	10	9	9	4	4
08:30 AM	12	12	6	6	10	10	5	5
08:45 AM	11	11	12	12	8	8	8	8
Total	33	33	34	34	34	34	25	25
Grand Total	56	56	60	60	57	57	30	30
Approch %	100		100		100		100	
Total %	27.6	27.6	29.6	29.6	28.1	28.1	14.8	14.8

Start Time	Morewood Ave. Southbound		Centre Ave. Westbound		Morewood Ave. Northbound		Centre Ave. Eastbound	
	peds	App. Total	peds	App. Total	peds	App. Total	peds	App. Total
07:30 AM	7	7	8	8	7	7	2	2
07:45 AM	6	6	7	7	8	8	1	1
08:00 AM	6	6	6	6	7	7	8	8
08:15 AM	4	4	10	10	9	9	4	4
Total Volume	23	23	31	31	31	31	15	15
% App. Total	100		100		100		100	
PHF	.821	.821	.775	.775	.861	.861	.469	.469

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Start Time	Groups Printed- Pedestrians																			
	Cypress St. Southbound					Centre Ave. Westbound					UPMC Shadyside Hosp. Dwy. Northbound					Centre Ave. Eastbound				
	WB	EB	App. Total	NB	SB	NB	SB	App. Total	EB	WB	EB	WB	App. Total	SB	NB	SB	NB	App. Total	Int. Total	
07:00 AM	5	1	6	0	1	1	1	11	2	13	0	0	0	0	0	0	0	20		
07:15 AM	4	2	6	2	1	3	4	7	3	7	1	3	4	3	4	4	20			
07:30 AM	9	7	16	2	11	13	7	5	13	12	4	0	0	0	4	45				
07:45 AM	12	1	13	5	4	9	12	10	22	22	3	9	9	9	12	56				
Total	30	11	41	9	17	26	34	20	54	54	8	12	20	141	20	141				
08:00 AM	15	0	15	1	4	5	9	5	14	14	1	5	6	40	6	40				
08:15 AM	6	1	7	3	3	6	3	5	8	8	2	4	6	27	6	27				
08:30 AM	12	2	14	7	4	11	9	6	15	15	1	6	7	47	7	47				
08:45 AM	12	5	17	6	4	10	8	6	14	14	4	6	10	51	10	51				
Total	45	8	53	17	15	32	29	22	51	51	8	21	29	165	29	165				
Grand Total	75	19	94	26	32	58	63	42	105	105	16	33	49	306	49	306				
Approch %	79.8	20.2		44.8	55.2	19	20.6	13.7	34.3	34.3	32.7	67.3	16							
Total %	24.5	6.2	30.7	8.5	10.5	19	20.6	13.7	34.3	34.3	5.2	10.8	16							

Start Time	Groups Printed- Pedestrians																			
	Cypress St. Southbound					Centre Ave. Westbound					UPMC Shadyside Hosp. Dwy. Northbound					Centre Ave. Eastbound				
	WB	EB	App. Total	NB	SB	NB	SB	App. Total	EB	WB	EB	WB	App. Total	SB	NB	SB	NB	App. Total	Int. Total	
07:30 AM	9	7	16	2	11	13	7	5	12	12	4	0	4	45	4	45				
07:45 AM	12	1	13	5	4	9	12	10	22	22	3	9	12	56	12	56				
08:00 AM	15	0	15	1	4	5	9	5	14	14	1	5	6	40	6	40				
08:15 AM	6	1	7	3	3	6	3	5	8	8	2	4	6	27	6	27				
Total Volume	42	9	51	11	22	33	31	25	56	56	10	18	28	168	28	168				
% App. Total	82.4	17.6		33.3	66.7	33	55.4	44.6	63.6	63.6	35.7	64.3	28							
PHF	.700	.321	.797	.550	.500	.635	.646	.625	.636	.636	.625	.500	.583							

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Groups Printed- Pedestrians -

Start Time	Liberty Ave. Southbound			S. Aiken Ave. Westbound			App. Total	Int. Total
	WB	EB	SB/EB	NB/WB	SB/EB	App. Total		
07:00 AM	3	0	4	2	4	6	9	
07:15 AM	2	0	6	4	6	10	12	
07:30 AM	0	1	9	3	9	12	13	
07:45 AM	0	2	10	4	10	14	16	
Total	5	3	29	13	29	42	50	
08:00 AM	1	0	9	6	9	15	16	
08:15 AM	1	0	12	3	12	15	16	
08:30 AM	2	0	11	5	11	16	18	
08:45 AM	1	2	7	5	7	12	15	
Total	5	2	39	19	39	58	65	
Grand Total	10	5	68	32	68	100	115	
Approch %	66.7	33.3	68	32	68	100	115	
Total %	8.7	4.3	59.1	27.8	59.1	87	115	
Pedestrians	10	5	68	32	68	100	115	
% Pedestrians	100	100	100	100	100	100	100	
%	0	0	0	0	0	0	0	

Start Time	Liberty Ave. Southbound			S. Aiken Ave. Westbound			App. Total	Int. Total
	WB	EB	SB/EB	NB/WB	SB/EB	App. Total		
07:30 AM	0	1	9	3	9	12	13	
07:45 AM	0	2	10	4	10	14	16	
08:00 AM	1	0	9	6	9	15	16	
08:15 AM	1	0	12	3	12	15	16	
Total Volume	2	3	40	16	40	56	61	
% App. Total	40	60	71.4	28.6	71.4	93.3	95.3	
PHF	.500	.375	.833	.667	.833	.933	.953	

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

S. Millvale Av. at Liberty Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Groups Printed - Pedestrians -															
	S. Millvale Ave. Southbound				Liberty Ave. Westbound				S. Millvale Ave. Northbound				Liberty Ave. Eastbound			
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	WB	App. Total	SB	NB	App. Total	Int. Total	
07:00 AM	18	3	21	2	1	3	2	9	11	3	12	15	50			
07:15 AM	21	2	23	7	3	10	7	11	18	9	8	17	68			
07:30 AM	14	5	19	2	2	4	7	15	22	9	12	21	66			
07:45 AM	19	6	25	6	4	10	4	5	9	4	13	17	61			
Total	72	16	88	17	10	27	20	40	60	25	45	70	245			
08:00 AM	19	4	23	4	3	7	2	4	6	10	15	25	61			
08:15 AM	17	3	20	3	3	6	4	5	9	10	7	17	52			
08:30 AM	22	9	31	8	4	12	5	13	18	10	10	20	81			
08:45 AM	13	8	21	6	8	14	5	9	14	6	7	13	62			
Total	71	24	95	21	18	39	16	31	47	36	39	75	256			
Grand Total	143	40	183	38	28	66	36	71	107	61	84	145	501			
Approch %	78.1	21.9		57.6	42.4		33.6	66.4		42.1	57.9					
Total %	28.5	8	36.5	7.6	5.6	13.2	7.2	14.2	21.4	12.2	16.8	28.9				
Pedestrians	143	40	183	38	28	66	36	71	107	61	84	145	501			
% Pedestrians	100	100	100	100	100	100	100	100	100	100	100	100	100			
%	0	0	0	0	0	0	0	0	0	0	0	0	0			

Start Time	S. Millvale Ave. WB															
	S. Millvale Ave. Southbound				Liberty Ave. Westbound				S. Millvale Ave. Northbound				Liberty Ave. Eastbound			
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	WB	App. Total	SB	NB	App. Total	Int. Total	
07:30 AM	14	5	19	2	2	4	7	15	22	9	12	21	66			
07:45 AM	19	6	25	6	4	10	4	5	9	4	13	17	61			
08:00 AM	19	4	23	4	3	7	2	4	6	10	7	17	52			
08:15 AM	17	3	20	3	3	6	4	5	9	10	7	17	52			
Total Volume	69	18	87	15	12	27	17	29	46	33	47	80	240			
% App. Total	79.3	20.7		55.6	44.4		37	63		41.2	58.8					
PHF	.908	.750	.870	.625	.750	.675	.607	.483	.523	.825	.783	.800	.909			

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_AM_#12 peds
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 1

S. Aiken Ave. & Ellsworth Ave.
 Pedestrians
 HARLE00#10244
 Board#4435 JCD

Groups Printed- Pedestrians -

Start Time	S. Aiken Ave. Southbound				Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound							
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	east to west	west to east	App. Total	north to south	south to north	App. Total	Int. Total	
07:00 AM	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	3
07:15 AM	2	0	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2	12
07:30 AM	1	0	3	3	0	3	1	0	0	0	0	0	0	0	0	0	0	0	1	12
07:45 AM	0	0	3	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	9
Total	3	0	9	8	0	9	3	0	0	0	7	10	5	0	0	0	0	0	3	36
08:00 AM	1	0	2	3	0	3	2	0	0	0	0	3	5	0	0	0	0	0	0	12
08:15 AM	2	0	4	1	0	1	0	0	0	0	1	1	2	0	0	0	0	0	1	9
08:30 AM	2	0	2	0	0	0	1	0	0	0	1	2	3	0	0	0	0	0	1	8
08:45 AM	0	0	0	0	0	1	1	0	0	0	1	2	1	0	0	0	0	0	0	4
Total	5	0	8	4	0	5	4	0	0	0	6	10	6	0	0	0	0	0	4	33
Grand Total	8	0	17	12	0	14	7	0	0	0	13	20	11	0	0	0	0	0	7	18
Approch %	47.1	0	52.9	85.7	0	14.3	35	0	0	0	65	61.1	0	0	0	0	0	38.9	0	69
Total %	11.6	0	13	17.4	0	20.3	10.1	0	0	0	18.8	29	15.9	0	0	0	0	10.1	26.1	
Pedestrians	8	0	17	12	0	14	7	0	0	0	13	20	11	0	0	0	0	7	18	69
% Pedestrians	100	0	100	100	0	100	100	0	0	0	100	100	100	0	0	0	0	100	100	100
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	S. Aiken Ave. Southbound				Ellsworth Ave. Westbound				S. Aiken Ave. Northbound				Ellsworth Ave. Eastbound							
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	east to west	west to east	App. Total	north to south	south to north	App. Total	Int. Total	
07:30 AM	1	0	2	3	0	3	1	0	0	0	2	3	1	0	0	0	0	0	2	3
07:45 AM	0	0	3	2	0	1	0	0	0	0	2	2	1	0	0	0	0	0	1	9
08:00 AM	1	0	2	3	0	3	2	0	0	0	3	5	0	0	0	0	0	0	2	12
08:15 AM	2	0	4	1	0	1	0	0	0	0	1	1	2	0	0	0	0	0	1	9
Total	4	0	12	9	0	10	3	0	0	0	8	11	4	0	0	0	0	0	5	42
% App. Total	33.3	0	66.7	90	0	10	27.3	0	0	0	72.7	44.4	0	0	0	0	0	0	55.6	42
PHF	.500	.000	.667	.750	.000	.250	.375	.000	.000	.667	.550	.750	.500	.000	.000	.625	.750	.875		

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

Claybourne St. & S. Aiken Ave.
 Pedestrians
 HARLE00#10244
 Board#4436 FS

File Name : HARLE00_10244_AM_#14 peds
 Site Code : 02440088
 Start Date : 3/24/2011
 Page No : 1

Groups Printed- Pedestrians

Start Time	S. Aiken Ave. Southbound				Claybourne St. Westbound				S. Aiken Ave. Northbound				Eastbound			
	east to west	west to east	App. Total	south to north	south to north	north to south	App. Total	west to east	west to east	east to west	App. Total	north to south	north to south	south to north	App. Total	Int. Total
07:00 AM	0	0	0	1	0	0	2	1	0	0	4	0	0	0	0	6
07:15 AM	0	0	0	4	0	0	5	1	0	0	4	0	0	0	0	9
07:30 AM	3	0	3	1	0	0	2	1	0	0	1	0	0	0	6	
07:45 AM	0	0	0	2	1	0	5	1	0	0	1	0	0	0	6	
Total	3	0	3	8	2	0	14	4	0	0	10	0	0	0	27	
08:00 AM	4	0	1	6	1	0	9	2	0	0	3	0	0	0	17	
08:15 AM	0	0	0	8	0	0	12	0	0	2	2	0	0	0	14	
08:30 AM	1	0	1	9	1	0	15	1	0	2	3	0	0	0	19	
08:45 AM	0	0	0	5	0	0	14	2	0	0	2	0	0	0	16	
Total	5	0	1	28	2	0	50	5	0	5	10	0	0	0	66	
Grand Total	8	0	1	36	4	0	64	9	0	11	20	0	0	0	93	
Approch %	88.9	0	11.1	56.2	6.2	0	37.5	45	0	55	0	0	0	0	0	
Total %	8.6	0	1.1	38.7	4.3	0	68.8	9.7	0	11.8	21.5	0	0	0	0	

Start Time	S. Aiken Ave. Southbound				Claybourne St. Westbound				S. Aiken Ave. Northbound				Eastbound			
	east to west	west to east	App. Total	south to north	south to north	north to south	App. Total	west to east	west to east	east to west	App. Total	north to south	north to south	south to north	App. Total	Int. Total
07:30 AM	3	0	0	1	1	0	2	1	0	0	1	0	0	0	6	
07:45 AM	0	0	0	2	1	0	5	1	0	0	1	0	0	0	6	
08:00 AM	4	0	1	6	1	0	9	2	0	1	3	0	0	0	17	
08:15 AM	0	0	0	8	0	0	12	4	0	2	2	0	0	0	14	
Total Volume	7	0	1	17	3	0	28	4	0	3	7	0	0	0	43	
% App. Total	87.5	0	12.5	60.7	10.7	0	28.6	57.1	0	42.9	0	0	0	0	0	
PHF	.438	.000	.250	.531	.750	.000	.500	.500	.000	.375	.583	.000	.000	.000	.632	

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : HARLE00_10244_AM_#16 peds
 Site Code : 10244ped
 Start Date : 3/23/2011
 Page No : 1

Morewood Ave. & Millvale Ave.
 Pedestrians
 HARLE00#10244
 Board#5039 FS

Groups Printed- Pedestrians

Start Time	Millvale Ave. Southbound				Morewood Ave. Westbound				Millvale Ave. Northbound				Morewood Ave. Eastbound			
	east to west	west to east	App. Total	south to north	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	north to south	south to north	App. Total	Int. Total
07:00 AM	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	1	0	0	1	1	1	0	0	0	0	1	0	1	5
07:30 AM	0	0	1	0	0	3	3	0	0	0	0	0	7	0	8	12
07:45 AM	2	0	2	2	0	5	5	2	0	0	0	0	6	1	7	16
Total	2	0	5	2	0	10	10	3	0	0	0	0	14	1	17	36
08:00 AM	2	0	3	2	0	6	6	1	0	0	0	0	10	0	11	24
08:15 AM	1	0	2	0	1	3	3	1	0	0	0	0	12	0	12	19
08:30 AM	1	0	2	5	1	8	8	1	0	0	0	5	0	0	6	18
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	6
Total	4	0	7	7	2	19	19	3	0	0	0	0	31	1	34	67
Grand Total	6	0	12	9	2	29	29	6	0	0	0	0	45	2	51	103
Apprch %	50	0	50	31	6.9	62.1	62.1	54.5	0	0	0	0	88.2	3.9	7.8	
Total %	5.8	0	5.8	8.7	1.9	17.5	28.2	5.8	0	0	0	0	43.7	1.9	3.9	49.5

Start Time	Millvale Ave. Southbound				Morewood Ave. Westbound				Millvale Ave. Northbound				Morewood Ave. Eastbound			
	east to west	west to east	App. Total	south to north	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	north to south	south to north	App. Total	Int. Total
07:30 AM	0	0	1	0	0	3	3	0	0	0	0	0	7	0	8	12
07:45 AM	2	0	2	2	0	6	6	2	0	0	0	0	6	1	7	16
08:00 AM	2	0	3	2	0	8	8	1	0	0	0	0	10	0	11	24
08:15 AM	1	0	2	0	1	3	3	1	0	0	0	0	12	0	12	19
Total Volume	5	0	8	4	1	19	19	4	0	0	0	0	35	1	38	71
% App. Total	62.5	0	37.5	21.1	5.3	73.7	73.7	66.7	0	0	0	0	92.1	2.6	5.3	
PHF	.625	.000	.750	.500	.250	.583	.594	.500	.000	.000	.000	.000	.729	.250	.792	.740

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Your Company Name Here

This is your address
Your City, State, Zip Code
Your Tagline Here

Baum Blvd and S Millvale Ave
Pedestrian Count Only
HARLE00#10244

File Name : HARLE00_10244_Baum Millvale Peds PM
Site Code : 00001111
Start Date : 4/7/2011
Page No : 1

Groups Printed - Pedestrians

Start Time	Southbound				Westbound				Northbound				Eastbound				Int. Total
	NE-NW	NW-NE	App. Total	SE-NE	NE-SE	SE-SE	SW-SE	SE-SW	SE-SW	SW-NW	NW-SW	SW-NW	SW-NW	SW-NW	App. Total	Int. Total	
03:00 PM	2	3	5	0	0	2	2	3	3	5	2	2	7	9	19		
03:15 PM	2	2	4	2	3	3	5	2	2	5	6	5	5	11	25		
03:30 PM	2	1	3	1	3	4	4	2	2	6	9	4	4	13	26		
03:45 PM	1	1	2	1	4	5	4	3	3	7	3	3	3	6	20		
Total	7	7	14	4	10	14	13	10	10	23	20	19	19	39	90		
04:00 PM	2	2	4	1	2	3	0	0	0	3	5	2	7	14			
04:15 PM	2	4	6	4	2	6	1	4	4	5	7	11	18	35			
04:30 PM	1	7	8	9	4	13	2	4	6	6	5	11	16	43			
04:45 PM	1	0	1	2	4	6	1	2	2	3	1	2	3	13			
Total	6	13	19	16	12	28	4	10	14	14	18	26	44	105			
05:00 PM	1	4	5	2	5	7	2	3	3	5	9	10	19	36			
05:15 PM	3	0	3	10	1	11	3	2	2	5	6	14	20	39			
05:30 PM	2	0	2	7	3	10	2	3	3	5	9	10	19	36			
05:45 PM	3	2	5	6	3	9	4	3	3	7	6	8	14	35			
Total	9	6	15	25	12	37	11	11	22	22	30	42	72	146			
Grand Total	22	26	48	45	34	79	28	31	59	59	68	87	155	341			
Apprch %	45.8	54.2	14.1	57	43	23.2	47.5	52.5	17.3	17.3	43.9	56.1	45.5				
Total %	6.5	7.6		13.2	10		8.2	9.1			19.9	25.5					

Your Company Name Here

This is your address
Your City, State, Zip Code
Your Tagline Here

Baum Blvd and S Millvale Ave
Pedestrian Count Only
HARLE00#10244

File Name : HARLE00_10244_Baum Millvale Peds PM
Site Code : 00001111
Start Date : 4/7/2011
Page No : 2

Start Time	Southbound			Westbound			Northbound			Eastbound			Int. Total	
	NE-NW	NW-NE	App. Total	SE-NE	NE-SE	App. Total	SW-SE	SE-SW	App. Total	NW-SW	SW-NW	App. Total		
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 03:00 PM														
03:00 PM	2	3	5	0	0	0	2	3	5	3	2	5	7	19
03:15 PM	2	2	4	2	3	5	3	3	6	2	6	5	5	25
03:30 PM	2	1	3	1	3	4	4	2	6	2	9	4	4	26
03:45 PM	1	1	2	1	4	5	4	3	7	3	3	3	6	20
Total Volume	7	7	14	4	10	14	13	10	23	10	20	19	39	90
% App. Total	50	50	70	28.6	71.4	70	56.5	43.5	82.1	51.3	48.7	55.6	75.0	86.5
PHF	.875	.583	.700	.500	.625	.700	.813	.833	.821	.556	.679	.750	.750	.865

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:45 PM														
04:45 PM	1	0	1	2	4	6	1	2	3	2	1	2	3	13
05:00 PM	1	4	5	2	5	7	2	3	5	3	9	10	19	36
05:15 PM	3	0	3	10	1	11	3	2	5	2	6	14	20	39
05:30 PM	2	0	2	7	3	10	2	3	5	3	9	10	19	36
Total Volume	7	4	11	21	13	34	8	10	18	10	25	36	61	124
% App. Total	63.6	36.4	55.0	61.8	38.2	77.3	44.4	55.6	90.0	41	69.4	59	76.3	79.5
PHF	.583	.250	.550	.525	.650	.773	.667	.833	.900	.694	.643	.763	.763	.795

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Morewood PM Peds
 Site Code : 8172ped2
 Start Date : 4/8/2008
 Page No : 1

Baum Blvd. at Morewood Ave.
 OXFOR00#08172 Board#D4-4436 JR

Groups Printed- Peds

Start Time	Morewood Ave. Southbound		Baum Blvd. Westbound		Morewood Ave. Northbound		Baum Blvd. Eastbound		Int. Total
	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	
02:00 PM	7	7	8	8	7	7	6	6	28
02:15 PM	7	7	1	1	3	3	5	5	16
02:30 PM	5	5	5	5	6	6	5	5	21
02:45 PM	5	5	6	6	5	5	5	5	21
Total	24	24	20	20	21	21	21	21	86
03:00 PM	7	7	12	12	10	10	5	5	34
03:15 PM	9	9	7	7	5	5	6	6	27
03:30 PM	6	6	12	12	7	7	8	8	33
03:45 PM	5	5	5	5	4	4	3	3	17
Total	27	27	36	36	26	26	22	22	111
04:00 PM	1	1	15	15	9	9	3	3	28
04:15 PM	7	7	12	12	6	6	2	2	27
04:30 PM	7	7	9	9	9	9	13	13	38
04:45 PM	3	3	11	11	1	1	8	8	23
Total	18	18	47	47	25	25	26	26	116
05:00 PM	11	11	10	10	8	8	8	8	37
05:15 PM	15	15	12	12	1	1	6	6	34
05:30 PM	3	3	5	5	7	7	3	3	18
05:45 PM	8	8	9	9	6	6	6	6	29
Total	37	37	36	36	22	22	23	23	118
Grand Total	106	106	139	139	94	94	92	92	431
Apprch %	100		100		100		100		
Total %	24.6	24.6	32.3	32.3	21.8	21.8	21.3	21.3	

4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Morewood PM Peds
 Site Code : 8172ped2
 Start Date : 4/8/2008
 Page No : 2

Baum Blvd. at Morewood Ave.
 OXFOR00#08172 Board#D4-4436 JR

Start Time	Morewood Ave. Southbound		Baum Blvd. Westbound		Morewood Ave. Northbound		Baum Blvd. Eastbound		Int. Total
	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 03:00 PM									
03:00 PM	7		12		10		5		34
03:15 PM	9		7		5		6		27
03:30 PM	6		12		7		8		33
03:45 PM	5		5		4		3		17
Total Volume	27	36	36	36	26	26	22	22	111
% App. Total	100	100	100	100	100	100	100	100	
PHF	.750	.750	.750	.750	.650	.650	.688	.688	.816

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 04:45 PM									
04:45 PM	3		11		1		8		23
05:00 PM	11		10		8		8		37
05:15 PM	15		12		1		6		34
05:30 PM	3		5		7		3		18
Total Volume	32	38	38	38	17	17	25	25	112
% App. Total	100	100	100	100	100	100	100	100	
PHF	.533	.533	.792	.792	.531	.531	.781	.781	.757

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Cypress PM Peds
 Site Code : 8082ped8
 Start Date : 7/10/2008
 Page No : 2

Baum Blvd. at Cypress St.
 OXF00#08172 Board#D4-4434 JD

Start Time	Cypress St. Southbound			Baum Blvd. Westbound			Cypress St. Northbound			Baum Blvd. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	1	2	3	8	1	9	6	1	7	1	4	5	24
03:15 PM	0	1	1	5	0	5	3	0	3	0	1	1	10
03:30 PM	1	4	5	10	1	11	6	1	7	4	7	11	34
03:45 PM	0	0	0	1	5	6	2	1	3	0	4	4	13
Total Volume	2	7	9	24	7	31	17	3	20	5	16	21	81
% App. Total	22.2	77.8	.450	77.4	22.6	.705	85	15	.714	23.8	76.2	.477	.596
PHF	.500	.438		.600	.350		.708	.750		.313	.571		

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	1	1	2	5	0	5	7	4	11	1	6	7	25
05:00 PM	0	6	6	4	3	7	0	1	1	3	5	8	22
05:15 PM	0	2	2	2	1	3	4	2	6	1	3	4	15
05:30 PM	2	5	7	5	0	5	2	0	2	0	3	3	17
Total Volume	3	14	17	16	4	20	13	7	20	5	17	22	79
% App. Total	17.6	82.4	.607	80	20	.714	65	35	.455	22.7	77.3	.688	.790
PHF	.375	.583		.800	.333		.464	.438		.417	.708		

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Liberty PM Peds
 Site Code : 8082ped1
 Start Date : 6/18/2008
 Page No : 1

Baum Blvd. at Liberty Ave./
 S. Atlantic Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Pedestrians																
	Liberty Ave. Southbound				Baum Blvd. Westbound				Liberty Ave. Northbound				Baum Blvd. Eastbound				
	WB	EB	App. Total	Total	NB	SB	App. Total	Total	EB	WB	App. Total	Total	SB	NB	App. Total	Total	Int. Total
02:00 PM	1	3	4	16	8	8	16	5	3	8	8	3	3	8	11	39	
02:15 PM	1	5	6	10	5	5	10	1	3	4	4	9	9	7	16	36	
02:30 PM	0	3	3	12	7	5	12	3	0	3	3	5	5	6	11	29	
02:45 PM	2	3	5	13	10	3	13	5	0	5	5	6	6	4	10	33	
Total	4	14	18	51	30	21	51	14	6	20	20	23	25	25	48	137	
03:00 PM	2	1	3	16	11	5	16	4	1	5	5	6	6	5	11	35	
03:15 PM	0	4	4	7	5	2	7	5	3	8	8	2	2	7	9	28	
03:30 PM	1	1	2	9	5	4	9	3	2	5	5	5	5	8	13	29	
03:45 PM	1	1	2	9	8	1	9	5	2	7	7	7	7	6	13	31	
Total	4	7	11	41	29	12	41	17	8	25	25	20	20	26	46	123	
04:00 PM	0	4	4	15	11	4	15	4	1	5	5	9	9	3	12	36	
04:15 PM	4	4	8	22	14	8	22	3	2	5	5	3	3	4	7	42	
04:30 PM	1	6	7	16	10	6	16	5	0	5	5	4	4	6	10	38	
04:45 PM	2	3	5	20	13	7	20	3	0	3	3	9	9	3	12	40	
Total	7	17	24	73	48	25	73	15	3	18	18	25	25	16	41	156	
05:00 PM	5	6	11	16	10	6	16	3	2	5	5	7	7	1	8	40	
05:15 PM	4	6	10	19	14	5	19	1	0	1	1	2	2	4	6	36	
05:30 PM	2	1	3	13	11	2	13	8	0	8	8	9	9	6	15	39	
05:45 PM	0	2	2	16	9	7	16	4	1	5	5	2	2	0	2	25	
Total	11	15	26	64	44	20	64	16	3	19	19	20	20	11	31	140	
Grand Total	26	53	79	229	151	78	229	62	20	82	82	88	88	78	166	556	
Approch %	32.9	67.1	14.2	41.2	65.9	34.1	41.2	75.6	24.4	14.7	14.7	53	53	47	29.9		
Total %	4.7	9.5			27.2	14		11.2	3.6			15.8	15.8	14			

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Liberty PM Peds
 Site Code : 8082ped1
 Start Date : 6/18/2008
 Page No : 2

Baum Blvd. at Liberty Ave./
 S. Atlantic Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Liberty Ave. Southbound			Baum Blvd. Westbound			Liberty Ave. Northbound			Baum Blvd. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	2	1	3	11	5	16	4	1	5	6	5	11	35
03:15 PM	0	4	4	5	2	7	5	3	8	2	7	9	28
03:30 PM	1	1	2	5	4	9	3	2	5	5	8	13	29
03:45 PM	1	1	2	8	1	9	5	2	7	7	6	13	31
Total Volume	4	7	11	29	12	41	17	8	25	20	26	46	123
% App. Total	36.4	63.6	.688	70.7	29.3	.641	68	32	.781	43.5	56.5	.885	.879
PHF	.500	.438		.659	.600		.850	.667		.714	.813		
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	2	3	5	13	7	20	3	0	3	9	3	12	40
05:00 PM	5	6	11	10	6	16	3	2	5	7	1	8	40
05:15 PM	4	6	10	14	5	19	1	0	1	2	4	6	36
05:30 PM	2	1	3	11	2	13	8	0	8	9	6	15	39
Total Volume	13	16	29	48	20	68	15	2	17	27	14	41	155
% App. Total	44.8	55.2	.659	70.6	29.4	.850	88.2	11.8	.531	65.9	34.1	.683	.969
PHF	.650	.667		.857	.714		.469	.250		.750	.583		

Trans Associates
 4955 Steubenville Pike, Suite 400
 Pittsburgh, PA 15205
 412-490-0630

File Name : Baum & Liberty PM Peds
 Site Code : 8082ped1
 Start Date : 6/18/2008
 Page No : 1

Baum Blvd. at Liberty Ave./
 S. Atlantic Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Peds crossing Atlantic Ave.												
	Liberty Ave. Southbound				Liberty Ave. Northbound				Baum Blvd. Eastbound				
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	Int. Total
02:00 PM	0	0	0	9	5	14	0	0	0	0	0	0	14
02:15 PM	0	0	0	3	6	9	0	0	0	0	0	0	9
02:30 PM	0	0	0	3	6	9	0	0	0	0	0	0	9
02:45 PM	0	0	0	4	5	9	0	0	0	0	0	0	9
Total	0	0	0	19	22	41	0	0	0	0	0	0	41
03:00 PM	0	0	0	6	3	9	0	0	0	0	0	0	9
03:15 PM	0	0	0	4	5	9	0	0	0	0	0	0	9
03:30 PM	0	0	0	3	2	5	0	0	0	0	0	0	5
03:45 PM	0	0	0	7	4	11	0	0	0	0	0	0	11
Total	0	0	0	20	14	34	0	0	0	0	0	0	34
04:00 PM	0	0	0	4	5	9	0	0	0	0	0	0	9
04:15 PM	0	0	0	7	4	11	0	0	0	0	0	0	11
04:30 PM	2	0	2	3	5	8	0	0	0	0	0	0	10
04:45 PM	0	0	0	6	10	16	0	0	0	0	0	0	16
Total	2	0	2	20	24	44	0	0	0	0	0	0	46
05:00 PM	0	0	0	9	9	18	0	0	0	0	0	0	18
05:15 PM	0	0	0	7	11	18	0	0	0	0	0	0	18
05:30 PM	0	0	0	8	1	9	0	0	0	0	0	0	9
05:45 PM	0	0	0	6	0	6	0	0	0	0	0	0	6
Total	0	0	0	30	21	51	0	0	0	0	0	0	51
Grand Total	2	0	2	89	81	170	0	0	0	0	0	0	172
Apprch %	100	0		52.4	47.6	98.8	0	0	0	0	0	0	
Total %	1.2	0	1.2	51.7	47.1	98.8	0	0	0	0	0	0	

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File Name : Baum & S Aiken PM Peds
 Site Code : 8082ped2
 Start Date : 6/18/2008
 Page No : 2

Baum Blvd. at S. Aiken Ave.
 OXF0R00#08172 Board#D4-4436 FS

Start Time	S. Aiken Ave. Southbound			Baum Blvd. Westbound			S. Aiken Ave. Northbound			Baum Blvd. Eastbound			
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	4	3	7	3	1	4	4	0	4	0	3	3	18
03:15 PM	1	1	2	3	2	5	5	3	5	3	1	4	16
03:30 PM	3	2	5	3	1	4	4	3	4	0	2	2	15
03:45 PM	2	1	3	2	3	5	4	3	7	2	3	5	20
Total Volume	10	7	17	11	7	18	13	7	20	5	9	14	69
% App. Total	58.8	41.2	60.7	61.1	38.9	90.0	65	35	71.4	35.7	64.3	70.0	86.3
PHF	.625	.583	.607	.917	.583	.900	.813	.583	.714	.417	.750	.700	.863

Start Time	S. Aiken Ave. Southbound			Baum Blvd. Westbound			S. Aiken Ave. Northbound			Baum Blvd. Eastbound			
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	6	3	9	10	3	13	3	4	7	0	4	4	33
05:00 PM	4	3	7	20	3	23	1	3	4	1	4	5	39
05:15 PM	0	2	2	7	5	12	10	4	14	4	1	5	33
05:30 PM	1	1	2	4	0	4	5	0	5	0	2	2	13
Total Volume	11	9	20	41	11	52	19	11	30	5	11	16	118
% App. Total	55	45	55.6	78.8	21.2	94.4	63.3	36.7	68.8	31.2	68.8	80.0	94.4
PHF	.458	.750	.556	.513	.550	.565	.475	.688	.536	.313	.688	.800	.756

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File Name : Centre & Morewood PM Peds
 Site Code : 81720008
 Start Date : 4/17/2008
 Page No : 1

Centre Ave. at Morewood Ave.
 OXF000#08172 Board#D4-4436 JR

Groups Printed- Pedestrians

Start Time	Morewood Ave Southbound		Centre Ave. Westbound		Morewood Ave Northbound		Centre Ave. Eastbound		Int. Total
	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	
02:00 PM	9	9	7	7	11	11	2	2	29
02:15 PM	11	11	5	5	8	8	9	9	33
02:30 PM	6	6	10	10	14	14	9	9	39
02:45 PM	4	4	7	7	10	10	6	6	27
Total	30	30	29	29	43	43	26	26	128
03:00 PM	9	9	8	8	10	10	8	8	35
03:15 PM	5	5	5	5	14	14	9	9	33
03:30 PM	8	8	9	9	11	11	8	8	36
03:45 PM	11	11	7	7	19	19	7	7	44
Total	33	33	29	29	54	54	32	32	148
04:00 PM	8	8	12	12	16	16	8	8	44
04:15 PM	14	14	17	17	22	22	11	11	64
04:30 PM	9	9	23	23	15	15	6	6	53
04:45 PM	6	6	8	8	21	21	10	10	45
Total	37	37	60	60	74	74	35	35	206
05:00 PM	7	7	7	7	24	24	15	15	53
05:15 PM	8	8	5	5	20	20	10	10	43
05:30 PM	15	15	14	14	16	16	5	5	50
05:45 PM	10	10	4	4	20	20	7	7	41
Total	40	40	30	30	80	80	37	37	187
Grand Total	140	140	148	148	251	251	130	130	669
Approch %	100	100	100	100	100	100	100	100	100
Total %	20.9	20.9	22.1	22.1	37.5	37.5	19.4	19.4	19.4

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 412-490-0630

File Name : Centre & Morewood PM Peds
 Site Code : 81720008
 Start Date : 4/17/2008
 Page No : 2

Centre Ave. at Morewood Ave.
 OXF0R00#08172 Board#D4-4436 JR

Start Time	Morewood Ave Southbound			Centre Ave. Westbound			Morewood Ave Northbound			Centre Ave. Eastbound		
	Peds	App. Total	Int. Total	Peds	App. Total	Int. Total	Peds	App. Total	Int. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 03:00 PM												
03:00 PM	9			8			10			8		
03:15 PM	5			5			14			9		
03:30 PM	8			9			11			8		
03:45 PM	11			7			19			7		
Total Volume	33	33		29	29		54	54		32	32	148
% App. Total	100	100		100	100		100	100		100	100	
PHF	.750	.750		.806	.806		.711	.711		.889	.889	.841
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:45 PM												
04:45 PM	6			8			21			10		
05:00 PM	7			7			24			15		
05:15 PM	8			5			20			10		
05:30 PM	15			14			16			5		
Total Volume	36	36		34	34		81	81		40	40	191
% App. Total	100	100		100	100		100	100		100	100	
PHF	.600	.600		.607	.607		.844	.844		.667	.667	.901

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File Name : Centre & Cypress PM Peds
 Site Code : 8082ped7
 Start Date : 6/26/2008
 Page No : 2

Cebtre Ave. at Cypress St./UPMC Dwy.
 OXF00#08172 Board#D-4437 JR

Start Time	Cypress St. Southbound			Centre Ave. Westbound			UPMC Shadyside Hosp. Dwy. Northbound			Centre Ave. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	4	8	12	14	1	15	3	2	5	3	4	7	39
03:15 PM	5	10	15	7	5	12	5	7	12	7	4	11	50
03:30 PM	4	8	12	14	0	14	9	8	17	8	5	13	56
03:45 PM	3	8	11	9	5	14	8	8	16	3	7	10	51
Total Volume	16	34	50	44	11	55	25	25	50	21	20	41	196
% App. Total	32	68		80	20		50	50		51.2	48.8		
PHF	.800	.850	.833	.786	.550	.917	.694	.781	.735	.656	.714	.788	.875
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	7	16	23	11	2	13	12	3	15	3	0	3	54
05:00 PM	5	11	16	14	1	15	7	5	12	4	7	11	54
05:15 PM	6	19	25	5	7	12	7	5	12	3	1	4	53
05:30 PM	0	13	13	4	8	12	11	3	14	4	5	9	48
Total Volume	18	59	77	34	18	52	37	16	53	14	13	27	209
% App. Total	23.4	76.6		65.4	34.6		69.8	30.2		51.9	48.1		
PHF	.643	.776	.770	.607	.563	.867	.771	.800	.883	.875	.464	.614	.968

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File Name : Liberty & S Aiken PM Peds
 Site Code : 8082ped6
 Start Date : 7/10/2008
 Page No : 1

Liberty Ave. at S. Aiken Ave. split
 OXF00#08172 Board#D4-4436 FS

Groups Printed- Pedestrians -

Start Time	Liberty Ave. Southbound			S. Aiken Ave. Westbound			App. Total	Int. Total
	WB	EB	SB/EB	NB/WB	SB/EB	App. Total		
02:00 PM	1	0	4	5	4	9	10	
02:15 PM	1	2	4	4	4	8	11	
02:30 PM	1	1	3	3	4	7	9	
02:45 PM	0	3	4	4	2	6	9	
Total	3	6	16	16	14	30	39	
03:00 PM	1	3	5	5	1	6	10	
03:15 PM	1	4	7	7	5	12	17	
03:30 PM	0	0	3	3	1	4	4	
03:45 PM	0	2	7	7	6	13	15	
Total	2	9	22	22	13	35	46	
04:00 PM	0	4	8	8	7	15	19	
04:15 PM	1	2	7	7	5	12	15	
04:30 PM	1	2	7	7	8	15	18	
04:45 PM	1	3	11	11	6	17	21	
Total	3	11	33	33	26	59	73	
05:00 PM	1	1	10	10	8	18	20	
05:15 PM	0	1	8	8	4	12	13	
05:30 PM	1	0	15	15	4	19	20	
05:45 PM	0	0	3	3	3	6	6	
Total	2	2	36	36	19	55	59	
Grand Total	10	28	107	107	72	179	217	
Approch %	26.3	73.7	59.8	59.8	40.2	82.5		
Total %	4.6	12.9	49.3	49.3	33.2	82.5		
Pedestrians	10	28	107	107	72	179	217	
% Pedestrians	100	100	100	100	100	100	100	
%	0	0	0	0	0	0	0	
%	0	0	0	0	0	0	0	

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File Name : Liberty & S Aiken PM Peds
 Site Code : 8082ped6
 Start Date : 7/10/2008
 Page No : 2

Liberty Ave. at S. Aiken Ave. split
 OXF0R00#08172 Board#D4-4436 FS

Start Time	Liberty Ave. Southbound			S. Aiken Ave. Westbound			App. Total	Int. Total
	WB	EB	App. Total	NBWB	SB/EB	App. Total		
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1								
Peak Hour for Entire Intersection Begins at 03:00 PM								
03:00 PM	1	3	4	5	1	6		10
03:15 PM	1	4	5	7	5	12		17
03:30 PM	0	0	0	3	1	4		4
03:45 PM	0	2	2	7	6	13		15
Total Volume	2	9	11	22	13	35		46
% App. Total	18.2	81.8	.550	62.9	37.1	.673		.676
PHF	.500	.563	.550	.786	.542	.673		.676
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1								
Peak Hour for Entire Intersection Begins at 04:45 PM								
04:45 PM	1	3	4	11	6	17		21
05:00 PM	1	1	2	10	8	18		20
05:15 PM	0	1	1	8	4	12		13
05:30 PM	1	0	1	15	4	19		20
Total Volume	3	5	8	44	22	66		74
% App. Total	37.5	62.5	.500	66.7	33.3	.868		.881
PHF	.750	.417	.500	.733	.688	.868		.881

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File Name : Liberty & S Millvale PM Peds
 Site Code : 8172pd10
 Start Date : 9/3/2008
 Page No : 1

S. Millvale Av. at Liberty Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Pedestrians																
	S. Millvale Ave. Southbound				Liberty Ave. Westbound				S. Millvale Ave. Northbound				Liberty Ave. Eastbound				
	WB	EB	App. Total	Total	NB	SB	App. Total	Total	EB	WB	App. Total	Total	SB	NB	App. Total	Total	Int. Total
02:00 PM	2	1	3	3	2	1	3	3	0	2	2	2	2	0	2	2	10
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	7	9	16	16	3	4	7	7	7	11	18	18	7	13	20	61	
02:45 PM	5	16	21	21	5	4	9	9	7	8	15	15	12	5	17	62	
Total	14	26	40	40	10	9	19	19	14	21	35	35	21	18	39	133	
03:00 PM	13	15	28	28	1	5	6	6	6	10	16	16	6	3	9	59	
03:15 PM	7	15	22	22	3	5	8	8	7	8	15	15	11	12	23	68	
03:30 PM	2	10	12	12	12	4	16	16	10	5	15	15	12	1	13	56	
03:45 PM	7	15	22	22	4	1	5	5	4	7	11	11	10	6	16	54	
Total	29	55	84	84	20	15	35	35	27	30	57	57	39	22	61	237	
04:00 PM	6	21	27	27	1	2	3	3	6	16	22	22	13	3	16	68	
04:15 PM	2	8	10	10	4	4	8	8	3	3	6	6	11	5	16	40	
04:30 PM	7	19	26	26	5	1	6	6	8	2	10	10	12	2	14	56	
04:45 PM	10	18	28	28	5	6	11	11	7	5	12	12	10	9	19	70	
Total	25	66	91	91	15	13	28	28	24	26	50	50	46	19	65	234	
05:00 PM	9	15	24	24	3	6	9	9	10	10	20	20	13	4	17	70	
05:15 PM	5	20	25	25	10	13	23	23	6	10	16	16	8	9	17	81	
05:30 PM	11	14	25	25	2	5	7	7	8	9	17	17	7	7	14	63	
05:45 PM	9	13	22	22	8	3	11	11	3	1	4	4	3	2	5	42	
Total	34	62	96	96	23	27	50	50	27	30	57	57	31	22	53	256	
Grand Total	102	209	311	311	68	64	132	132	92	107	199	199	137	81	218	860	
Apprch %	32.8	67.2	36.2	36.2	51.5	48.5	15.3	15.3	46.2	53.8	23.1	23.1	62.8	37.2	25.3		
Total %	11.9	24.3	36.2	36.2	7.9	7.4	15.3	15.3	10.7	12.4	23.1	23.1	15.9	9.4	25.3		

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File Name : Liberty & S Millvale PM Peds
 Site Code : 8172pd10
 Start Date : 9/3/2008
 Page No : 2

S. Millvale Av. at Liberty Ave.
 OXF00#08172 Board#D4-4436 FS

Start Time	S. Millvale Ave. Southbound			Liberty Ave. Westbound			S. Millvale Ave. Northbound			Liberty Ave. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
03:00 PM	13	15	28	1	5	6	6	10	16	6	3	9	59
03:15 PM	7	15	22	3	5	8	7	8	15	11	12	23	68
03:30 PM	2	10	12	12	4	16	10	5	15	12	1	13	56
03:45 PM	7	15	22	4	1	5	4	7	11	10	6	16	54
Total Volume	29	55	84	20	15	35	27	30	57	39	22	61	237
% App. Total	34.5	65.5	750	57.1	42.9	547	47.4	52.6	891	63.9	36.1	663	871
PHF	.558	.917	.750	.417	.750	.547	.675	.750	.891	.813	.458	.663	.871

Start Time	S. Millvale Ave. Southbound			Liberty Ave. Westbound			S. Millvale Ave. Northbound			Liberty Ave. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
04:45 PM	10	18	28	5	6	11	7	5	12	10	9	19	70
05:00 PM	9	15	24	3	6	9	10	10	20	13	4	17	70
05:15 PM	5	20	25	10	13	23	6	10	16	8	9	17	81
05:30 PM	11	14	25	2	5	7	8	9	17	7	7	14	63
Total Volume	35	67	102	20	30	50	31	34	65	38	29	67	284
% App. Total	34.3	65.7	838	40	60	577	47.7	52.3	813	56.7	43.3	882	877
PHF	.795	.838	.911	.500	.577	.543	.775	.850	.813	.731	.806	.882	.877

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File Name : S Millvale & Cypress PM Peds
 Site Code : 8172pd18
 Start Date : 9/3/2008
 Page No : 1

Cypress St. at S. Millvale Ave.
 OXF0R00#08172 Board#D4-4435 JCD

Start Time	S. Millvale Ave. Southbound				Cypress St. Westbound				S. Millvale Ave. Northbound				Cypress St. Eastbound			
	WB	EB	App. Total	Total	NB	SB	App. Total	Total	EB	WB	App. Total	Total	SB	NB	App. Total	Total
02:00 PM	0	0	0	6	0	0	6	6	0	2	2	2	3	1	4	12
02:15 PM	0	1	1	2	0	0	2	2	1	1	2	2	8	2	10	15
02:30 PM	3	2	5	5	3	3	8	8	0	1	1	1	3	3	6	20
02:45 PM	1	0	1	0	1	1	1	1	0	0	0	0	6	0	6	8
Total	4	3	7	13	4	4	17	17	1	4	5	5	20	6	26	55
03:00 PM	1	1	2	4	1	1	5	5	2	0	2	2	2	5	7	16
03:15 PM	2	0	2	2	1	1	3	3	0	4	4	4	5	6	11	20
03:30 PM	2	1	3	11	5	5	16	16	2	1	3	3	6	2	8	30
03:45 PM	0	0	0	6	2	2	8	8	2	0	2	2	9	4	13	23
Total	5	2	7	23	9	9	32	32	6	5	11	11	22	17	39	89
04:00 PM	2	2	4	4	0	0	4	4	0	0	0	0	5	1	6	14
04:15 PM	5	0	5	9	0	0	9	9	2	1	3	3	1	0	1	18
04:30 PM	2	0	2	6	5	5	11	11	4	0	4	4	7	6	13	30
04:45 PM	0	1	1	6	2	2	8	8	1	2	3	3	6	5	11	23
Total	9	3	12	25	7	7	32	32	7	3	10	10	19	12	31	85
05:00 PM	4	0	4	11	1	1	12	12	1	1	2	2	8	5	13	31
05:15 PM	1	2	3	10	5	5	15	15	1	0	1	1	7	6	13	32
05:30 PM	1	0	1	9	0	0	9	9	0	0	0	0	3	5	8	18
05:45 PM	1	2	3	4	1	1	5	5	0	0	0	0	5	2	7	15
Total	7	4	11	34	7	7	41	41	2	1	3	3	23	18	41	96
Grand Total	25	12	37	95	27	27	122	122	16	13	29	29	84	53	137	325
Approch %	67.6	32.4		77.9	22.1				55.2	44.8			61.3	38.7		
Total %	7.7	3.7	11.4	29.2	8.3		37.5		4.9	4	8.9		25.8	16.3	42.2	

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 412-490-0630

File Name : S Millvale & Cypress PM Peds
 Site Code : 8172pd18
 Start Date : 9/3/2008
 Page No : 2

Cypress St. at S. Millvale Ave.
 OXF00#08172 Board#D4-4435 JCD

Start Time	S. Millvale Ave. Southbound			Cypress St. Westbound			S. Millvale Ave. Northbound			Cypress St. Eastbound			Int. Total
	WB	EB	App. Total	NB	SB	App. Total	EB	WB	App. Total	SB	NB	App. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	1	1	2	4	1	5	2	0	2	2	5	7	16
03:15 PM	2	0	2	2	1	3	0	4	4	5	6	11	20
03:30 PM	2	1	3	11	5	16	2	1	3	6	2	8	30
03:45 PM	0	0	0	6	2	8	2	0	2	9	4	13	23
Total Volume	5	2	7	23	9	32	6	5	11	22	17	39	89
% App. Total	71.4	28.6	.583	71.9	28.1	.500	54.5	45.5	.688	56.4	43.6	.750	.742
PHF	.625	.500		.523	.450		.750	.313		.611	.708		
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	0	1	1	6	2	8	1	2	3	6	5	11	23
05:00 PM	4	0	4	11	1	12	1	1	2	8	5	13	31
05:15 PM	1	2	3	10	5	15	1	0	1	7	6	13	32
05:30 PM	1	0	1	9	0	9	0	0	0	3	5	8	18
Total Volume	6	3	9	36	8	44	3	3	6	24	21	45	104
% App. Total	66.7	33.3	.563	81.8	18.2	.733	50	50	.500	53.3	46.7	.865	.813
PHF	.375	.375		.818	.400		.750	.375		.750	.875		

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File Name : Cypress & Gross PM Peds
 Site Code : 8172pd14
 Start Date : 9/9/2008
 Page No : 1

Cypress St. at Gross St.
 OXF00#08172 Board#D4-4436 FS

Start Time	Groups Printed- Pedestrians															
	Gross St. Southbound				Cypress St. Westbound				Gross St. Northbound				Cypress St. Eastbound			
	WB	EB	App. Total	Total	NB	SB	App. Total	Total	EB	WB	App. Total	Total	SB	NB	App. Total	Total
02:00 PM	4	0	4	1	0	1	1	0	2	2	2	2	0	0	0	7
02:15 PM	0	1	1	1	0	1	1	2	0	0	2	2	0	0	0	4
02:30 PM	2	0	2	0	0	0	1	1	0	1	2	1	1	0	1	4
02:45 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	7	1	8	2	0	2	2	3	2	2	5	5	1	0	1	16
03:00 PM	0	0	0	0	0	0	0	1	1	1	2	2	0	0	0	2
03:15 PM	0	1	1	0	0	0	0	2	0	0	2	2	0	0	0	3
03:30 PM	1	3	4	0	0	0	0	0	0	0	0	0	2	2	4	8
03:45 PM	2	0	2	0	0	0	0	0	0	0	0	0	3	2	5	7
Total	3	4	7	0	0	0	0	3	1	1	4	4	5	4	9	20
04:00 PM	3	0	3	0	0	0	0	1	1	1	2	2	0	0	0	5
04:15 PM	1	0	1	1	0	1	1	2	0	0	2	2	0	0	0	4
04:30 PM	4	0	4	1	0	1	4	0	4	4	4	4	2	3	5	14
04:45 PM	3	0	3	0	0	0	0	2	0	0	2	2	0	0	0	5
Total	11	0	11	2	0	2	2	5	5	5	10	10	2	3	5	28
05:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	1	1	0	1	1	3	3	3	6	6	0	0	0	8
05:30 PM	2	0	2	0	0	0	0	5	0	0	5	5	2	2	2	9
05:45 PM	1	2	3	1	0	1	1	1	0	0	1	1	3	2	5	10
Total	4	3	7	2	0	2	2	9	3	3	12	12	5	2	7	28
Grand Total	25	8	33	6	0	6	6	20	11	11	31	31	13	9	22	92
Apprch %	75.8	24.2		100	0	6.5	6.5	64.5	35.5	35.5	33.7	33.7	59.1	40.9	23.9	
Total %	27.2	8.7	35.9	6.5	0	6.5	6.5	21.7	12	12	33.7	33.7	14.1	9.8	23.9	

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File Name : Cypress & Gross PM Peds
 Site Code : 8172pd14
 Start Date : 9/9/2008
 Page No : 2

Cypress St. at Gross St.
 OXF00#08172 Board#D4-4436 FS

Start Time	Gross St. Southbound			Gross St. Northbound			Cypress St. Westbound			Cypress St. Eastbound			Int. Total
	WB	EB	App. Total	WB	EB	App. Total	NB	SB	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0
03:15 PM	0	1	1	0	2	0	0	0	0	0	0	0	0
03:30 PM	1	3	4	0	0	0	0	0	0	2	2	4	8
03:45 PM	2	0	2	0	0	0	0	0	0	3	2	5	7
Total Volume	3	4	7	0	3	0	0	0	0	5	4	9	20
% App. Total	42.9	57.1	100	0	75	25	0	0	0	55.6	44.4	100	62.5
PHF	.375	.333	.438	.000	.375	.250	.000	.000	.000	.417	.500	.450	.625
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	3	0	3	0	2	0	0	0	0	0	0	0	0
05:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	3	3	1	1	6	0	0	0	8
05:30 PM	2	0	2	0	5	0	0	0	5	2	0	2	9
Total Volume	6	1	7	0	10	3	1	1	13	2	0	2	23
% App. Total	85.7	14.3	100	0	76.9	23.1	0	0	100	100	0	0	63.9
PHF	.500	.250	.583	.000	.500	.250	.250	.250	.542	.250	.000	.250	.639

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S. Aiken Ave. & Ellsworth Ave.
 Pedestrians
 HARLE00#10244
 Board#4435 JCD

File Name : HARLE00_10244_PM_#12 peds
 Site Code : 10244012
 Start Date : 3/24/2011
 Page No : 2

Start Time	S. Aiken Ave. Southbound			Ellsworth Ave. Westbound			S. Aiken Ave. Northbound			Ellsworth Ave. Eastbound			
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	4	0	5	4	0	0	4	0	0	0	0	6	1
03:15 PM	1	0	2	5	0	0	5	0	0	0	0	8	6
03:30 PM	1	0	1	3	0	0	2	0	0	0	0	2	4
03:45 PM	1	0	3	2	0	0	5	0	0	0	0	8	5
Total Volume	7	0	11	14	0	0	16	0	0	0	0	24	16
% App. Total	38.9	0	61.1	46.7	0	0	53.3	0	0	0	0	75	25
PHF	.438	.000	.550	.700	.000	.000	.800	.000	.000	.000	.000	.750	.667
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	2	0	4	3	0	0	6	0	0	0	0	8	2
05:00 PM	1	0	2	4	0	0	5	0	0	0	0	8	14
05:15 PM	1	0	2	11	0	0	13	0	0	0	0	21	6
05:30 PM	1	0	4	11	0	0	7	0	0	0	0	9	8
Total Volume	5	0	12	29	0	0	31	0	0	0	0	46	30
% App. Total	29.4	0	70.6	56.9	0	0	67.4	0	0	0	0	76.7	23.3
PHF	.625	.000	.750	.659	.000	.000	.596	.000	.000	.000	.000	.548	.536
												.818	

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Claybourne St. & S. Aiken Ave.
 Pedestrians
 HARLE00#10244
 Board#4436 FS

File Name : HARLE00_10244_PM_#14 peds
 Site Code : 02440088
 Start Date : 3/24/2011
 Page No : 2

Start Time	S. Aiken Ave. Southbound			Claybourne St. Westbound			S. Aiken Ave. Northbound			Eastbound			
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	1	0	2	4	0	5	2	0	4	0	0	0	11
03:15 PM	1	0	1	2	0	7	1	0	1	0	0	0	9
03:30 PM	1	0	5	3	0	7	4	0	4	0	0	0	16
03:45 PM	2	0	2	3	0	9	4	0	5	0	0	0	16
Total Volume	5	0	10	12	3	28	11	0	14	0	0	0	52
% App. Total	50	0	50	42.9	10.7	46.4	78.6	0	21.4	0	0	0	81.3
PHF	.625	.000	.313	.750	.250	.778	.688	.000	.375	.700	.000	.000	.813
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	0	0	0	4	1	8	0	0	0	0	0	0	8
05:00 PM	1	0	5	7	2	18	3	0	6	0	0	0	29
05:15 PM	0	0	0	10	0	15	0	0	1	0	0	0	16
05:30 PM	1	0	1	12	3	20	2	0	2	0	0	0	23
Total Volume	2	0	6	33	6	61	5	0	9	0	0	0	76
% App. Total	33.3	0	66.7	54.1	9.8	34.4	55.6	0	44.4	0	0	0	65.5
PHF	.500	.000	.250	.688	.500	.763	.417	.000	.333	.375	.000	.000	.655

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File Name : HARLE00_10244_PM_#16 peds
 Site Code : 10244ped
 Start Date : 3/22/2011
 Page No : 1

Morewood Ave. & Millvale Ave.
 Pedestrians
 HARLE00#10244
 Board#5039 FS

Start Time	Groups Printed- Pedestrians																					
	Millvale Ave. Southbound				Morewood Ave. Westbound				Millvale Ave. Northbound				Morewood Ave. Eastbound									
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	Int. Total			
02:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	4	7	
02:15 PM	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	1	2	1	0	5	8	13
02:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	1	5	11	
02:45 PM	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	1	0	1	4	9	
Total	1	1	0	7	1	0	4	12	3	1	0	1	0	0	1	9	2	0	10	21	40	
03:00 PM	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	3	5	8	
03:15 PM	1	0	0	4	0	0	0	4	0	0	0	0	0	0	0	3	0	1	1	5	10	
03:30 PM	0	0	0	1	3	0	3	7	0	0	0	0	0	0	0	1	0	0	4	5	12	
03:45 PM	0	0	0	5	0	0	1	6	1	0	0	1	0	0	0	3	0	0	4	7	16	
Total	2	0	0	10	4	0	4	18	1	0	1	1	0	0	1	9	0	1	12	22	46	
04:00 PM	0	0	0	4	6	0	0	10	1	0	0	0	0	0	0	1	2	0	7	10	25	
04:15 PM	1	0	0	3	2	0	2	7	0	0	0	1	0	0	0	1	0	0	4	5	16	
04:30 PM	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	6	2	0	5	13	16	
04:45 PM	0	0	0	2	2	0	0	4	0	0	0	2	0	0	2	3	1	0	5	9	15	
Total	2	0	0	9	11	0	2	22	2	0	0	7	0	0	7	11	5	0	21	37	72	
05:00 PM	0	0	0	2	5	0	3	10	0	0	0	0	0	0	0	5	0	0	4	9	22	
05:15 PM	1	0	0	6	4	0	0	10	0	0	0	4	0	0	2	2	0	8	12	28		
05:30 PM	1	0	0	2	4	0	0	6	2	0	0	0	0	0	0	0	2	0	8	10	19	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	2	0	0	10	13	0	3	26	2	0	0	7	0	0	7	7	4	0	20	31	69	
Grand Total	7	1	0	36	29	0	13	78	8	1	1	16	26	36	11	36	11	1	63	111	227	
Approch %	58.3	8.3	0	46.2	37.2	0	16.7	30.8	3.8	3.8	3.8	61.5	11.5	32.4	9.9	32.4	9.9	0.9	56.8	98.9	227	
Total %	3.1	0.4	0	15.9	12.8	0	5.7	34.4	3.5	0.4	0.4	7	11.5	15.9	4.8	15.9	4.8	0.4	27.8	48.9		

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File Name : HARLE00_10244_PM_#16 peds
 Site Code : 10244ped
 Start Date : 3/22/2011
 Page No : 2

Morewood Ave. & Millvale Ave.
 Pedestrians
 HARLE00#10244
 Board#5039 FS

Start Time	Millvale Ave. Southbound			Morewood Ave. Westbound			Millvale Ave. Northbound			Morewood Ave. Eastbound			
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	1	3	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	1	5	0	1	0	1	0	0	0	0
Total Volume	2	0	0	10	4	0	1	0	1	0	0	1	12
% App. Total	66.7	0	0	55.6	22.2	0	33.3	33.3	33.3	40.9	0	4.5	54.5
PHF	.500	.000	.000	.500	.333	.000	.250	.000	.250	.750	.000	.250	.750

Start Time	Millvale Ave. Southbound			Morewood Ave. Westbound			Millvale Ave. Northbound			Morewood Ave. Eastbound			
	east to west	west to east	App. Total	south to north	north to south	App. Total	west to east	east to west	App. Total	north to south	south to north	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	0	0	0	2	0	0	0	0	0	2	0	0	0
05:00 PM	0	0	0	2	0	3	0	0	3	5	0	0	0
05:15 PM	1	0	0	6	4	0	0	0	4	2	0	0	8
05:30 PM	1	0	0	2	4	0	2	0	0	0	0	0	8
Total Volume	2	0	0	12	15	0	2	0	9	10	5	0	25
% App. Total	66.7	0	0	40	50	0	18.2	0	81.8	25	12.5	0	62.5
PHF	.500	.000	.000	.500	.750	.000	.250	.000	.563	.500	.625	.000	.781

APPENDIX C

Level of Service Definitions

LEVEL OF SERVICE

Intersection levels of service (LOS) were determined through implementation of the methodology presented in the 2000 Edition of the *Highway Capacity Manual*, published by the Transportation Research Board.

Signalized Intersections

An explanation of level of service at signalized intersections is as follows:

"Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. Delay is a complex measure and depends upon a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributors significantly to high delay levels."

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

(Adapted from figure 16-2, HCS 2000)

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤ 10
B	>10 and ≤ 20
C	>20 and ≤ 35
D	>35 and ≤ 55
E	>55 and ≤ 80
F	>80

Unsignalized Intersections

Level of service for unsignalized intersections is determined by the computed or measured average control delay, and is defined for each minor movement. Level of service is not defined for the intersection as a whole. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during conditions with ideal geometrics and in the absence of incidents, control and traffic.

The LOS criteria for unsignalized intersections are somewhat different from the criteria used for signalized intersections primarily because different transportation facilities create different driver perceptions. The expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay than an unsignalized intersection.

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

(Adapted from figures 17-2 & 17-22, HCS 2000)


















LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

APPENDIX D

2011 Existing Conditions Capacity Analysis

HCM Signalized Intersection Capacity Analysis
 1: Baum Blvd (S.R. 0400) & S. Millvale Ave

10/11/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	705	83	121	1006	23	56	62	46	42	150	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.99		1.00	0.98	
Fipb, ped/bikes		1.00			1.00			0.99		0.99	1.00	
Frt		0.98			1.00			0.97		1.00	0.96	
Flt Protected		1.00			0.99			0.98		0.95	1.00	
Satd. Flow (prot)		3225			3242			1772		1630	1754	
Flt Permitted		0.77			0.69			0.67		0.56	1.00	
Satd. Flow (perm)		2494			2246			1199		954	1754	
Peak-hour factor, PHF	0.59	0.91	0.63	0.84	0.93	0.72	0.86	0.66	0.85	0.73	0.78	0.66
Adj. Flow (vph)	44	775	132	144	1082	32	65	94	54	58	192	77
RTOR Reduction (vph)	0	16	0	0	2	0	0	15	0	0	18	0
Lane Group Flow (vph)	0	935	0	0	1256	0	0	198	0	58	251	0
Confl. Peds. (#/hr)	14		9	9		14	39		19	19		39
Heavy Vehicles (%)	0%	2%	4%	5%	2%	0%	2%	5%	5%	5%	2%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		49.0			38.0			20.0		20.0		20.0
Effective Green, g (s)		49.0			38.0			20.0		20.0		20.0
Actuated g/C Ratio		0.61			0.48			0.25		0.25		0.25
Clearance Time (s)		6.0			6.0			5.0		5.0		5.0
Lane Grp Cap (vph)		1582			1067			300		239		439
v/s Ratio Prot		c0.04										0.14
v/s Ratio Perm		0.32			c0.56			c0.17		0.06		
v/c Ratio		0.59			1.18			0.66		0.24		0.57
Uniform Delay, d1		9.4			21.0			26.9		24.0		26.3
Progression Factor		1.00			0.70			1.00		1.17		1.21
Incremental Delay, d2		1.6			82.9			10.9		2.4		5.3
Delay (s)		11.0			97.6			37.8		30.4		37.0
Level of Service		B			F			D		C		D
Approach Delay (s)		11.0			97.6			37.8				35.8
Approach LOS		B			F			D				D

Intersection Summary

HCM Average Control Delay	55.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 2: Baum Blvd (S.R. 0400) & Morewood Ave

10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	585	120	169	960	23	189	34	63	2	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	11	15	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.97			1.00			0.97			1.00	
Flt Protected		1.00			0.99			0.97			0.97	
Satd. Flow (prot)		3208			3152			1872			1997	
Flt Permitted		0.90			0.60			0.80			0.82	
Satd. Flow (perm)		2882			1899			1542			1695	
Peak-hour factor, PHF	0.80	0.94	0.82	0.87	0.95	0.82	0.87	0.85	0.79	0.25	0.50	0.25
Adj. Flow (vph)	20	622	146	194	1011	28	217	40	80	8	4	0
RTOR Reduction (vph)	0	25	0	0	2	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	763	0	0	1231	0	0	323	0	0	12	0
Confl. Peds. (#/hr)	13		23	23		13	20		23	23		20
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	3%	2%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		32.0			45.0			24.0			24.0	
Effective Green, g (s)		32.0			45.0			24.0			24.0	
Actuated g/C Ratio		0.40			0.56			0.30			0.30	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1153			1225			463			509	
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.26			c0.44			c0.21			c0.01	
v/c Ratio		0.66			1.00			0.70			0.02	
Uniform Delay, d1		19.6			17.5			24.8			19.7	
Progression Factor		0.77			1.19			0.59			1.00	
Incremental Delay, d2		2.5			21.9			5.1			0.1	
Delay (s)		17.6			42.6			19.8			19.8	
Level of Service		B			D			B			B	
Approach Delay (s)		17.6			42.6			19.8			19.8	
Approach LOS		B			D			B			B	

Intersection Summary

HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 3: Baum Blvd (S.R. 0400) & Cypress St

10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Volume (vph)	13	559	70	85	1130	12	22	13	21	8	36	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	15	11	8	15	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			1.00			0.95			0.97	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3206			3304			1874			1926	
Flt Permitted		0.87			0.80			0.87			0.93	
Satd. Flow (perm)		2780			2641			1662			1817	
Peak-hour factor, PHF	0.46	0.92	0.78	0.77	0.95	0.75	0.69	0.63	0.63	0.40	0.69	0.75
Adj. Flow (vph)	28	608	90	110	1189	16	32	21	33	20	52	24
RTOR Reduction (vph)	0	14	0	0	1	0	0	26	0	0	15	0
Lane Group Flow (vph)	0	712	0	0	1314	0	0	60	0	0	81	0
Confl. Peds. (#/hr)	13		13	13		13	26		12	12		26
Heavy Vehicles (%)	0%	2%	3%	0%	2%	0%	0%	0%	0%	13%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		52.0			52.0			17.0			17.0	
Effective Green, g (s)		52.0			52.0			17.0			17.0	
Actuated g/C Ratio		0.65			0.65			0.21			0.21	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1807			1717			353			386	
v/s Ratio Prot												
v/s Ratio Perm		0.26			0.50			0.04			0.04	
v/c Ratio		0.39			0.77			0.17			0.21	
Uniform Delay, d1		6.6			9.7			25.7			26.0	
Progression Factor		0.61			1.61			1.31			1.00	
Incremental Delay, d2		0.5			0.3			0.9			1.2	
Delay (s)		4.5			16.0			34.6			27.2	
Level of Service		A			B			C			C	
Approach Delay (s)		4.5			16.0			34.6			27.2	
Approach LOS		A			B			C			C	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

10/11/2011

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations			↕↕			↕↕			↗	↖		
Volume (vph)	18	26	424	104	76	1044	156	15	123	288	20	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.99			1.00	0.99		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.97			0.98			1.00	0.99		
Flt Protected			1.00			1.00			0.95	1.00		
Satd. Flow (prot)			3263			3228			1726	1818		
Flt Permitted			0.60			0.82			0.45	1.00		
Satd. Flow (perm)			1959			2663			814	1818		
Peak-hour factor, PHF	0.71	0.81	0.85	0.80	0.76	0.95	0.87	0.42	0.92	0.98	0.63	0.56
Adj. Flow (vph)	25	32	499	130	100	1099	179	36	134	294	32	16
RTOR Reduction (vph)	0	0	25	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	661	0	0	1412	0	0	134	326	0	0
Confl. Peds. (#/hr)	5	18		18	18		5	18	19		18	18
Heavy Vehicles (%)	0%	0%	2%	0%	6%	1%	1%	0%	2%	1%	0%	0%
Turn Type	pm+pt	pm+pt			Perm				Perm			pm+pt
Protected Phases	5	5	2			6				8		7
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			41.0			30.0			22.0	22.0		
Effective Green, g (s)			41.0			30.0			22.0	22.0		
Actuated g/C Ratio			0.51			0.38			0.28	0.28		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1134			999			224	500		
v/s Ratio Prot			c0.06							0.18		
v/s Ratio Perm			0.24			c0.53			0.16			
v/c Ratio			0.58			1.41			0.60	0.65		
Uniform Delay, d1			13.6			25.0			25.2	25.6		
Progression Factor			1.62			1.63			1.08	1.09		
Incremental Delay, d2			2.1			190.7			7.8	4.5		
Delay (s)			24.0			231.6			35.0	32.3		
Level of Service			C			F			D	C		
Approach Delay (s)			24.0			231.6				33.1		
Approach LOS			C			F				C		

Intersection Summary

HCM Average Control Delay	119.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

10/11/2011



Movement	SBL	SBT	SBR
Lane Configurations		←T→	
Volume (vph)	92	322	54
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		1.00	
Fipb, ped/bikes		1.00	
Frt		0.98	
Flt Protected		0.99	
Satd. Flow (prot)		3458	
Flt Permitted		0.62	
Satd. Flow (perm)		2172	
Peak-hour factor, PHF	0.79	0.95	0.72
Adj. Flow (vph)	116	339	75
RTOR Reduction (vph)	0	16	0
Lane Group Flow (vph)	0	530	0
Confl. Peds. (#/hr)	58		19
Heavy Vehicles (%)	2%	2%	0%
Turn Type	pm+pt		
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)		29.0	
Effective Green, g (s)		29.0	
Actuated g/C Ratio		0.36	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		852	
v/s Ratio Prot		c0.03	
v/s Ratio Perm		c0.19	
v/c Ratio		0.62	
Uniform Delay, d1		21.0	
Progression Factor		0.81	
Incremental Delay, d2		3.1	
Delay (s)		20.1	
Level of Service		C	
Approach Delay (s)		20.1	
Approach LOS		C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 5: Baum Blvd (S.R. 0400) & S. Aiken Ave

10/11/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↑			↔↑			↔			↔	
Volume (vph)	11	510	0	0	1251	9	4	17	55	12	0	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	10	10	12	12	12	12	12	12
Grade (%)		-1%			4%			0%				-3%
Total Lost time (s)		6.0			6.0			5.0				5.0
Lane Util. Factor		0.95			0.95			1.00				1.00
Frbp, ped/bikes		1.00			1.00			1.00				0.97
Flpb, ped/bikes		1.00			1.00			1.00				0.99
Frt		1.00			1.00			0.91				0.90
Flt Protected		1.00			1.00			1.00				0.99
Satd. Flow (prot)		3286			3233			1723				1597
Flt Permitted		0.90			1.00			0.98				0.92
Satd. Flow (perm)		2973			3233			1690				1481
Peak-hour factor, PHF	0.69	0.85	0.92	0.92	0.92	0.75	0.50	0.61	0.81	0.60	0.92	0.89
Adj. Flow (vph)	16	600	0	0	1360	12	8	28	68	20	0	67
RTOR Reduction (vph)	0	0	0	0	1	0	0	56	0	0	55	0
Lane Group Flow (vph)	0	616	0	0	1371	0	0	48	0	0	32	0
Confl. Peds. (#/hr)	16					16	15			25		15
Heavy Vehicles (%)	0%	3%	2%	2%	2%	0%	0%	0%	0%	0%	2%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2						8			4		
Actuated Green, G (s)		55.0			55.0			14.0				14.0
Effective Green, g (s)		55.0			55.0			14.0				14.0
Actuated g/C Ratio		0.69			0.69			0.18				0.18
Clearance Time (s)		6.0			6.0			5.0				5.0
Lane Grp Cap (vph)		2044			2223			296				259
v/s Ratio Prot					0.42							
v/s Ratio Perm		0.21						0.03				0.02
v/c Ratio		0.30			0.62			0.16				0.12
Uniform Delay, d1		4.9			6.8			28.0				27.8
Progression Factor		1.01			1.00			0.55				1.00
Incremental Delay, d2		0.3			1.3			1.0				1.0
Delay (s)		5.3			8.1			16.3				28.8
Level of Service		A			A			B				C
Approach Delay (s)		5.3			8.1			16.3				28.8
Approach LOS		A			A			B				C













Intersection Summary

HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: Centre Ave & Morewood Ave

10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	26	376	42	56	412	42	29	255	103	33	201	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	11	11	11
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.96			0.96	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		1741			1748			1637			1714	
Flt Permitted		0.95			0.90			0.93			0.88	
Satd. Flow (perm)		1659			1582			1531			1526	
Peak-hour factor, PHF	0.89	0.87	0.85	0.79	0.82	0.81	0.68	0.94	0.85	0.66	0.84	0.77
Adj. Flow (vph)	29	432	49	71	502	52	43	271	121	50	239	103
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	510	0	0	625	0	0	435	0	0	392	0
Confl. Peds. (#/hr)	23		31	31		23	15		31	31		15
Heavy Vehicles (%)	0%	8%	12%	4%	6%	0%	7%	2%	5%	10%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.0			42.0			28.0			28.0	
Effective Green, g (s)		42.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.52			0.52			0.35			0.35	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		871			831			536			534	
v/s Ratio Prot												
v/s Ratio Perm		0.31			0.40			0.28			0.26	
v/c Ratio		0.59			0.75			0.81			0.73	
Uniform Delay, d1		13.0			14.9			23.6			22.7	
Progression Factor		1.00			0.74			1.00			0.99	
Incremental Delay, d2		2.9			4.3			12.6			5.5	
Delay (s)		15.9			15.4			36.2			28.0	
Level of Service		B			B			D			C	
Approach Delay (s)		15.9			15.4			36.2			28.0	
Approach LOS		B			B			D			C	

Intersection Summary

HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Centre Ave & Cypress St

10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕	↗		↕	
Volume (vph)	29	333	94	143	438	28	29	19	16	24	105	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frbp, ped/bikes		0.99			1.00			1.00	0.90		0.97	
Flpb, ped/bikes		1.00			1.00			0.98	1.00		0.99	
Frt		0.97			0.99			1.00	0.85		0.95	
Flt Protected		1.00			0.99			0.97	1.00		0.99	
Satd. Flow (prot)		1651			1810			1666	1482		1682	
Flt Permitted		0.93			0.79			0.69	1.00		0.93	
Satd. Flow (perm)		1540			1438			1176	1482		1582	
Peak-hour factor, PHF	0.78	0.85	0.84	0.92	0.85	0.75	0.73	0.68	0.50	0.60	0.94	0.82
Adj. Flow (vph)	37	392	112	155	515	37	40	28	32	40	112	77
RTOR Reduction (vph)	0	12	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	529	0	0	705	0	0	68	32	0	229	0
Confl. Peds. (#/hr)	51		56	56		51	28		33	33		28
Heavy Vehicles (%)	0%	10%	5%	1%	5%	0%	17%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		52.0			52.0			17.0	17.0		17.0	
Effective Green, g (s)		52.0			52.0			17.0	17.0		17.0	
Actuated g/C Ratio		0.65			0.65			0.21	0.21		0.21	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		1001			935			250	315		336	
v/s Ratio Prot												
v/s Ratio Perm		0.34			0.49			0.06	0.02		0.14	
v/c Ratio		0.53			0.75			0.27	0.10		0.68	
Uniform Delay, d1		7.5			9.6			26.3	25.4		29.0	
Progression Factor		1.92			0.73			1.00	1.00		1.28	
Incremental Delay, d2		1.5			3.2			2.7	0.6		9.3	
Delay (s)		15.8			10.2			29.0	26.0		46.5	
Level of Service		B			B			C	C		D	
Approach Delay (s)		15.8			10.2			28.0			46.5	
Approach LOS		B			B			C			D	




















Intersection Summary

HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

8: Centre Ave & Liberty Ave

10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	251	90	92	394	77	136	387	56	69	328	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%				-3%
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.96			0.99		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		1.00			0.99		0.97	1.00		0.95	1.00	
Frt		0.97			0.98		1.00	0.98		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1715		1687	1815		1715	1807	
Flt Permitted		0.86			0.81		0.36	1.00		0.31	1.00	
Satd. Flow (perm)		1415			1396		637	1815		558	1807	
Peak-hour factor, PHF	0.81	0.86	0.79	0.87	0.92	0.86	0.95	0.89	0.79	0.85	0.90	0.83
Adj. Flow (vph)	57	292	114	106	428	90	143	435	71	81	364	92
RTOR Reduction (vph)	0	15	0	0	7	0	0	7	0	0	12	0
Lane Group Flow (vph)	0	448	0	0	617	0	143	499	0	81	445	0
Confl. Peds. (#/hr)	60		132	132		60	53		94	94		53
Heavy Vehicles (%)	17%	8%	4%	1%	5%	3%	1%	1%	2%	2%	0%	9%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		601			593		271	771		237	768	
v/s Ratio Prot								c0.27			0.25	
v/s Ratio Perm		0.32			c0.44		0.22			0.15		
v/c Ratio		0.75			1.04		0.53	0.65		0.34	0.58	
Uniform Delay, d1		19.4			23.0		17.0	18.2		15.5	17.5	
Progression Factor		1.27			1.00		1.00	1.00		1.06	1.07	
Incremental Delay, d2		7.2			47.7		7.2	4.2		2.4	2.0	
Delay (s)		31.8			70.7		24.2	22.4		18.8	20.8	
Level of Service		C			E		C	C		B	C	
Approach Delay (s)		31.8			70.7			22.8			20.5	
Approach LOS		C			E			C			C	













Intersection Summary

HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

9: Liberty Ave & Millvale Ave

10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↘		↙	↘	
Volume (vph)	43	377	50	23	421	30	59	48	26	99	125	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.94	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.96	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.95	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1971			1999		1381	1510		1609	1587	
Flt Permitted		0.91			0.96		0.49	1.00		0.68	1.00	
Satd. Flow (perm)		1800			1930		714	1510		1158	1587	
Peak-hour factor, PHF	0.81	0.94	0.82	0.82	0.89	0.66	0.91	0.65	0.65	0.66	0.77	0.60
Adj. Flow (vph)	53	401	61	28	473	45	65	74	40	150	162	90
RTOR Reduction (vph)	0	6	0	0	4	0	0	24	0	0	25	0
Lane Group Flow (vph)	0	509	0	0	542	0	65	90	0	150	227	0
Confl. Peds. (#/hr)	87		46	46		87	80		27	27		80
Heavy Vehicles (%)	0%	3%	8%	0%	2%	0%	5%	2%	4%	2%	1%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.59			0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1058			1134		205	434		333	456	
v/s Ratio Prot								0.06			c0.14	
v/s Ratio Perm		c0.28			0.28		0.09			0.13		
v/c Ratio		0.48			0.48		0.32	0.21		0.45	0.50	
Uniform Delay, d1		9.5			9.5		22.3	21.6		23.3	23.7	
Progression Factor		1.00			0.54		0.76	0.69		1.00	1.00	
Incremental Delay, d2		1.6			0.7		4.0	1.1		4.4	3.8	
Delay (s)		11.1			5.8		20.9	16.1		27.7	27.5	
Level of Service		B			A		C	B		C	C	
Approach Delay (s)		11.1			5.8			17.8			27.6	
Approach LOS		B			A			B			C	













Intersection Summary

HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Ellsworth Ave & S. Aiken Ave

10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	58	147	12	12	389	160	67	475	11	37	212	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	1.00		1.00	0.97	
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1773		1750	1870		1787	1776	
Flt Permitted		0.65			0.99		0.48	1.00		0.31	1.00	
Satd. Flow (perm)		1090			1753		888	1870		577	1776	
Peak-hour factor, PHF	0.69	0.92	0.60	0.60	0.85	0.85	0.84	0.96	0.69	0.46	0.78	0.78
Adj. Flow (vph)	84	160	20	20	458	188	80	495	16	80	272	72
RTOR Reduction (vph)	0	5	0	0	23	0	0	2	0	0	16	0
Lane Group Flow (vph)	0	259	0	0	643	0	80	509	0	80	328	0
Confl. Peds. (#/hr)	12		11	11		12	9		10	10		9
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	3%	1%	18%	0%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		25.0			25.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)		25.0			25.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		454			730		370	779		240	740	
v/s Ratio Prot								c0.27			0.18	
v/s Ratio Perm		0.24			c0.37		0.09			0.14		
v/c Ratio		0.57			0.88		0.22	0.65		0.33	0.44	
Uniform Delay, d1		13.4			16.1		11.2	14.0		11.9	12.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.1			14.3		1.3	4.2		3.7	1.9	
Delay (s)		18.5			30.5		12.6	18.3		15.6	14.4	
Level of Service		B			C		B	B		B	B	
Approach Delay (s)		18.5			30.5			17.5			14.7	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: Cypress St & Millvale Ave

10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	1	13	6	33	11	26	1	110	30	10	174	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.95			0.97			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1569			1507			1578			1701	
Flt Permitted		0.96			0.85			1.00			0.97	
Satd. Flow (perm)		1514			1307			1573			1660	
Peak-hour factor, PHF	0.25	0.69	0.50	0.80	0.50	0.72	0.25	0.63	0.66	0.50	0.75	0.50
Adj. Flow (vph)	4	19	12	41	22	36	4	175	45	20	232	4
RTOR Reduction (vph)	0	10	0	0	26	0	0	11	0	0	1	0
Lane Group Flow (vph)	0	25	0	0	73	0	0	213	0	0	255	0
Confl. Peds. (#/hr)	2		2	2		2	39		14	14		39
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.0			11.0			57.0			57.0	
Effective Green, g (s)		11.0			11.0			57.0			57.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		208			180			1121			1183	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.06			0.14			0.15	
v/c Ratio		0.12			0.41			0.19			0.22	
Uniform Delay, d1		30.2			31.5			3.8			3.9	
Progression Factor		1.00			1.00			1.07			0.80	
Incremental Delay, d2		1.2			6.7			0.4			0.4	
Delay (s)		31.4			38.2			4.4			3.5	
Level of Service		C			D			A			A	
Approach Delay (s)		31.4			38.2			4.4			3.5	
Approach LOS		C			D			A			A	













Intersection Summary

HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

11: Morewood Ave & S. Millvale Ave

10/11/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	3	0	22	11	4	39	8	94	0	0	260	2
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.75	0.92	0.61	0.69	0.50	0.89	0.50	0.94	0.92	0.92	0.97	0.25
Hourly flow rate (vph)	4	0	36	16	8	44	16	100	0	0	268	8
Pedestrians		38			19			6			8	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	498	461	316	465	465	127	314			119		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	498	461	316	465	465	127	314			119		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	99	100	95	96	98	95	99			100		
cM capacity (veh/h)	420	470	705	452	434	898	1094			1454		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	40	68	116	276
Volume Left	4	16	16	0
Volume Right	36	44	0	8
cSH	660	661	1094	1700
Volume to Capacity	0.06	0.10	0.01	0.16
Queue Length 95th (ft)	4	7	1	0
Control Delay (s)	10.8	11.1	1.3	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.8	11.1	1.3	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization	28.1%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 13: Cypress St & Gross St

10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	33	10	4	33	0	9	0	3	10	10	2
Peak Hour Factor	0.92	0.50	0.50	1.00	0.66	0.92	0.75	0.92	0.75	0.63	0.83	0.50
Hourly flow rate (vph)	0	66	20	4	50	0	12	0	4	16	12	4













Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	86	54	16	32
Volume Left (vph)	0	4	12	16
Volume Right (vph)	20	0	4	4
Hadj (s)	-0.14	0.01	0.00	0.02
Departure Headway (s)	3.9	4.1	4.2	4.2
Degree Utilization, x	0.09	0.06	0.02	0.04
Capacity (veh/h)	900	860	814	819
Control Delay (s)	7.3	7.4	7.3	7.4
Approach Delay (s)	7.3	7.4	7.3	7.4
Approach LOS	A	A	A	A

Intersection Summary

Delay		7.3		
HCM Level of Service		A		
Intersection Capacity Utilization		16.8%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

10/11/2011

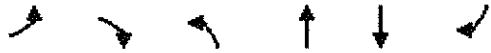
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔↑			↔	
Volume (veh/h)	29	0	31	16	0	25	80	511	0	0	360	94
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.60	0.92	0.78	0.80	0.92	0.86	0.80	0.94	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	48	0	40	20	0	29	100	544	0	0	391	121
Pedestrians					28			7			8	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					2			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88					
vC, conflicting volume	960	1223	459	1270	1283	308	512			572		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	884	1184	311	1237	1253	308	372			572		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	100	93	79	100	96	90			100		
cM capacity (veh/h)	184	145	601	96	131	673	1049			974		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	88	49	281	362	512
Volume Left	48	20	100	0	0
Volume Right	40	29	0	0	121
cSH	268	196	1049	1700	1700
Volume to Capacity	0.33	0.25	0.10	0.21	0.30
Queue Length 95th (ft)	28	19	6	0	0
Control Delay (s)	24.9	29.4	3.7	0.0	0.0
Lane LOS	C	D	A		
Approach Delay (s)	24.9	29.4	1.6	0.0	
Approach LOS	C	D			

Intersection Summary		
Average Delay		3.6
Intersection Capacity Utilization	58.1%	ICU Level of Service B
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 15: ED Dwy/Employee Garage & S. Aiken Ave

10/11/2011



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗		↕	↕	
Volume (veh/h)	19	16	69	572	338	74
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.59	0.57	0.78	0.94	0.92	0.88
Hourly flow rate (vph)	32	28	88	609	367	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked						
vC, conflicting volume	891	409	451			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	891	409	451			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	95	92			
cM capacity (veh/h)	254	597	1113			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	32	28	291	406	451
Volume Left	32	0	88	0	0
Volume Right	0	28	0	0	84
cSH	254	597	1113	1700	1700
Volume to Capacity	0.13	0.05	0.08	0.24	0.27
Queue Length 95th (ft)	9	3	5	0	0
Control Delay (s)	21.2	11.3	3.1	0.0	0.0
Lane LOS	C	B	A		
Approach Delay (s)	16.6		1.3		0.0
Approach LOS	C				

Intersection Summary					
Average Delay			1.6		
Intersection Capacity Utilization			53.4%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

10/11/2011



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑	
Volume (veh/h)	0	1	0	641	354	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.25	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	0	4	0	682	385	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				640	676	
pX, platoon unblocked						
vC, conflicting volume	726	385	385			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	726	385	385			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	360	619	1170			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	4	341	341	385
Volume Left	0	0	0	0
Volume Right	4	0	0	0
cSH	619	1700	1700	1700
Volume to Capacity	0.01	0.20	0.20	0.23
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	10.9	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	10.9	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		28.6%	ICU Level of Service
Analysis Period (min)		15	A

2011 Existing Conditions
1: Baum Blvd (S.R. 0400) & S. Millvale Ave

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	1001	86	82	643	18	61	129	102	45	118	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.98		1.00	0.98	
Flpb, ped/bikes		1.00			1.00			0.99		0.98	1.00	
Frt		0.99			1.00			0.95		1.00	0.96	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3295			3264			1750		1596	1732	
Flt Permitted		0.76			0.64			0.81		0.35	1.00	
Satd. Flow (perm)		2522			2094			1435		595	1732	
Peak-hour factor, PHF	0.86	0.94	0.88	0.79	0.89	0.75	0.83	0.84	0.71	0.79	0.78	0.80
Adj. Flow (vph)	81	1065	98	104	722	24	73	154	144	57	151	58
RTOR Reduction (vph)	0	8	0	0	3	0	0	29	0	0	17	0
Lane Group Flow (vph)	0	1236	0	0	847	0	0	343	0	57	192	0
Confl. Peds. (#/hr)	11		18	18		11	61		34	34		61
Heavy Vehicles (%)	0%	1%	1%	4%	1%	6%	7%	3%	0%	7%	3%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		49.0			36.0			20.0		20.0		20.0
Effective Green, g (s)		49.0			36.0			20.0		20.0		20.0
Actuated g/C Ratio		0.61			0.45			0.25		0.25		0.25
Clearance Time (s)		6.0			6.0			5.0		5.0		5.0
Lane Grp Cap (vph)		1622			942			359		149		433
v/s Ratio Prot		c0.08										0.11
v/s Ratio Perm		0.39			c0.40			c0.24		0.10		
v/c Ratio		0.76			0.90			0.95		0.38		0.44
Uniform Delay, d1		11.3			20.3			29.5		24.9		25.3
Progression Factor		1.00			1.13			1.00		1.07		1.09
Incremental Delay, d2		3.4			8.4			37.2		7.3		3.3
Delay (s)		14.7			31.3			66.7		34.0		30.9
Level of Service		B			C			E		C		C
Approach Delay (s)		14.7			31.3			66.7				31.6
Approach LOS		B			C			E				C

Intersection Summary

HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
2: Baum Blvd (S.R. 0400) & Morewood Ave

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	870	166	104	591	19	133	54	153	17	21	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	11	15	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.98			0.99			0.94			0.97	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		3254			3142			1834			1950	
Flt Permitted		0.93			0.55			0.85			0.72	
Satd. Flow (perm)		3031			1753			1587			1443	
Peak-hour factor, PHF	0.70	0.90	0.93	0.84	0.85	0.48	0.77	0.70	0.83	0.47	0.75	0.63
Adj. Flow (vph)	20	967	178	124	695	40	173	77	184	36	28	16
RTOR Reduction (vph)	0	18	0	0	4	0	0	33	0	0	11	0
Lane Group Flow (vph)	0	1147	0	0	855	0	0	401	0	0	69	0
Confl. Peds. (#/hr)	32		17	17		32	25		38	38		25
Heavy Vehicles (%)	0%	1%	1%	1%	1%	5%	1%	0%	1%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		38.0			48.0			21.0			21.0	
Effective Green, g (s)		38.0			48.0			21.0			21.0	
Actuated g/C Ratio		0.48			0.60			0.26			0.26	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1440			1173			417			379	
v/s Ratio Prot					c0.06							
v/s Ratio Perm		c0.38			0.37			c0.25			0.05	
v/c Ratio		0.80			0.73			0.96			0.18	
Uniform Delay, d1		17.7			11.4			29.1			22.8	
Progression Factor		0.68			0.71			0.81			1.00	
Incremental Delay, d2		2.9			3.7			27.2			1.1	
Delay (s)		14.9			11.8			50.8			23.9	
Level of Service		B			B			D			C	
Approach Delay (s)		14.9			11.8			50.8			23.9	
Approach LOS		B			B			D			C	

Intersection Summary

HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
3: Baum Blvd (S.R. 0400) & Cypress St

PM Peak Hour
10/11/2011



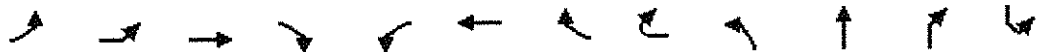
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	8	1057	22	19	636	10	57	42	107	21	18	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	11	11	8	8	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			0.99			0.93			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3297			3317			1605			1447	
Flt Permitted		0.94			0.90			0.84			0.74	
Satd. Flow (perm)		3087			3002			1377			1081	
Peak-hour factor, PHF	0.40	0.91	0.69	0.90	0.85	0.36	0.74	0.89	0.84	0.58	0.47	0.46
Adj. Flow (vph)	20	1162	32	21	748	28	77	47	127	36	38	50
RTOR Reduction (vph)	0	2	0	0	3	0	0	46	0	0	30	0
Lane Group Flow (vph)	0	1212	0	0	794	0	0	205	0	0	94	0
Confl. Peds. (#/hr)	17		20	20		17	22		20	20		22
Heavy Vehicles (%)	0%	1%	5%	0%	1%	10%	0%	0%	0%	0%	6%	5%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		56.0			56.0			13.0			13.0	
Effective Green, g (s)		56.0			56.0			13.0			13.0	
Actuated g/C Ratio		0.70			0.70			0.16			0.16	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		2161			2101			224			176	
v/s Ratio Prot												
v/s Ratio Perm		c0.39			0.26			c0.15			0.09	
v/c Ratio		0.56			0.38			0.91			0.53	
Uniform Delay, d1		5.9			4.9			33.0			30.7	
Progression Factor		0.76			0.28			0.83			1.00	
Incremental Delay, d2		0.6			0.2			36.3			11.1	
Delay (s)		5.1			1.5			63.5			41.8	
Level of Service		A			A			E			D	
Approach Delay (s)		5.1			1.5			63.5			41.8	
Approach LOS		A			A			E			D	

Intersection Summary

HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

PM Peak Hour
10/11/2011



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations			←→			←→			↑	↑		
Volume (vph)	57	39	906	123	50	581	134	8	80	323	21	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.97			1.00	0.99		
Flpb, ped/bikes			1.00			1.00			0.98	1.00		
Frt			0.98			0.97			1.00	0.99		
Flt Protected			1.00			1.00			0.95	1.00		
Satd. Flow (prot)			3312			3123			1731	1795		
Flt Permitted			0.61			0.75			0.38	1.00		
Satd. Flow (perm)			2033			2337			683	1795		
Peak-hour factor, PHF	0.86	0.68	0.93	0.82	0.80	0.88	0.83	0.67	0.77	0.83	0.58	0.75
Adj. Flow (vph)	66	57	974	150	62	660	161	12	104	389	36	12
RTOR Reduction (vph)	0	0	13	0	0	1	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1234	0	0	894	0	0	104	425	0	0
Confl. Peds. (#/hr)	29	61		17	17		29	61	41		61	61
Heavy Vehicles (%)	4%	0%	1%	0%	4%	2%	2%	0%	1%	2%	0%	0%
Turn Type	pm+pt	pm+pt			Perm				Perm			pm+pt
Protected Phases	5	5	2			6				8		7
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			41.0			30.0			22.0	22.0		
Effective Green, g (s)			41.0			30.0			22.0	22.0		
Actuated g/C Ratio			0.51			0.38			0.28	0.28		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1170			876			188	494		
v/s Ratio Prot			c0.11							0.24		
v/s Ratio Perm			c0.44			0.38			0.15			
v/c Ratio			1.05			1.02			0.55	0.86		
Uniform Delay, d1			19.5			25.0			24.8	27.5		
Progression Factor			0.98			1.62			0.96	0.97		
Incremental Delay, d2			39.4			35.0			7.4	12.2		
Delay (s)			58.6			75.6			31.2	38.9		
Level of Service			E			E			C	D		
Approach Delay (s)			58.6			75.6				37.4		
Approach LOS			E			E				D		

Intersection Summary

HCM Average Control Delay	56.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		

d1 Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group















Movement	SBL	SBT	SBR
Lane Configurations		←T→	
Volume (vph)	152	386	46
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		1.00	
Flpb, ped/bikes		0.99	
Frt		0.99	
Flt Protected		0.99	
Satd. Flow (prot)		3504	
Flt Permitted		0.54	
Satd. Flow (perm)		1927	
Peak-hour factor, PHF	0.79	0.91	0.77
Adj. Flow (vph)	192	424	60
RTOR Reduction (vph)	0	9	0
Lane Group Flow (vph)	0	679	0
Confl. Peds. (#/hr)	68		41
Heavy Vehicles (%)	0%	1%	0%
Turn Type	pm+pt		
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)		29.0	
Effective Green, g (s)		29.0	
Actuated g/C Ratio		0.36	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		777	
v/s Ratio Prot		c0.04	
v/s Ratio Perm		c0.27	
v/c Ratio		1.17dl	
Uniform Delay, d1		23.8	
Progression Factor		1.23	
Incremental Delay, d2		10.6	
Delay (s)		39.9	
Level of Service		D	
Approach Delay (s)		39.9	
Approach LOS		D	

Intersection Summary

2011 Existing Conditions
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

PM Peak Hour
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔			↔↔	
Volume (vph)	11	1055	0	0	732	11	3	28	121	28	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	14	12	12	15	12
Grade (%)		-1%			4%			3%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.93			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.98	
Frt		1.00			1.00			0.90			0.92	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		3351			3221			1605			1759	
Flt Permitted		0.94			1.00			0.99			0.73	
Satd. Flow (perm)		3167			3221			1586			1309	
Peak-hour factor, PHF	0.92	0.98	0.92	0.92	0.94	0.46	0.38	0.75	0.88	0.68	0.92	0.82
Adj. Flow (vph)	12	1077	0	0	779	24	8	37	138	41	0	59
RTOR Reduction (vph)	0	0	0	0	3	0	0	101	0	0	49	0
Lane Group Flow (vph)	0	1089	0	0	800	0	0	82	0	0	51	0
Confl. Peds. (#/hr)	20		30	30		20	16		52	52		16
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	4%	4%	0%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		2177			2214			278			229	
v/s Ratio Prot					0.25							
v/s Ratio Perm		c0.34						c0.05			0.04	
v/c Ratio		0.50			0.36			0.29			0.22	
Uniform Delay, d1		6.0			5.2			28.7			28.3	
Progression Factor		1.96			1.00			1.51			1.00	
Incremental Delay, d2		0.1			0.5			1.6			2.3	
Delay (s)		11.8			5.7			44.8			30.6	
Level of Service		B			A			D			C	
Approach Delay (s)		11.8			5.7			44.8			30.6	
Approach LOS		B			A			D			C	

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
6: Centre Ave & Morewood Ave

PM Peak Hour
10/11/2011















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	70	494	70	88	350	56	30	273	89	38	268	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	15	10	11	15	11
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.97			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1796			1748			1999			2009	
Flt Permitted		0.87			0.76			0.94			0.83	
Satd. Flow (perm)		1572			1343			1890			1680	
Peak-hour factor, PHF	0.80	0.99	0.74	0.80	0.90	0.75	0.75	0.84	0.88	0.63	0.98	0.90
Adj. Flow (vph)	88	499	95	110	389	75	40	325	101	60	273	63
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	682	0	0	574	0	0	466	0	0	396	0
Confl. Peds. (#/hr)	36		81	81		36	40		34	34		40
Heavy Vehicles (%)	0%	3%	3%	4%	4%	0%	0%	0%	4%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.0			42.0			28.0			28.0	
Effective Green, g (s)		42.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.52			0.52			0.35			0.35	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		825			705			662			588	
v/s Ratio Prot												
v/s Ratio Perm		0.43			0.43			0.25			0.24	
v/c Ratio		0.83			0.81			0.70			0.67	
Uniform Delay, d1		15.9			15.8			22.4			22.1	
Progression Factor		1.00			1.06			1.00			0.55	
Incremental Delay, d2		9.3			9.1			6.2			4.8	
Delay (s)		25.2			25.8			28.6			17.0	
Level of Service		C			C			C			B	
Approach Delay (s)		25.2			25.8			28.6			17.0	
Approach LOS		C			C			C			B	

Intersection Summary

HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
7: Centre Ave & Cypress St

PM Peak Hour
10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕	↗		↕	
Volume (vph)	54	572	19	11	353	50	71	95	92	26	15	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frbp, ped/bikes		1.00			0.99			1.00	0.86		0.97	
Flpb, ped/bikes		1.00			1.00			0.98	1.00		0.96	
Frt		1.00			0.98			1.00	0.85		0.94	
Flt Protected		1.00			1.00			0.98	1.00		0.98	
Satd. Flow (prot)		1792			1805			1779	1410		1553	
Flt Permitted		0.91			0.97			0.80	1.00		0.73	
Satd. Flow (perm)		1645			1761			1461	1410		1160	
Peak-hour factor, PHF	0.78	0.91	0.79	0.69	0.86	0.68	0.74	0.91	0.77	0.50	0.75	0.75
Adj. Flow (vph)	69	629	24	16	410	74	96	104	119	52	20	52
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	721	0	0	492	0	0	200	119	0	124	0
Confl. Peds. (#/hr)	77		53	53		77	27		52	52		27
Heavy Vehicles (%)	0%	3%	11%	0%	4%	0%	7%	0%	0%	0%	20%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		52.0			52.0			17.0	17.0			17.0
Effective Green, g (s)		52.0			52.0			17.0	17.0			17.0
Actuated g/C Ratio		0.65			0.65			0.21	0.21			0.21
Clearance Time (s)		5.5			5.5			5.5	5.5			5.5
Lane Grp Cap (vph)		1069			1145			310	300			247
v/s Ratio Prot												
v/s Ratio Perm		0.44			0.28			0.14	0.08			0.11
v/c Ratio		0.67			0.43			0.65	0.40			0.50
Uniform Delay, d1		8.7			6.8			28.7	27.1			27.8
Progression Factor		0.54			0.99			1.00	1.00			1.18
Incremental Delay, d2		2.3			0.8			9.9	3.9			6.7
Delay (s)		7.0			7.6			38.7	31.0			39.6
Level of Service		A			A			D	C			D
Approach Delay (s)		7.0			7.6			35.8				39.6
Approach LOS		A			A			D				D

Intersection Summary

HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
8: Centre Ave & Liberty Ave

PM Peak Hour
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Volume (vph)	93	428	139	50	231	79	102	411	111	89	419	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.96			0.98		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00			0.99		0.97	1.00		0.96	1.00	
Frt		0.97			0.97		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1705			1683		1659	1803		1720	1838	
Flt Permitted		0.84			0.80		0.22	1.00		0.22	1.00	
Satd. Flow (perm)		1450			1363		385	1803		400	1838	
Peak-hour factor, PHF	0.91	0.98	0.79	0.80	0.83	0.75	0.94	0.85	0.97	0.78	0.83	0.59
Adj. Flow (vph)	102	437	176	62	278	105	109	484	114	114	505	93
RTOR Reduction (vph)	0	15	0	0	14	0	0	10	0	0	8	0
Lane Group Flow (vph)	0	700	0	0	431	0	109	588	0	114	590	0
Confl. Peds. (#/hr)	76		137	137		76	67		110	110		67
Heavy Vehicles (%)	8%	3%	2%	0%	7%	1%	3%	0%	0%	2%	0%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		616			579		164	766		170	781	
v/s Ratio Prot								c0.33			0.32	
v/s Ratio Perm		c0.48			0.32		0.28			0.29		
v/c Ratio		1.14			0.74		0.66	0.77		0.67	0.76	
Uniform Delay, d1		23.0			19.3		18.4	19.6		18.5	19.5	
Progression Factor		0.86			1.00		1.00	1.00		1.26	1.28	
Incremental Delay, d2		76.7			8.4		19.3	7.2		9.9	3.4	
Delay (s)		96.5			27.8		37.7	26.9		33.2	28.4	
Level of Service		F			C		D	C		C	C	
Approach Delay (s)		96.5			27.8			28.5			29.1	
Approach LOS		F			C			C			C	

Intersection Summary

HCM Average Control Delay	47.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
9: Liberty Ave & Millvale Ave

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	35	533	41	11	423	17	127	216	47	36	49	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.94	
Fipb, ped/bikes		1.00			1.00		0.91	1.00		0.96	1.00	
Frt		0.99			0.99		1.00	0.98		1.00	0.92	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2010			2011		1398	1609		1637	1533	
Flt Permitted		0.95			0.96		0.68	1.00		0.42	1.00	
Satd. Flow (perm)		1910			1928		998	1609		719	1533	
Peak-hour factor, PHF	0.77	0.89	0.83	0.46	0.95	0.71	0.89	0.80	0.89	0.88	0.86	0.80
Adj. Flow (vph)	45	599	49	24	445	24	143	270	53	41	57	65
RTOR Reduction (vph)	0	4	0	0	2	0	0	9	0	0	44	0
Lane Group Flow (vph)	0	689	0	0	491	0	143	314	0	41	78	0
Confl. Peds. (#/hr)	102		65	65		102	67		50	50		67
Heavy Vehicles (%)	0%	2%	8%	0%	2%	0%	4%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		44.0			44.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)		44.0			44.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio		0.55			0.55		0.32	0.32		0.32	0.32	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1051			1060		324	523		234	498	
v/s Ratio Prot								c0.20			0.05	
v/s Ratio Perm		c0.36			0.25		0.14			0.06		
v/c Ratio		0.66			0.46		0.44	0.60		0.18	0.16	
Uniform Delay, d1		12.7			10.9		21.3	22.6		19.3	19.2	
Progression Factor		1.00			0.77		0.96	0.96		1.00	1.00	
Incremental Delay, d2		3.2			0.5		4.1	4.8		1.6	0.7	
Delay (s)		15.9			8.9		24.5	26.5		21.0	19.9	
Level of Service		B			A		C	C		C	B	
Approach Delay (s)		15.9			8.9			25.9			20.1	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
10: Ellsworth Ave & S. Aiken Ave

PM Peak Hour
10/11/2011













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Volume (vph)	93	387	45	13	199	100	46	289	20	147	468	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	11	11	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.97	1.00	
Frt		0.99			0.96		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1694			1748		1792	1815		1647	1760	
Flt Permitted		0.84			0.96		0.22	1.00		0.43	1.00	
Satd. Flow (perm)		1437			1675		424	1815		751	1760	
Peak-hour factor, PHF	0.73	0.90	0.70	0.65	0.91	0.93	0.89	0.80	0.71	0.92	0.91	0.89
Adj. Flow (vph)	127	430	64	20	219	108	52	361	28	160	514	80
RTOR Reduction (vph)	0	7	0	0	27	0	0	5	0	0	9	0
Lane Group Flow (vph)	0	614	0	0	320	0	52	384	0	160	585	0
Confl. Peds. (#/hr)	17		46	46		17	30		51	51		30
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	2%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		25.0			25.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)		25.0			25.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		599			698		177	756		313	733	
v/s Ratio Prot								0.21			c0.33	
v/s Ratio Perm		c0.43			0.19		0.12			0.21		
v/c Ratio		1.03			0.46		0.29	0.51		0.51	0.80	
Uniform Delay, d1		17.5			12.6		11.6	13.0		13.0	15.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		43.3			2.2		4.2	2.4		5.9	8.8	
Delay (s)		60.8			14.8		15.8	15.4		18.8	24.1	
Level of Service		E			B		B	B		B	C	
Approach Delay (s)		60.8			14.8			15.4			23.0	
Approach LOS		E			B			B			C	

Intersection Summary

HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
12: Cypress St & Millvale Ave

PM Peak Hour
10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	4	13	9	35	19	38	4	339	19	11	96	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.98			1.00			1.00	
Fipb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.96			0.95			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1571			1473			1644			1661	
Flt Permitted		0.94			0.87			1.00			0.92	
Satd. Flow (perm)		1493			1300			1639			1541	
Peak-hour factor, PHF	0.50	0.55	0.75	0.77	0.53	0.77	0.50	0.88	0.59	0.55	0.98	0.25
Adj. Flow (vph)	8	24	12	45	36	49	8	385	32	20	98	4
RTOR Reduction (vph)	0	10	0	0	28	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	34	0	0	102	0	0	421	0	0	121	0
Confl. Peds. (#/hr)	9		6	6		9	45		44	44		45
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	4%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.0			11.0			57.0			57.0	
Effective Green, g (s)		11.0			11.0			57.0			57.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		205			179			1168			1098	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.08			0.26			0.08	
v/c Ratio		0.16			0.57			0.36			0.11	
Uniform Delay, d1		30.4			32.3			4.4			3.6	
Progression Factor		1.00			1.00			1.00			1.27	
Incremental Delay, d2		1.7			12.6			0.9			0.2	
Delay (s)		32.2			44.9			5.3			4.7	
Level of Service		C			D			A			A	
Approach Delay (s)		32.2			44.9			5.3			4.7	
Approach LOS		C			D			A			A	

Intersection Summary

HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2011 Existing Conditions
11: Morewood Ave & S. Millvale Ave

PM Peak Hour
10/11/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Volume (veh/h)	16	0	10	19	3	97	8	94	0	0	189	8
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.50	0.92	0.50	0.71	0.38	0.82	0.55	0.81	0.92	0.92	0.83	0.25
Hourly flow rate (vph)	32	0	20	27	8	118	15	116	0	0	228	32
Pedestrians		40			30			11			3	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			3			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	554	459	295	450	475	149	300			146		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	554	459	295	450	475	149	300			146		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	97	94	98	86	99			100		
cM capacity (veh/h)	349	467	721	449	457	875	1234			1406		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	153	131	260
Volume Left	32	27	15	0
Volume Right	20	118	0	32
cSH	435	721	1234	1700
Volume to Capacity	0.12	0.21	0.01	0.15
Queue Length 95th (ft)	8	16	1	0
Control Delay (s)	14.4	11.3	1.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	14.4	11.3	1.0	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization		27.3%	ICU Level of Service
Analysis Period (min)		15	A

2011 Existing Conditions
13: Cypress St & Gross St

PM Peak Hour
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	32	8	2	53	0	16	0	4	12	1	9
Peak Hour Factor	0.25	0.81	0.67	0.50	0.89	0.92	0.80	0.92	0.50	0.50	0.25	0.75
Hourly flow rate (vph)	0	40	12	4	60	0	20	0	8	24	4	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	51	64	28	40
Volume Left (vph)	0	4	20	24
Volume Right (vph)	12	0	8	12
Hadj (s)	-0.10	0.01	-0.03	0.02
Departure Headway (s)	4.0	4.1	4.2	4.2
Degree Utilization, x	0.06	0.07	0.03	0.05
Capacity (veh/h)	874	856	831	831
Control Delay (s)	7.3	7.4	7.3	7.4
Approach Delay (s)	7.3	7.4	7.3	7.4
Approach LOS	A	A	A	A

Intersection Summary

Delay	7.4
HCM Level of Service	A
Intersection Capacity Utilization	17.5%
Analysis Period (min)	15
ICU Level of Service	A

2011 Existing Conditions
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

PM Peak Hour
 10/11/2011

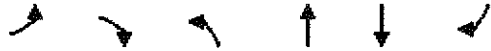
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	0	56	15	0	17	18	573	0	0	573	31
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.73	0.92	0.74	0.63	0.92	0.61	0.64	0.92	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	79	0	76	24	0	28	28	623	0	0	623	40
Pedestrians					61			9			6	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					5			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.76	0.76	0.76	0.76	0.76		0.76					
vC, conflicting volume	1044	1383	652	1467	1403	378	663			684		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	904	1347	390	1457	1373	378	404			684		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	50	100	84	54	100	95	97			100		
cM capacity (veh/h)	160	105	466	52	101	590	891			859		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1
Volume Total	79	76	52	236	415	663
Volume Left	79	0	24	28	0	0
Volume Right	0	76	28	0	0	40
cSH	160	466	102	891	1700	1700
Volume to Capacity	0.50	0.16	0.51	0.03	0.24	0.39
Queue Length 95th (ft)	48	11	45	2	0	0
Control Delay (s)	48.0	14.2	72.1	1.4	0.0	0.0
Lane LOS	E	B	F	A		
Approach Delay (s)	31.5		72.1	0.5		0.0
Approach LOS	D		F			

Intersection Summary		
Average Delay		5.9
Intersection Capacity Utilization	53.9%	ICU Level of Service
Analysis Period (min)		15
		A

2011 Existing Conditions
 15: ED Dwy/Employee Garage & S. Aiken Ave

PM Peak Hour
 10/11/2011



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	90	45	8	501	624	22
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.83	0.80	0.50	0.92	0.92	0.69
Hourly flow rate (vph)	108	56	16	545	678	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	998	694	710			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	878	500	520			
tC, single (s)	6.8	7.0	4.4			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	52	86	98			
cM capacity (veh/h)	227	405	781			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	108	56	198	363	710
Volume Left	108	0	16	0	0
Volume Right	0	56	0	0	32
cSH	227	405	781	1700	1700
Volume to Capacity	0.48	0.14	0.02	0.21	0.42
Queue Length 95th (ft)	47	10	1	0	0
Control Delay (s)	34.6	15.3	1.0	0.0	0.0
Lane LOS	D	C	A		
Approach Delay (s)	28.0		0.3		0.0
Approach LOS	D				

Intersection Summary					
Average Delay			3.3		
Intersection Capacity Utilization			45.8%	ICU Level of Service	A
Analysis Period (min)			15		

2011 Existing Conditions
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

PM Peak Hour
 10/11/2011



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑	
Volume (veh/h)	0	24	0	509	671	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.68	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	553	729	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				640	676	
pX, platoon unblocked	0.85	0.85	0.85			
vC, conflicting volume	1006	729	729			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	916	590	590			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	230	386	831			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	35	277	277	729
Volume Left	0	0	0	0
Volume Right	35	0	0	0
cSH	386	1700	1700	1700
Volume to Capacity	0.09	0.16	0.16	0.43
Queue Length 95th (ft)	6	0	0	0
Control Delay (s)	15.3	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	15.3	0.0		0.0
Approach LOS	C			


















Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		45.3%	ICU Level of Service
Analysis Period (min)		15	A

APPENDIX E

2021 Base Conditions Capacity Analysis

HCM Signalized Intersection Capacity Analysis
 1: Baum Blvd (S.R. 0400) & S. Millvale Ave

















2021 Base
 10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	790	88	129	1100	25	59	66	49	44	159	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.99		1.00	0.98	
Flpb, ped/bikes		1.00			1.00			0.99		0.98	1.00	
Frt		0.98			1.00			0.97		1.00	0.96	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3229			3243			1768		1628	1748	
Flt Permitted		0.78			0.66			0.45		0.50	1.00	
Satd. Flow (perm)		2528			2168			815		852	1748	
Peak-hour factor, PHF	0.59	0.91	0.63	0.84	0.93	0.72	0.86	0.66	0.85	0.73	0.78	0.66
Adj. Flow (vph)	47	868	140	154	1183	35	69	100	58	60	204	82
RTOR Reduction (vph)	0	15	0	0	2	0	0	15	0	0	18	0
Lane Group Flow (vph)	0	1040	0	0	1370	0	0	212	0	60	268	0
Confl. Peds. (#/hr)	14		9	9		14	39		19	19		39
Heavy Vehicles (%)	0%	2%	4%	5%	2%	0%	2%	5%	5%	5%	2%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		53.0			42.0			16.0		16.0		16.0
Effective Green, g (s)		53.0			42.0			16.0		16.0		16.0
Actuated g/C Ratio		0.66			0.52			0.20		0.20		0.20
Clearance Time (s)		6.0			6.0			5.0		5.0		5.0
Lane Grp Cap (vph)		1745			1138			163		170		350
v/s Ratio Prot		c0.06										0.15
v/s Ratio Perm		0.34			c0.63			c0.26		0.07		
v/c Ratio		0.60			1.20			1.30		0.35		0.76
Uniform Delay, d1		7.5			19.0			32.0		27.5		30.2
Progression Factor		1.00			0.72			1.00		0.66		0.66
Incremental Delay, d2		1.5			92.4			172.2		5.6		14.5
Delay (s)		9.0			106.0			204.2		23.8		34.4
Level of Service		A			F			F		C		C
Approach Delay (s)		9.0			106.0			204.2				32.6
Approach LOS		A			F			F				C

Intersection Summary			
HCM Average Control Delay	70.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Base
 10/11/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	663	128	179	1051	25	201	36	67	2	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	11	15	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.98			0.99	
Frt		0.97			1.00			0.97			0.97	
Flt Protected		1.00			0.99			0.97			0.98	
Satd. Flow (prot)		3217			3153			1858			1929	
Flt Permitted		0.90			0.60			0.80			0.87	
Satd. Flow (perm)		2889			1920			1526			1715	
Peak-hour factor, PHF	0.80	0.94	0.82	0.87	0.95	0.82	0.87	0.85	0.79	0.25	0.50	0.25
Adj. Flow (vph)	21	705	156	206	1106	30	231	42	85	8	4	4
RTOR Reduction (vph)	0	23	0	0	2	0	0	14	0	0	3	0
Lane Group Flow (vph)	0	859	0	0	1340	0	0	344	0	0	13	0
Confl. Peds. (#/hr)	13		23	23		13	20		23	23		20
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	3%	2%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.0			52.0			17.0			17.0	
Effective Green, g (s)		42.0			52.0			17.0			17.0	
Actuated g/C Ratio		0.52			0.65			0.21			0.21	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1517			1356			324			364	
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.30			c0.56			c0.23			0.01	
v/c Ratio		0.57			0.99			1.06			0.04	
Uniform Delay, d1		12.8			13.7			31.5			25.0	
Progression Factor		0.63			0.32			0.60			1.00	
Incremental Delay, d2		1.2			17.4			53.3			0.2	
Delay (s)		9.2			21.8			72.2			25.2	
Level of Service		A			C			E			C	
Approach Delay (s)		9.2			21.8			72.2			25.2	
Approach LOS		A			C			E			C	

Intersection Summary

HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 3: Baum Blvd (S.R. 0400) & Cypress St

2021 Base
 10/11/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	635	75	90	1232	13	24	14	23	9	38	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	15	11	8	15	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.98	
Ftpb, ped/bikes		1.00			1.00			0.98			0.99	
Frt		0.98			1.00			0.95			0.97	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3211			3305			1846			1906	
Flt Permitted		0.86			0.78			0.84			0.92	
Satd. Flow (perm)		2759			2583			1581			1772	
Peak-hour factor, PHF	0.46	0.92	0.78	0.77	0.95	0.75	0.69	0.63	0.63	0.40	0.69	0.75
Adj. Flow (vph)	30	690	96	117	1297	17	35	22	37	22	55	25
RTOR Reduction (vph)	0	13	0	0	1	0	0	29	0	0	14	0
Lane Group Flow (vph)	0	803	0	0	1430	0	0	65	0	0	88	0
Confl. Peds. (#/hr)	13		13	13		13	26		12	12		26
Heavy Vehicles (%)	0%	2%	3%	0%	2%	0%	0%	0%	0%	13%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		60.0			60.0			9.0			9.0	
Effective Green, g (s)		60.0			60.0			9.0			9.0	
Actuated g/C Ratio		0.75			0.75			0.11			0.11	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		2069			1937			178			199	
v/s Ratio Prot												
v/s Ratio Perm		0.29			0.55			0.04			0.05	
v/c Ratio		0.39			0.74			0.36			0.44	
Uniform Delay, d1		3.5			5.6			32.8			33.2	
Progression Factor		1.79			0.61			0.94			1.00	
Incremental Delay, d2		0.4			0.2			4.6			6.9	
Delay (s)		6.7			3.6			35.5			40.1	
Level of Service		A			A			D			D	
Approach Delay (s)		6.7			3.6			35.5			40.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Base
 10/11/2011

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations												
Volume (vph)	19	51	469	110	90	1132	174	43	131	305	67	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.99			1.00	0.99		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.97			0.97			1.00	0.96		
Fit Protected			0.99			1.00			0.95	1.00		
Satd. Flow (prot)			3267			3212			1732	1764		
Fit Permitted			0.58			0.78			0.26	1.00		
Satd. Flow (perm)			1892			2531			467	1764		
Peak-hour factor, PHF	0.71	0.81	0.85	0.80	0.76	0.95	0.87	0.42	0.92	0.98	0.63	0.56
Adj. Flow (vph)	27	63	552	138	118	1192	200	102	142	311	106	43
RTOR Reduction (vph)	0	0	23	0	0	6	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	757	0	0	1606	0	0	142	417	0	0
Confl. Peds. (#/hr)	5	18		18	18		5	18	19		18	18
Heavy Vehicles (%)	0%	0%	2%	0%	6%	1%	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm			Perm				Perm			Perm
Protected Phases			2			6				8		
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			47.0			47.0			23.0	23.0		
Effective Green, g (s)			47.0			47.0			23.0	23.0		
Actuated g/C Ratio			0.59			0.59			0.29	0.29		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1112			1487			134	507		
v/s Ratio Prot										0.24		
v/s Ratio Perm			0.40			0.63			0.30			
v/c Ratio			0.68			1.08			1.06	0.82		
Uniform Delay, d1			11.3			16.5			28.5	26.6		
Progression Factor			0.59			1.00			0.90	0.90		
Incremental Delay, d2			3.2			48.2			71.9	7.6		
Delay (s)			9.8			64.7			97.7	31.4		
Level of Service			A			E			F	C		
Approach Delay (s)			9.8			64.7				48.3		
Approach LOS			A			E				D		

Intersection Summary

HCM Average Control Delay	56.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	113.6%	ICU Level of Service	H
Analysis Period (min)	15		

d1 Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Base
 10/11/2011



Movement	SBL	SBT	SBR
Lane Configurations		←T→	
Volume (vph)	111	357	66
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		1.00	
Fipb, ped/bikes		0.99	
Frt		0.98	
Flt Protected		0.99	
Satd. Flow (prot)		3434	
Flt Permitted		0.57	
Satd. Flow (perm)		1976	
Peak-hour factor, PHF	0.79	0.95	0.72
Adj. Flow (vph)	141	376	92
RTOR Reduction (vph)	0	16	0
Lane Group Flow (vph)	0	636	0
Confl. Peds. (#/hr)	58		19
Heavy Vehicles (%)	2%	2%	0%
Turn Type	Perm		
Protected Phases		4	
Permitted Phases	4		
Actuated Green, G (s)		23.0	
Effective Green, g (s)		23.0	
Actuated g/C Ratio		0.29	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		568	
v/s Ratio Prot			
v/s Ratio Perm		c0.32	
v/c Ratio		1.24dl	
Uniform Delay, d1		28.5	
Progression Factor		0.92	
Incremental Delay, d2		72.8	
Delay (s)		99.1	
Level of Service		F	
Approach Delay (s)		99.1	
Approach LOS		F	
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Base

10/11/2011















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔			↔↔	
Volume (vph)	12	576	0	0	1359	10	4	18	58	35	0	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	10	10	12	12	12	12	12	12
Grade (%)		-1%			4%			0%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			1.00			0.91			0.91	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		3286			3233			1726			1627	
Flt Permitted		0.90			1.00			0.97			0.86	
Satd. Flow (perm)		2951			3233			1688			1429	
Peak-hour factor, PHF	0.69	0.85	0.92	0.92	0.92	0.75	0.50	0.61	0.81	0.60	0.92	0.89
Adj. Flow (vph)	17	678	0	0	1477	13	8	30	72	58	0	113
RTOR Reduction (vph)	0	0	0	0	1	0	0	58	0	0	45	0
Lane Group Flow (vph)	0	695	0	0	1489	0	0	52	0	0	126	0
Confl. Peds. (#/hr)	16					16				25		15
Heavy Vehicles (%)	0%	3%	2%	2%	2%	0%	0%	0%	0%	0%	2%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		57.0			57.0			16.0			16.0	
Effective Green, g (s)		57.0			57.0			16.0			16.0	
Actuated g/C Ratio		0.68			0.68			0.19			0.19	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		2002			2194			322			272	
v/s Ratio Prot					0.46						0.09	
v/s Ratio Perm		0.24						0.03				
v/c Ratio		0.35			0.68			0.16			0.46	
Uniform Delay, d1		5.7			8.0			28.4			30.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			1.7			1.1			5.6	
Delay (s)		6.2			9.8			29.5			35.8	
Level of Service		A			A			C			D	
Approach Delay (s)		6.2			9.8			29.5			35.8	
Approach LOS		A			A			C			D	

Intersection Summary

HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Centre Ave & Morewood Ave

2021 Base
10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	28	423	44	59	440	44	30	270	109	34	213	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	11	11	11
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.96			0.96	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		1743			1749			1638			1714	
Flt Permitted		0.95			0.89			0.93			0.87	
Satd. Flow (perm)		1656			1568			1523			1505	
Peak-hour factor, PHF	0.89	0.87	0.85	0.79	0.82	0.81	0.68	0.94	0.85	0.66	0.84	0.77
Adj. Flow (vph)	31	486	52	75	537	54	44	287	128	52	254	109
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	569	0	0	666	0	0	459	0	0	415	0
Confl. Peds. (#/hr)	23		31	31		23	15		31	31		15
Heavy Vehicles (%)	0%	8%	12%	4%	6%	0%	7%	2%	5%	10%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.0			42.0			28.0			28.0	
Effective Green, g (s)		42.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.52			0.52			0.35			0.35	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		869			823			533			527	
v/s Ratio Prot												
v/s Ratio Perm		0.34			0.42			0.30			0.28	
v/c Ratio		0.65			0.81			0.86			0.79	
Uniform Delay, d1		13.8			15.7			24.2			23.3	
Progression Factor		1.00			0.94			1.00			0.55	
Incremental Delay, d2		3.8			5.5			16.6			7.9	
Delay (s)		17.6			20.2			40.8			20.6	
Level of Service		B			C			D			C	
Approach Delay (s)		17.6			20.2			40.8			20.6	
Approach LOS		B			C			D			C	

Intersection Summary

HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Centre Ave & Cypress St

2021 Base
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕	↗		↕	
Volume (vph)	31	378	94	143	469	29	29	19	16	26	105	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frbp, ped/bikes		0.99			1.00			1.00	0.90		0.97	
Flpb, ped/bikes		1.00			1.00			0.98	1.00		0.99	
Frt		0.97			0.99			1.00	0.85		0.95	
Flt Protected		1.00			0.99			0.97	1.00		0.99	
Satd. Flow (prot)		1656			1812			1666	1478		1674	
Flt Permitted		0.93			0.78			0.66	1.00		0.93	
Satd. Flow (perm)		1538			1425			1133	1478		1568	
Peak-hour factor, PHF	0.78	0.85	0.84	0.92	0.85	0.75	0.73	0.68	0.50	0.60	0.94	0.82
Adj. Flow (vph)	40	445	112	155	552	39	40	28	32	43	112	82
RTOR Reduction (vph)	0	10	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	587	0	0	744	0	0	68	32	0	237	0
Confl. Peds. (#/hr)	51		56	56		51	28		33	33		28
Heavy Vehicles (%)	0%	10%	5%	1%	5%	0%	17%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		52.5			52.5			16.5	16.5		16.5	
Effective Green, g (s)		52.5			52.5			16.5	16.5		16.5	
Actuated g/C Ratio		0.66			0.66			0.21	0.21		0.21	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		1009			935			234	305		323	
v/s Ratio Prot												
v/s Ratio Perm		0.38			c0.52			0.06	0.02		c0.15	
v/c Ratio		0.58			0.80			0.29	0.10		0.73	
Uniform Delay, d1		7.6			9.9			26.8	25.8		29.7	
Progression Factor		0.92			0.73			1.00	1.00		1.03	
Incremental Delay, d2		1.7			3.1			3.1	0.7		11.7	
Delay (s)		8.7			10.2			29.9	26.4		42.3	
Level of Service		A			B			C	C		D	
Approach Delay (s)		8.7			10.2			28.8			42.3	
Approach LOS		A			B			C			D	



















Intersection Summary

HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
8: Centre Ave & Liberty Ave

2021 Base

10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	277	95	98	418	97	144	427	62	78	363	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.96			0.99		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		1.00			0.99		0.97	1.00		0.96	1.00	
Frt		0.97			0.98		1.00	0.98		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1647			1714		1689	1810		1720	1801	
Flt Permitted		0.82			0.82		0.25	1.00		0.19	1.00	
Satd. Flow (perm)		1356			1411		439	1810		343	1801	
Peak-hour factor, PHF	0.81	0.86	0.79	0.87	0.92	0.86	0.95	0.89	0.79	0.85	0.90	0.83
Adj. Flow (vph)	78	322	120	113	454	113	152	480	78	92	403	104
RTOR Reduction (vph)	0	13	0	0	9	0	0	7	0	0	11	0
Lane Group Flow (vph)	0	507	0	0	671	0	152	551	0	92	496	0
Confl. Peds. (#/hr)	60		132	132		60	53		94	94		53
Heavy Vehicles (%)	17%	8%	4%	1%	5%	3%	1%	1%	2%	2%	0%	9%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		39.0			39.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		39.0			39.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.49			0.49		0.36	0.36		0.36	0.36	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		661			688		159	656		124	653	
v/s Ratio Prot								0.30				0.28
v/s Ratio Perm		0.37			0.48		0.35			0.27		
v/c Ratio		0.77			0.98		0.96	0.84		0.74	0.76	
Uniform Delay, d1		16.8			20.0		24.9	23.4		22.2	22.4	
Progression Factor		0.98			1.00		1.00	1.00		0.89	0.87	
Incremental Delay, d2		7.0			28.9		60.6	12.3		11.3	2.5	
Delay (s)		23.4			48.9		85.5	35.7		31.1	21.9	
Level of Service		C			D		F	D		C	C	
Approach Delay (s)		23.4			48.9			46.3			23.4	
Approach LOS		C			D			D			C	

Intersection Summary

HCM Average Control Delay	36.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 9: Liberty Ave & Millvale Ave

2021 Base
 10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	45	418	53	25	458	31	63	51	28	105	133	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.94	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.96	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.95	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1973			2000		1387	1508		1610	1588	
Flt Permitted		0.90			0.96		0.47	1.00		0.68	1.00	
Satd. Flow (perm)		1793			1924		680	1508		1151	1588	
Peak-hour factor, PHF	0.81	0.94	0.82	0.82	0.89	0.66	0.91	0.65	0.65	0.66	0.77	0.60
Adj. Flow (vph)	56	445	65	30	515	47	69	78	43	159	173	95
RTOR Reduction (vph)	0	6	0	0	4	0	0	25	0	0	25	0
Lane Group Flow (vph)	0	560	0	0	588	0	69	96	0	159	243	0
Confl. Peds. (#/hr)	87		46	46		87	80		27	27		80
Heavy Vehicles (%)	0%	3%	8%	0%	2%	0%	5%	2%	4%	2%	1%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.59			0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1053			1130		196	434		331	457	
v/s Ratio Prot								0.06			c0.15	
v/s Ratio Perm		c0.31			0.31		0.10			0.14		
v/c Ratio		0.53			0.52		0.35	0.22		0.48	0.53	
Uniform Delay, d1		9.9			9.8		22.6	21.7		23.6	24.0	
Progression Factor		1.00			1.49		0.79	0.77		1.00	1.00	
Incremental Delay, d2		1.9			0.9		4.8	1.1		4.9	4.4	
Delay (s)		11.8			15.5		22.7	17.8		28.5	28.4	
Level of Service		B			B		C	B		C	C	
Approach Delay (s)		11.8			15.5			19.6			28.4	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
10: Ellsworth Ave & S. Aiken Ave

2021 Base
10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↘		↗	↘	
Volume (vph)	62	156	13	13	413	170	71	524	12	39	241	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	1.00		1.00	0.97	
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1774		1750	1871		1788	1780	
Flt Permitted		0.67			0.99		0.40	1.00		0.20	1.00	
Satd. Flow (perm)		1126			1752		745	1871		376	1780	
Peak-hour factor, PHF	0.69	0.92	0.60	0.60	0.85	0.85	0.84	0.96	0.69	0.46	0.78	0.78
Adj. Flow (vph)	90	170	22	22	486	200	85	546	17	85	309	76
RTOR Reduction (vph)	0	5	0	0	23	0	0	2	0	0	15	0
Lane Group Flow (vph)	0	277	0	0	685	0	85	561	0	85	370	0
Confl. Peds. (#/hr)	12		11	11		12	9		10	10		9
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	3%	1%	18%	0%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		28.0			28.0		22.0	22.0		22.0	22.0	
Effective Green, g (s)		28.0			28.0		22.0	22.0		22.0	22.0	
Actuated g/C Ratio		0.47			0.47		0.37	0.37		0.37	0.37	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		525			818		273	686		138	653	
v/s Ratio Prot								c0.30			0.21	
v/s Ratio Perm		0.25			c0.39		0.11			0.23		
v/c Ratio		0.53			0.84		0.31	0.82		0.62	0.57	
Uniform Delay, d1		11.3			14.0		13.6	17.2		15.5	15.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.8			9.9		3.0	10.5		18.9	3.5	
Delay (s)		15.1			23.9		16.5	27.6		34.4	18.7	
Level of Service		B			C		B	C		C	B	
Approach Delay (s)		15.1			23.9			26.2			21.6	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: Cypress St & Millvale Ave

2021 Base
10/11/2011













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	14	6	35	12	28	1	117	31	11	185	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.95			0.97			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1575			1512			1577			1700	
Flt Permitted		0.98			0.88			1.00			0.97	
Satd. Flow (perm)		1545			1352			1572			1652	
Peak-hour factor, PHF	0.25	0.69	0.50	0.80	0.50	0.72	0.25	0.63	0.66	0.50	0.75	0.50
Adj. Flow (vph)	4	20	12	44	24	39	4	186	47	22	247	4
RTOR Reduction (vph)	0	8	0	0	26	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	28	0	0	81	0	0	226	0	0	273	0
Confl. Peds. (#/hr)	2		2	2		2	39		14	14		39
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0			44.0			44.0	
Effective Green, g (s)		24.0			24.0			44.0			44.0	
Actuated g/C Ratio		0.30			0.30			0.55			0.55	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		464			406			865			909	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.06			0.14			0.16	
v/c Ratio		0.06			0.20			0.26			0.30	
Uniform Delay, d1		20.0			20.8			9.5			9.7	
Progression Factor		1.00			1.00			0.95			0.81	
Incremental Delay, d2		0.2			1.1			0.7			0.7	
Delay (s)		20.2			22.0			9.7			8.6	
Level of Service		C			C			A			A	
Approach Delay (s)		20.2			22.0			9.7			8.6	
Approach LOS		C			C			A			A	

Intersection Summary

HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 11: Morewood Ave & S. Millvale Ave

2021 Base
 10/11/2011

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	3	0	23	12	4	41	8	100	0	0	276	2
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.75	0.92	0.61	0.69	0.50	0.89	0.50	0.94	0.92	0.92	0.97	0.25
Hourly flow rate (vph)	4	0	38	17	8	46	16	106	0	0	285	8
Pedestrians		38			19			6			8	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	523	484	333	490	488	133	331			125		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	523	484	333	490	488	133	331			125		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	99	100	95	96	98	95	99			100		
cM capacity (veh/h)	403	456	690	433	421	891	1078			1446		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	71	122	293
Volume Left	4	17	16	0
Volume Right	38	46	0	8
cSH	646	645	1078	1700
Volume to Capacity	0.06	0.11	0.01	0.17
Queue Length 95th (ft)	4	7	1	0
Control Delay (s)	11.0	11.3	1.2	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.0	11.3	1.2	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization	29.3%		ICU Level of Service
Analysis Period (min)	15		A

HCM Unsignalized Intersection Capacity Analysis
 13: Cypress St & Gross St

2021 Base
 10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	34	11	4	34	0	10	0	3	11	11	2
Peak Hour Factor	0.92	0.50	0.50	1.00	0.66	0.92	0.75	0.92	0.75	0.63	0.83	0.50
Hourly flow rate (vph)	0	68	22	4	52	0	13	0	4	17	13	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	90	56	17	35
Volume Left (vph)	0	4	13	17
Volume Right (vph)	22	0	4	4
Hadj (s)	-0.15	0.01	0.02	0.03
Departure Headway (s)	3.9	4.1	4.3	4.3
Degree Utilization, x	0.10	0.06	0.02	0.04
Capacity (veh/h)	898	856	807	814
Control Delay (s)	7.3	7.4	7.3	7.4
Approach Delay (s)	7.3	7.4	7.3	7.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.4	
HCM Level of Service		A	
Intersection Capacity Utilization	16.8%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

2021 Base
 10/11/2011















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	29	0	31	17	0	25	80	563	0	0	398	94
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.60	0.92	0.78	0.80	0.92	0.86	0.80	0.94	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	48	0	40	21	0	29	100	599	0	0	433	121
Pedestrians					28			7			8	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					2			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	1029	1320	500	1367	1380	335	553			627		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	928	1281	283	1338	1354	335	348			627		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	70	100	93	72	100	95	90			100		
cM capacity (veh/h)	160	119	588	76	106	646	1005			929		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	88	50	300	399	553
Volume Left	48	21	100	0	0
Volume Right	40	29	0	0	121
cSH	238	155	1005	1700	1700
Volume to Capacity	0.37	0.33	0.10	0.23	0.33
Queue Length 95th (ft)	32	26	7	0	0
Control Delay (s)	28.7	39.1	3.7	0.0	0.0
Lane LOS	D	E	A		
Approach Delay (s)	28.7	39.1	1.6	0.0	
Approach LOS	D	E			

Intersection Summary		
Average Delay		4.0
Intersection Capacity Utilization	61.5%	ICU Level of Service
Analysis Period (min)		15
		B

HCM Unsignalized Intersection Capacity Analysis
 15: ED Dwy/Employee Garage & S. Aiken Ave

2021 Base
 10/11/2011

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Volume (veh/h)	19	16	69	627	375	74
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.59	0.57	0.78	0.94	0.92	0.88
Hourly flow rate (vph)	32	28	88	667	408	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked						
vC, conflicting volume	960	450	492			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	960	450	492			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	95	92			
cM capacity (veh/h)	229	562	1075			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	32	28	311	445	492	
Volume Left	32	0	88	0	0	
Volume Right	0	28	0	0	84	
cSH	229	562	1075	1700	1700	
Volume to Capacity	0.14	0.05	0.08	0.26	0.29	
Queue Length 95th (ft)	10	3	5	0	0	
Control Delay (s)	23.3	11.7	3.0	0.0	0.0	
Lane LOS	C	B	A			
Approach Delay (s)	17.9		1.3		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			56.9%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

2021 Base
 10/11/2011















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	
Volume (veh/h)	0	1	0	701	392	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.25	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	0	4	0	746	426	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				640	676	
pX, platoon unblocked						
vC, conflicting volume	799	426	426			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	799	426	426			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	323	582	1130			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	4	373	373	426
Volume Left	0	0	0	0
Volume Right	4	0	0	0
cSH	582	1700	1700	1700
Volume to Capacity	0.01	0.22	0.22	0.25
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	11.2	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.2	0.0		0.0
Approach LOS	B			

Intersection Summary				
Average Delay			0.0	
Intersection Capacity Utilization		30.6%	ICU Level of Service	A
Analysis Period (min)		15		

2021 Base Conditions
1: Baum Blvd (S.R. 0400) & S. Millvale Ave

PM Peak Hour
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←→			←→			↕		↙	↘	
Volume (vph)	75	1119	91	87	748	19	65	137	108	48	125	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.98		1.00	0.98	
Flpb, ped/bikes		1.00			1.00			0.99		0.98	1.00	
Frt		0.99			1.00			0.95		1.00	0.96	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3298			3269			1751		1598	1733	
Flt Permitted		0.74			0.60			0.77		0.34	1.00	
Satd. Flow (perm)		2442			1980			1363		564	1733	
Peak-hour factor, PHF	0.86	0.94	0.88	0.79	0.89	0.75	0.83	0.84	0.71	0.79	0.78	0.80
Adj. Flow (vph)	87	1190	103	110	840	25	78	163	152	61	160	61
RTOR Reduction (vph)	0	7	0	0	2	0	0	29	0	0	17	0
Lane Group Flow (vph)	0	1373	0	0	973	0	0	365	0	61	204	0
Confl. Peds. (#/hr)	11		18	18		11	61		34	34		61
Heavy Vehicles (%)	0%	1%	1%	4%	1%	6%	7%	3%	0%	7%	3%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		49.0			39.0			20.0		20.0	20.0	
Effective Green, g (s)		49.0			39.0			20.0		20.0	20.0	
Actuated g/C Ratio		0.61			0.49			0.25		0.25	0.25	
Clearance Time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Grp Cap (vph)		1571			965			341		141	433	
v/s Ratio Prot		c0.08									0.12	
v/s Ratio Perm		0.46			c0.49			c0.27		0.11		
v/c Ratio		0.87			1.01			1.07		0.43	0.47	
Uniform Delay, d1		12.9			20.5			30.0		25.2	25.5	
Progression Factor		1.00			0.70			1.00		1.01	1.03	
Incremental Delay, d2		7.1			19.5			68.2		9.4	3.6	
Delay (s)		20.0			33.8			98.2		34.8	29.9	
Level of Service		B			C			F		C	C	
Approach Delay (s)		20.0			33.8			98.2			31.0	
Approach LOS		B			C			F			C	

Intersection Summary

HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
2: Baum Blvd (S.R. 0400) & Morewood Ave

PM Peak Hour
10/11/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	15	981	176	110	693	21	141	57	162	18	23	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	11	15	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.98			0.99			0.94			0.97	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		3259			3146			1834			1952	
Flt Permitted		0.93			0.52			0.85			0.71	
Satd. Flow (perm)		3022			1655			1588			1426	
Peak-hour factor, PHF	0.70	0.90	0.93	0.84	0.85	0.48	0.77	0.70	0.83	0.47	0.75	0.63
Adj. Flow (vph)	21	1090	189	131	815	44	183	81	195	38	31	17
RTOR Reduction (vph)	0	17	0	0	4	0	0	33	0	0	11	0
Lane Group Flow (vph)	0	1283	0	0	986	0	0	426	0	0	75	0
Confl. Peds. (#/hr)	32		17	17		32	25		38	38		25
Heavy Vehicles (%)	0%	1%	1%	1%	1%	5%	1%	0%	1%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		38.0			48.0			21.0				21.0
Effective Green, g (s)		38.0			48.0			21.0				21.0
Actuated g/C Ratio		0.48			0.60			0.26				0.26
Clearance Time (s)		6.0			6.0			5.0				5.0
Lane Grp Cap (vph)		1435			1123			417				374
v/s Ratio Prot					c0.08							
v/s Ratio Perm		0.42			c0.45			c0.27				0.05
v/c Ratio		0.89			0.88			1.02				0.20
Uniform Delay, d1		19.2			13.5			29.5				23.0
Progression Factor		0.66			1.02			0.60				1.00
Incremental Delay, d2		4.2			8.6			37.4				1.2
Delay (s)		16.8			22.4			55.0				24.2
Level of Service		B			C			E				C
Approach Delay (s)		16.8			22.4			55.0				24.2
Approach LOS		B			C			E				C

Intersection Summary			
HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
3: Baum Blvd (S.R. 0400) & Cypress St

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1179	24	20	740	11	61	44	113	23	19	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	11	11	8	8	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			0.99			0.93			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3298			3319			1621			1458	
Flt Permitted		0.93			0.90			0.87			0.85	
Satd. Flow (perm)		3069			2980			1428			1252	
Peak-hour factor, PHF	0.40	0.91	0.69	0.90	0.85	0.36	0.74	0.89	0.84	0.58	0.47	0.46
Adj. Flow (vph)	22	1296	35	22	871	31	82	49	135	40	40	54
RTOR Reduction (vph)	0	2	0	0	3	0	0	41	0	0	30	0
Lane Group Flow (vph)	0	1351	0	0	921	0	0	225	0	0	104	0
Confl. Peds. (#/hr)	17		20	20		17	22		20	20		22
Heavy Vehicles (%)	0%	1%	5%	0%	1%	10%	0%	0%	0%	0%	6%	5%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		48.0			48.0			21.0			21.0	
Effective Green, g (s)		48.0			48.0			21.0			21.0	
Actuated g/C Ratio		0.60			0.60			0.26			0.26	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1841			1788			375			329	
v/s Ratio Prot												
v/s Ratio Perm		c0.44			0.31			c0.16			0.08	
v/c Ratio		0.73			0.51			0.60			0.32	
Uniform Delay, d1		11.4			9.3			25.8			23.7	
Progression Factor		0.79			0.38			0.94			1.00	
Incremental Delay, d2		1.2			0.1			5.6			2.5	
Delay (s)		10.2			3.6			29.8			26.2	
Level of Service		B			A			C			C	
Approach Delay (s)		10.2			3.6			29.8			26.2	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

PM Peak Hour
10/11/2011

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations												
Volume (vph)	60	80	980	131	62	664	157	51	85	342	99	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.97			1.00	0.96		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.98			0.96			1.00	0.96		
Flt Protected			0.99			1.00			0.95	1.00		
Satd. Flow (prot)			3313			3095			1737	1692		
Flt Permitted			0.53			0.66			0.25	1.00		
Satd. Flow (perm)			1757			2039			451	1692		
Peak-hour factor, PHF	0.86	0.68	0.93	0.82	0.80	0.88	0.83	0.67	0.77	0.83	0.58	0.75
Adj. Flow (vph)	70	118	1054	160	78	755	189	76	110	412	171	45
RTOR Reduction (vph)	0	0	12	0	0	7	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1390	0	0	1091	0	0	110	583	0	0
Confl. Peds. (#/hr)	29	61		17	17		29	61	41		61	61
Heavy Vehicles (%)	4%	0%	1%	0%	4%	2%	2%	0%	1%	2%	0%	0%
Turn Type	pm+pt	pm+pt			Perm				Perm			pm+pt
Protected Phases	5	5	2			6				8		7
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			43.0			35.0			20.0	20.0		
Effective Green, g (s)			43.0			35.0			20.0	20.0		
Actuated g/C Ratio			0.54			0.44			0.25	0.25		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1042			892			113	423		
v/s Ratio Prot			c0.08							c0.34		
v/s Ratio Perm			c0.63			0.54			0.24			
v/c Ratio			1.33			1.22			0.97	1.38		
Uniform Delay, d1			18.5			22.5			29.7	30.0		
Progression Factor			1.11			0.74			1.08	1.05		
Incremental Delay, d2			154.7			109.8			59.0	179.0		
Delay (s)			175.2			126.4			91.2	210.4		
Level of Service			F			F			F	F		
Approach Delay (s)			175.2			126.4				191.5		
Approach LOS			F			F				F		

Intersection Summary

HCM Average Control Delay	142.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	125.9%	ICU Level of Service	H
Analysis Period (min)	15		

d1 Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	SBL	SBT	SBR
Lane Configurations		↕↔	
Volume (vph)	181	438	66
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		1.00	
Flpb, ped/bikes		0.99	
Frt		0.98	
Flt Protected		0.98	
Satd. Flow (prot)		3494	
Flt Permitted		0.59	
Satd. Flow (perm)		2093	
Peak-hour factor, PHF	0.79	0.91	0.77
Adj. Flow (vph)	229	481	86
RTOR Reduction (vph)	0	11	0
Lane Group Flow (vph)	0	830	0
Confl. Peds. (#/hr)	68		41
Heavy Vehicles (%)	0%	1%	0%
Turn Type	pm+pt		
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)		27.0	
Effective Green, g (s)		27.0	
Actuated g/C Ratio		0.34	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		776	
v/s Ratio Prot		c0.05	
v/s Ratio Perm		0.31	
v/c Ratio		1.71dl	
Uniform Delay, d1		26.5	
Progression Factor		0.69	
Incremental Delay, d2		49.4	
Delay (s)		67.6	
Level of Service		E	
Approach Delay (s)		67.6	
Approach LOS		E	
Intersection Summary			

2021 Base Conditions
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

PM Peak Hour
10/11/2011















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔			↔↔	
Volume (vph)	12	1157	0	0	852	12	3	29	128	52	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	14	12	12	15	12
Grade (%)		-1%			4%			3%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.94			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.98	
Frt		1.00			1.00			0.90			0.92	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		3351			3222			1635			1774	
Flt Permitted		0.94			1.00			0.99			0.74	
Satd. Flow (perm)		3158			3222			1616			1335	
Peak-hour factor, PHF	0.92	0.98	0.92	0.92	0.94	0.46	0.38	0.75	0.88	0.68	0.92	0.82
Adj. Flow (vph)	13	1181	0	0	906	26	8	39	145	76	0	109
RTOR Reduction (vph)	0	0	0	0	3	0	0	59	0	0	65	0
Lane Group Flow (vph)	0	1194	0	0	929	0	0	133	0	0	120	0
Confl. Peds. (#/hr)	20		30	30		20	16		52	52		16
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	4%	4%	0%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		50.0			50.0			19.0			19.0	
Effective Green, g (s)		50.0			50.0			19.0			19.0	
Actuated g/C Ratio		0.62			0.62			0.24			0.24	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1974			2014			384			317	
v/s Ratio Prot					0.29							
v/s Ratio Perm		c0.38						0.08			c0.09	
v/c Ratio		0.60			0.46			0.35			0.38	
Uniform Delay, d1		9.0			7.9			25.3			25.6	
Progression Factor		0.32			1.00			1.24			1.00	
Incremental Delay, d2		0.1			0.8			1.0			3.4	
Delay (s)		3.1			8.7			32.4			29.0	
Level of Service		A			A			C			C	
Approach Delay (s)		3.1			8.7			32.4			29.0	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
6: Centre Ave & Morewood Ave

PM Peak Hour
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	74	552	74	93	395	59	31	289	94	40	283	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	15	10	11	15	11
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.99	
Fipb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.97			0.98	
Fit Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1800			1752			1997			2008	
Fit Permitted		0.86			0.75			0.93			0.78	
Satd. Flow (perm)		1565			1329			1860			1580	
Peak-hour factor, PHF	0.80	0.99	0.74	0.80	0.90	0.75	0.75	0.84	0.88	0.63	0.98	0.90
Adj. Flow (vph)	92	558	100	116	439	79	41	344	107	63	289	67
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	750	0	0	634	0	0	492	0	0	419	0
Confl. Peds. (#/hr)	36		81	81		36	40		34	34		40
Heavy Vehicles (%)	0%	3%	3%	4%	4%	0%	0%	0%	4%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		44.0			44.0			26.0			26.0	
Effective Green, g (s)		44.0			44.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.32			0.32	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		861			731			605			514	
v/s Ratio Prot												
v/s Ratio Perm		c0.48			0.48			0.26			c0.27	
v/c Ratio		0.87			0.87			0.81			0.82	
Uniform Delay, d1		15.5			15.5			24.8			24.8	
Progression Factor		1.00			0.75			1.00			0.87	
Incremental Delay, d2		11.7			11.8			11.4			9.6	
Delay (s)		27.3			23.4			36.2			31.1	
Level of Service		C			C			D			C	
Approach Delay (s)		27.3			23.4			36.2			31.1	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
7: Centre Ave & Cypress St

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Volume (vph)	57	635	19	11	398	53	71	95	92	28	15	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frbp, ped/bikes		1.00			0.99			1.00	0.86		0.96	
Flpb, ped/bikes		1.00			1.00			0.98	1.00		0.96	
Frt		1.00			0.98			1.00	0.85		0.94	
Flt Protected		1.00			1.00			0.98	1.00		0.98	
Satd. Flow (prot)		1794			1808			1779	1404		1551	
Flt Permitted		0.91			0.97			0.79	1.00		0.70	
Satd. Flow (perm)		1636			1763			1446	1404		1102	
Peak-hour factor, PHF	0.78	0.91	0.79	0.69	0.86	0.68	0.74	0.91	0.77	0.50	0.75	0.75
Adj. Flow (vph)	73	698	24	16	463	78	96	104	119	56	20	55
RTOR Reduction (vph)	0	1	0	0	7	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	794	0	0	550	0	0	200	119	0	131	0
Confl. Peds. (#/hr)	77		53	53		77	27		52	52		27
Heavy Vehicles (%)	0%	3%	11%	0%	4%	0%	7%	0%	0%	0%	20%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		52.5			52.5			16.5	16.5		16.5	
Effective Green, g (s)		52.5			52.5			16.5	16.5		16.5	
Actuated g/C Ratio		0.66			0.66			0.21	0.21		0.21	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		1074			1157			298	290		227	
v/s Ratio Prot												
v/s Ratio Perm		c0.48			0.31			c0.14	0.08		0.12	
v/c Ratio		0.74			0.48			0.67	0.41		0.58	
Uniform Delay, d1		9.2			6.9			29.3	27.5		28.6	
Progression Factor		0.67			0.97			1.00	1.00		0.96	
Incremental Delay, d2		2.7			0.5			11.4	4.3		9.6	
Delay (s)		8.9			7.2			40.7	31.8		37.1	
Level of Service		A			A			D	C		D	
Approach Delay (s)		8.9			7.2			37.4			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
8: Centre Ave & Liberty Ave

PM Peak Hour
10/11/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Volume (vph)	110	462	147	56	260	106	108	462	120	103	464	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.96			0.98		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00			0.99		0.98	1.00		0.96	1.00	
Frt		0.97			0.96		1.00	0.97		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1711			1678		1666	1803		1733	1828	
Flt Permitted		0.80			0.80		0.12	1.00		0.12	1.00	
Satd. Flow (perm)		1375			1347		219	1803		228	1828	
Peak-hour factor, PHF	0.91	0.98	0.79	0.80	0.83	0.75	0.94	0.85	0.97	0.78	0.83	0.59
Adj. Flow (vph)	121	471	186	70	313	141	115	544	124	132	559	114
RTOR Reduction (vph)	0	14	0	0	17	0	0	10	0	0	9	0
Lane Group Flow (vph)	0	764	0	0	508	0	115	658	0	132	664	0
Confl. Peds. (#/hr)	76		137	137		76	67		110	110		67
Heavy Vehicles (%)	8%	3%	2%	0%	7%	1%	3%	0%	0%	2%	0%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		36.0			36.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		36.0			36.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.45			0.45		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		619			606		88	721		91	731	
v/s Ratio Prot								0.36			0.36	
v/s Ratio Perm		c0.56			0.38		0.52			c0.58		
v/c Ratio		1.23			0.84		1.31	0.91		1.45	0.91	
Uniform Delay, d1		22.0			19.4		24.0	22.7		24.0	22.6	
Progression Factor		0.84			1.00		1.00	1.00		0.56	0.54	
Incremental Delay, d2		115.3			13.0		198.6	17.9		208.3	2.1	
Delay (s)		133.7			32.4		222.6	40.6		221.9	14.3	
Level of Service		F			C		F	D		F	B	
Approach Delay (s)		133.7			32.4			67.3			48.4	
Approach LOS		F			C			E			D	

Intersection Summary

HCM Average Control Delay	73.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
9: Liberty Ave & Millvale Ave

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	37	591	43	12	474	18	135	229	50	38	52	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			1.00		1.00	0.98		1.00	0.93	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.96	1.00	
Frt		0.99			0.99		1.00	0.98		1.00	0.92	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2013			2014		1394	1608		1638	1528	
Flt Permitted		0.94			0.95		0.67	1.00		0.38	1.00	
Satd. Flow (perm)		1903			1920		989	1608		655	1528	
Peak-hour factor, PHF	0.77	0.89	0.83	0.46	0.95	0.71	0.89	0.80	0.89	0.88	0.86	0.80
Adj. Flow (vph)	48	664	52	26	499	25	152	286	56	43	60	69
RTOR Reduction (vph)	0	4	0	0	2	0	0	9	0	0	47	0
Lane Group Flow (vph)	0	761	0	0	548	0	152	333	0	43	82	0
Confl. Peds. (#/hr)	102		65	65		102	67		50	50		67
Heavy Vehicles (%)	0%	2%	8%	0%	2%	0%	4%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		45.0			45.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)		45.0			45.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio		0.56			0.56		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1070			1080		309	503		205	478	
v/s Ratio Prot								c0.21			0.05	
v/s Ratio Perm		c0.40			0.29		0.15			0.07		
v/c Ratio		0.71			0.51		0.49	0.66		0.21	0.17	
Uniform Delay, d1		12.8			10.7		22.3	23.8		20.2	20.0	
Progression Factor		1.00			1.10		0.61	0.60		1.00	1.00	
Incremental Delay, d2		4.0			0.2		5.1	6.2		2.3	0.8	
Delay (s)		16.8			11.9		18.6	20.4		22.5	20.7	
Level of Service		B			B		B	C		C	C	
Approach Delay (s)		16.8			11.9			19.9			21.2	
Approach LOS		B			B			B			C	

Intersection Summary		
HCM Average Control Delay	16.6	HCM Level of Service B
HCM Volume to Capacity ratio	0.69	
Actuated Cycle Length (s)	80.0	Sum of lost time (s) 10.0
Intersection Capacity Utilization	85.6%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

2021 Base Conditions
10: Ellsworth Ave & S. Aiken Ave

PM Peak Hour
10/11/2011













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	99	411	48	14	211	106	49	336	21	156	520	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	11	11	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.97	1.00	
Frt		0.99			0.96		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1694			1750		1795	1817		1651	1761	
Flt Permitted		0.84			0.95		0.17	1.00		0.34	1.00	
Satd. Flow (perm)		1434			1666		329	1817		595	1761	
Peak-hour factor, PHF	0.73	0.90	0.70	0.65	0.91	0.93	0.89	0.80	0.71	0.92	0.91	0.89
Adj. Flow (vph)	136	457	69	22	232	114	55	420	30	170	571	84
RTOR Reduction (vph)	0	7	0	0	27	0	0	4	0	0	9	0
Lane Group Flow (vph)	0	655	0	0	341	0	55	446	0	170	646	0
Confl. Peds. (#/hr)	17		46	46		17	30		51	51		30
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	2%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.45			0.45		0.38	0.38		0.38	0.38	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		645			750		126	697		228	675	
v/s Ratio Prot								0.25			c0.37	
v/s Ratio Perm		c0.46			0.20		0.17			0.29		
v/c Ratio		1.02			0.45		0.44	0.64		0.75	0.96	
Uniform Delay, d1		16.5			11.4		13.7	15.1		16.0	18.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		39.3			2.0		10.6	4.5		19.7	25.7	
Delay (s)		55.8			13.4		24.3	19.6		35.7	43.7	
Level of Service		E			B		C	B		D	D	
Approach Delay (s)		55.8			13.4			20.1			42.1	
Approach LOS		E			B			C			D	

Intersection Summary

HCM Average Control Delay	36.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
12: Cypress St & Millvale Ave

PM Peak Hour
10/11/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	4	14	10	37	20	40	4	360	21	12	102	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.96			0.95			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1576			1487			1641			1661	
Flt Permitted		0.95			0.88			1.00			0.91	
Satd. Flow (perm)		1512			1338			1637			1519	
Peak-hour factor, PHF	0.50	0.55	0.75	0.77	0.53	0.77	0.50	0.88	0.59	0.55	0.98	0.25
Adj. Flow (vph)	8	25	13	48	38	52	8	409	36	22	104	4
RTOR Reduction (vph)	0	9	0	0	28	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	37	0	0	110	0	0	449	0	0	129	0
Confl. Peds. (#/hr)	9		6	6		9	45		44	44		45
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	4%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.0			22.0			46.0			46.0	
Effective Green, g (s)		22.0			22.0			46.0			46.0	
Actuated g/C Ratio		0.28			0.28			0.58			0.58	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		416			368			941			873	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.08			0.27			0.08	
v/c Ratio		0.09			0.30			0.48			0.15	
Uniform Delay, d1		21.5			22.9			10.0			7.9	
Progression Factor		1.00			1.00			1.14			0.87	
Incremental Delay, d2		0.4			2.1			1.6			0.3	
Delay (s)		22.0			25.0			13.0			7.2	
Level of Service		C			C			B			A	
Approach Delay (s)		22.0			25.0			13.0			7.2	
Approach LOS		C			C			B			A	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2021 Base Conditions
11: Morewood Ave & S. Millvale Ave

PM Peak Hour
10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Volume (veh/h)	17	0	11	20	3	103	16	360	0	0	201	8
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.50	0.92	0.50	0.71	0.38	0.82	0.55	0.81	0.92	0.92	0.83	0.25
Hourly flow rate (vph)	34	0	22	28	8	126	29	444	0	0	242	32
Pedestrians		40			30			11			3	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			3			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	933	831	309	824	847	477	314			474		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	933	831	309	824	847	477	314			474		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	80	100	97	89	97	78	98			100		
cM capacity (veh/h)	172	283	708	248	276	573	1219			1066		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	162	474	274
Volume Left	34	28	29	0
Volume Right	22	126	0	32
cSH	245	447	1219	1700
Volume to Capacity	0.23	0.36	0.02	0.16
Queue Length 95th (ft)	17	32	1	0
Control Delay (s)	24.0	17.5	0.7	0.0
Lane LOS	C	C	A	
Approach Delay (s)	24.0	17.5	0.7	0.0
Approach LOS	C	C		

Intersection Summary			
Average Delay		4.7	
Intersection Capacity Utilization		47.0%	ICU Level of Service
Analysis Period (min)		15	A

2021 Base Conditions
13: Cypress St & Gross St

PM Peak Hour
10/11/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗			↖			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	33	9	2	56	0	17	0	4	13	1	10
Peak Hour Factor	0.25	0.81	0.67	0.50	0.89	0.92	0.80	0.92	0.50	0.50	0.25	0.75
Hourly flow rate (vph)	0	41	13	4	63	0	21	0	8	26	4	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	54	67	29	43
Volume Left (vph)	0	4	21	26
Volume Right (vph)	13	0	8	13
Hadj (s)	-0.11	0.01	-0.02	0.02
Departure Headway (s)	4.0	4.1	4.2	4.2
Degree Utilization, x	0.06	0.08	0.03	0.05
Capacity (veh/h)	873	852	825	828
Control Delay (s)	7.3	7.5	7.3	7.4
Approach Delay (s)	7.3	7.5	7.3	7.4
Approach LOS	A	A	A	A

Intersection Summary

Delay		7.4		
HCM Level of Service		A		
Intersection Capacity Utilization		17.5%	ICU Level of Service	A
Analysis Period (min)		15		

2021 Base Conditions
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

PM Peak Hour
 10/11/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	0	56	16	0	18	18	638	0	0	632	31
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.73	0.92	0.74	0.63	0.92	0.61	0.64	0.92	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	79	0	76	25	0	30	28	693	0	0	687	40
Pedestrians					61			9			6	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					5			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.69	0.69	0.69	0.69	0.69		0.69					
vC, conflicting volume	1145	1518	716	1602	1537	414	727			754		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	990	1525	371	1647	1554	414	387			754		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	36	100	83	24	100	95	97			100		
cM capacity (veh/h)	125	74	435	33	71	559	822			808		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1
Volume Total	79	76	55	259	462	727
Volume Left	79	0	25	28	0	0
Volume Right	0	76	30	0	0	40
cSH	125	435	68	822	1700	1700
Volume to Capacity	0.64	0.17	0.81	0.03	0.27	0.43
Queue Length 95th (ft)	66	12	76	2	0	0
Control Delay (s)	74.3	15.0	161.8	1.4	0.0	0.0
Lane LOS	F	B	F	A		
Approach Delay (s)	45.4		161.8	0.5		0.0
Approach LOS	E		F			

Intersection Summary		
Average Delay		9.8
Intersection Capacity Utilization	57.0%	ICU Level of Service
Analysis Period (min)		15
		B



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	90	45	8	561	688	22
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.83	0.80	0.50	0.92	0.92	0.69
Hourly flow rate (vph)	108	56	16	610	748	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked	0.73	0.73	0.73			
vC, conflicting volume	1101	764	780			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	956	497	518			
tC, single (s)	6.8	7.0	4.4			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	41	85	98			
cM capacity (veh/h)	184	371	712			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	108	56	219	407	780
Volume Left	108	0	16	0	0
Volume Right	0	56	0	0	32
cSH	184	371	712	1700	1700
Volume to Capacity	0.59	0.15	0.02	0.24	0.46
Queue Length 95th (ft)	64	11	1	0	0
Control Delay (s)	49.5	16.4	1.0	0.0	0.0
Lane LOS	E	C	A		
Approach Delay (s)	38.2		0.3		0.0
Approach LOS	E				

Intersection Summary					
Average Delay			4.1		
Intersection Capacity Utilization			49.2%	ICU Level of Service	A
Analysis Period (min)			15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑	
Volume (veh/h)	0	24	0	570	736	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.68	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	620	800	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				640	676	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	1110	800	800			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	994	592	592			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	100			
cM capacity (veh/h)	187	350	755			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	35	310	310	800
Volume Left	0	0	0	0
Volume Right	35	0	0	0
cSH	350	1700	1700	1700
Volume to Capacity	0.10	0.18	0.18	0.47
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	16.4	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	16.4	0.0		0.0
Approach LOS	C			

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		48.7%	ICU Level of Service
Analysis Period (min)		15	A

APPENDIX F

Trip Generation Calculations

TABLE A1
UPMC SHADYSIDE EMPLOYEE TRIP GENERATION RATE CALCULATION
 2011 UPMC Shadyside Master Plan Study
 City of Pittsburgh, Allegheny County, Pennsylvania

Location	2011 Existing Number of Parking Spaces			2011 Existing Number of Vehicles ⁽¹⁾					
	Employee	Visitor	Total	A.M. Peak Hour (7:30-8:30 A.M.)			P.M. Peak Hour (4:45-5:45 P.M.)		
				Enter	Exit	Total	Enter	Exit	Total
Employee Parking Garage	750	0	750	116	32	148	27	113	140
Trip Generation Rate				0.155	0.043	0.197	0.036	0.151	0.187

(1) Existing numbers of employees entering and exiting the garage were obtained from turning movement counts performed by Trans Associates on March 24, 2011.

APPENDIX G

2021 Combined Conditions Capacity Analysis

HCM Signalized Intersection Capacity Analysis
 1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2021 Combined
 Timing Plan: A.M. Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	922	81	131	1138	28	59	64	66	59	145	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.99		1.00	0.98	
Flpb, ped/bikes		1.00			1.00			0.99		0.99	1.00	
Frt		0.98			1.00			0.96		1.00	0.95	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3244			3243			1749		1629	1733	
Flt Permitted		0.58			0.63			0.48		0.47	1.00	
Satd. Flow (perm)		1904			2043			860		801	1733	
Peak-hour factor, PHF	0.59	0.91	0.63	0.84	0.93	0.72	0.86	0.66	0.85	0.73	0.78	0.66
Adj. Flow (vph)	105	1013	129	156	1224	39	69	97	78	81	186	91
RTOR Reduction (vph)	0	11	0	0	2	0	0	21	0	0	22	0
Lane Group Flow (vph)	0	1236	0	0	1417	0	0	223	0	81	255	0
Confl. Peds. (#/hr)	14		9	9		14	39		19	19		39
Heavy Vehicles (%)	0%	2%	4%	5%	2%	0%	2%	5%	5%	5%	2%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		53.0			42.0			16.0		16.0	16.0	
Effective Green, g (s)		53.0			42.0			16.0		16.0	16.0	
Actuated g/C Ratio		0.66			0.52			0.20		0.20	0.20	
Clearance Time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Grp Cap (vph)		1395			1073			172		160	347	
v/s Ratio Prot		c0.09									0.15	
v/s Ratio Perm		0.50			c0.69			c0.26		0.10		
v/c Ratio		0.89			1.32			1.30		0.51	0.73	
Uniform Delay, d1		11.0			19.0			32.0		28.5	30.0	
Progression Factor		1.00			0.79			1.00		0.69	0.67	
Incremental Delay, d2		8.6			144.7			169.9		10.6	12.5	
Delay (s)		19.6			159.7			201.9		30.4	32.5	
Level of Service		B			F			F		C	C	
Approach Delay (s)		19.6			159.7			201.9			32.0	
Approach LOS		B			F			F			C	

Intersection Summary

HCM Average Control Delay	95.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Combined
 Timing Plan: A.M. Peak Hour

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	711	244	270	1069	25	226	36	119	2	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	11	15	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.99			0.99	
Fipb, ped/bikes		1.00			1.00			0.98			1.00	
Frt		0.96			1.00			0.95			0.97	
Flt Protected		1.00			0.99			0.97			0.98	
Satd. Flow (prot)		3160			3142			1835			1933	
Flt Permitted		0.90			0.53			0.81			0.86	
Satd. Flow (perm)		2844			1692			1536			1698	
Peak-hour factor, PHF	0.80	0.94	0.82	0.87	0.95	0.82	0.87	0.85	0.79	0.25	0.50	0.25
Adj. Flow (vph)	21	756	298	310	1125	30	260	42	151	8	4	4
RTOR Reduction (vph)	0	50	0	0	2	0	0	23	0	0	3	0
Lane Group Flow (vph)	0	1025	0	0	1463	0	0	430	0	0	13	0
Confl. Peds. (#/hr)	13		23	23		13	20		23	23		20
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	3%	2%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.0			52.0			17.0			17.0	
Effective Green, g (s)		42.0			52.0			17.0			17.0	
Actuated g/C Ratio		0.52			0.65			0.21			0.21	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1493			1227			326			361	
v/s Ratio Prot					c0.10							
v/s Ratio Perm		0.36			c0.67			c0.28			0.01	
v/c Ratio		0.69			1.19			1.32			0.04	
Uniform Delay, d1		14.1			14.0			31.5			25.0	
Progression Factor		0.77			0.27			0.81			1.00	
Incremental Delay, d2		1.0			92.4			152.0			0.2	
Delay (s)		11.9			96.1			177.5			25.2	
Level of Service		B			F			F			C	
Approach Delay (s)		11.9			96.1			177.5			25.2	
Approach LOS		B			F			F			C	

Intersection Summary

HCM Average Control Delay	77.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 3: Baum Blvd (S.R. 0400) & Cypress St

2021 Combined
 Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	670	72	116	1426	13	67	12	41	9	20	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	15	11	8	15	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.97	
Flpb, ped/bikes		1.00			1.00			0.97			1.00	
Frt		0.98			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3216			3305			1820			1849	
Flt Permitted		0.84			0.74			0.85			0.83	
Satd. Flow (perm)		2707			2461			1586			1552	
Peak-hour factor, PHF	0.46	0.92	0.78	0.77	0.95	0.75	0.69	0.63	0.63	0.40	0.69	0.75
Adj. Flow (vph)	30	728	92	151	1501	17	97	19	65	22	29	25
RTOR Reduction (vph)	0	12	0	0	1	0	0	25	0	0	22	0
Lane Group Flow (vph)	0	838	0	0	1668	0	0	156	0	0	54	0
Confl. Peds. (#/hr)	13		13	13		13	26		12	12		26
Heavy Vehicles (%)	0%	2%	3%	0%	2%	0%	0%	0%	0%	13%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		60.0			60.0			9.0				9.0
Effective Green, g (s)		60.0			60.0			9.0				9.0
Actuated g/C Ratio		0.75			0.75			0.11				0.11
Clearance Time (s)		6.0			6.0			5.0				5.0
Lane Grp Cap (vph)		2030			1846			178				175
v/s Ratio Prot												
v/s Ratio Perm		0.31			0.68			0.10				0.03
v/c Ratio		0.41			0.90			0.88				0.31
Uniform Delay, d1		3.6			7.8			35.0				32.6
Progression Factor		1.48			0.67			0.98				1.00
Incremental Delay, d2		0.5			0.8			33.3				4.5
Delay (s)		5.8			6.0			67.4				37.1
Level of Service		A			A			E				D
Approach Delay (s)		5.8			6.0			67.4				37.1
Approach LOS		A			A			E				D

Intersection Summary

HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined
 Timing Plan: A.M. Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations			↕↔			↕↔			↕	↔		
Volume (vph)	30	51	500	121	130	1274	175	43	168	316	66	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.99			1.00	0.98		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.97			0.97			1.00	0.96		
Flt Protected			0.99			1.00			0.95	1.00		
Satd. Flow (prot)			3266			3216			1727	1761		
Flt Permitted			0.51			0.74			0.29	1.00		
Satd. Flow (perm)			1664			2384			520	1761		
Peak-hour factor, PHF	0.71	0.81	0.85	0.80	0.76	0.95	0.87	0.42	0.92	0.98	0.63	0.56
Adj. Flow (vph)	42	63	588	151	171	1341	201	102	183	322	105	43
RTOR Reduction (vph)	0	0	23	0	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	821	0	0	1810	0	0	183	427	0	0
Confl. Peds. (#/hr)	5	18		18	18		5	18	19		18	18
Heavy Vehicles (%)	0%	0%	2%	0%	6%	1%	1%	0%	2%	1%	0%	0%
Turn Type	pm+pt	pm+pt			Perm				Perm			pm+pt
Protected Phases	5	5	2			6				8		7
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			47.0			39.0			16.0	16.0		
Effective Green, g (s)			47.0			39.0			16.0	16.0		
Actuated g/C Ratio			0.59			0.49			0.20	0.20		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1078			1162			104	352		
v/s Ratio Prot			c0.05							0.24		
v/s Ratio Perm			0.40			c0.76			c0.35			
v/c Ratio			0.76			1.56			1.76	1.21		
Uniform Delay, d1			12.3			20.5			32.0	32.0		
Progression Factor			1.01			1.00			0.89	0.89		
Incremental Delay, d2			4.7			255.2			357.0	106.3		
Delay (s)			17.1			275.7			385.6	134.6		
Level of Service			B			F			F	F		
Approach Delay (s)			17.1			275.7				209.9		
Approach LOS			B			F				F		

Intersection Summary

HCM Average Control Delay	177.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined
 Timing Plan: A.M. Peak Hour















Movement	SBL	SBT	SBR
Lane Configurations		↔	
Volume (vph)	112	384	107
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		0.99	
Flpb, ped/bikes		1.00	
Frt		0.97	
Flt Protected		0.99	
Satd. Flow (prot)		3423	
Flt Permitted		0.57	
Satd. Flow (perm)		1988	
Peak-hour factor, PHF	0.79	0.95	0.72
Adj. Flow (vph)	142	404	149
RTOR Reduction (vph)	0	28	0
Lane Group Flow (vph)	0	710	0
Confl. Peds. (#/hr)	58		19
Heavy Vehicles (%)	2%	2%	0%
Turn Type	pm+pt		
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)		23.0	
Effective Green, g (s)		23.0	
Actuated g/C Ratio		0.29	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		643	
v/s Ratio Prot		c0.06	
v/s Ratio Perm		0.26	
v/c Ratio		1.10	
Uniform Delay, d1		28.5	
Progression Factor		0.91	
Incremental Delay, d2		64.7	
Delay (s)		90.5	
Level of Service		F	
Approach Delay (s)		90.5	
Approach LOS		F	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Combined
 Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Volume (vph)	15	605	0	0	1523	10	4	22	80	35	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	10	10	12	12	12	12	12	12
Grade (%)		-1%			4%			0%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			1.00			0.98	
Fipb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			1.00			0.91			0.91	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3285			3233			1718			1619	
Flt Permitted		0.86			1.00			0.98			0.83	
Satd. Flow (perm)		2846			3233			1691			1364	
Peak-hour factor, PHF	0.69	0.85	0.92	0.92	0.92	0.75	0.50	0.61	0.81	0.60	0.92	0.89
Adj. Flow (vph)	22	712	0	0	1655	13	8	36	99	58	0	135
RTOR Reduction (vph)	0	0	0	0	1	0	0	80	0	0	31	0
Lane Group Flow (vph)	0	734	0	0	1667	0	0	63	0	0	162	0
Confl. Peds. (#/hr)	16					16				25		15
Heavy Vehicles (%)	0%	3%	2%	2%	2%	0%	0%	0%	0%	0%	2%	4%
Turn Type	Perm					Perm				Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		57.0			57.0			16.0			16.0	
Effective Green, g (s)		57.0			57.0			16.0			16.0	
Actuated g/C Ratio		0.68			0.68			0.19			0.19	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1931			2194			322			260	
v/s Ratio Prot					c0.52							
v/s Ratio Perm		0.26						0.04			c0.12	
v/c Ratio		0.38			0.76			0.20			0.62	
Uniform Delay, d1		5.8			9.0			28.6			31.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			2.5			1.4			10.8	
Delay (s)		6.4			11.5			29.9			42.0	
Level of Service		A			B			C			D	
Approach Delay (s)		6.4			11.5			29.9			42.0	
Approach LOS		A			B			C			D	

Intersection Summary

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Centre Ave & Morewood Ave

2021 Combined
Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	69	399	44	71	448	111	30	316	128	90	221	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	11	11	11
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		1.00			0.99			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.96			0.97	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1747			1728			1638			1689	
Flt Permitted		0.83			0.88			0.92			0.57	
Satd. Flow (perm)		1454			1522			1511			974	
Peak-hour factor, PHF	0.89	0.87	0.85	0.79	0.82	0.81	0.68	0.94	0.85	0.66	0.84	0.77
Adj. Flow (vph)	78	459	52	90	546	137	44	336	151	136	263	117
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	589	0	0	773	0	0	531	0	0	516	0
Confl. Peds. (#/hr)	23		31	31		23	15		31	31		15
Heavy Vehicles (%)	0%	8%	12%	4%	6%	0%	7%	2%	5%	10%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.0			42.0			28.0			28.0	
Effective Green, g (s)		42.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.52			0.52			0.35			0.35	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		763			799			529			341	
v/s Ratio Prot												
v/s Ratio Perm		0.41			0.51			0.35			0.53	
v/c Ratio		0.77			0.97			1.00			1.51	
Uniform Delay, d1		15.2			18.3			26.0			26.0	
Progression Factor		1.00			0.84			1.00			0.59	
Incremental Delay, d2		7.4			17.6			40.1			239.3	
Delay (s)		22.6			32.9			66.1			254.6	
Level of Service		C			C			E			F	
Approach Delay (s)		22.6			32.9			66.1			254.6	
Approach LOS		C			C			E			F	

Intersection Summary

HCM Average Control Delay	85.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Centre Ave & Cypress St

2021 Combined
Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕	↗		↕	
Volume (vph)	31	462	56	79	560	76	36	31	34	64	62	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frbp, ped/bikes		0.99			0.99			1.00	0.90		0.97	
Flpb, ped/bikes		1.00			1.00			0.98	1.00		0.97	
Frt		0.99			0.98			1.00	0.85		0.95	
Flt Protected		1.00			0.99			0.97	1.00		0.98	
Satd. Flow (prot)		1678			1800			1699	1478		1629	
Flt Permitted		0.92			0.88			0.68	1.00		0.83	
Satd. Flow (perm)		1551			1591			1186	1478		1374	
Peak-hour factor, PHF	0.78	0.85	0.84	0.92	0.85	0.75	0.73	0.68	0.50	0.60	0.94	0.82
Adj. Flow (vph)	40	544	67	86	659	101	49	46	68	107	66	94
RTOR Reduction (vph)	0	5	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	646	0	0	840	0	0	95	68	0	267	0
Confl. Peds. (#/hr)	51		56	56		51	28		33	33		28
Heavy Vehicles (%)	0%	10%	5%	1%	5%	0%	17%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		52.5			52.5			16.5	16.5			16.5
Effective Green, g (s)		52.5			52.5			16.5	16.5			16.5
Actuated g/C Ratio		0.66			0.66			0.21	0.21			0.21
Clearance Time (s)		5.5			5.5			5.5	5.5			5.5
Lane Grp Cap (vph)		1018			1044			245	305			283
v/s Ratio Prot												
v/s Ratio Perm		0.42			c0.53			0.08	0.05			c0.19
v/c Ratio		0.63			0.80			0.39	0.22			0.94
Uniform Delay, d1		8.1			10.0			27.4	26.4			31.3
Progression Factor		0.92			0.89			1.00	1.00			0.86
Incremental Delay, d2		1.0			0.6			4.6	1.7			33.2
Delay (s)		8.4			9.6			32.0	28.1			60.0
Level of Service		A			A			C	C			E
Approach Delay (s)		8.4			9.6			30.4				60.0
Approach LOS		A			A			C				E

Intersection Summary

HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
8: Centre Ave & Liberty Ave

2021 Combined
Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	89	292	150	96	397	112	212	459	66	81	391	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.95			0.99		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		1.00			0.99		0.98	1.00		0.96	1.00	
Frt		0.96			0.97		1.00	0.98		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1614			1710		1699	1810		1729	1762	
Flt Permitted		0.76			0.78		0.15	1.00		0.14	1.00	
Satd. Flow (perm)		1242			1350		268	1810		261	1762	
Peak-hour factor, PHF	0.81	0.86	0.79	0.87	0.92	0.86	0.95	0.89	0.79	0.85	0.90	0.83
Adj. Flow (vph)	110	340	190	110	432	130	223	516	84	95	434	160
RTOR Reduction (vph)	0	19	0	0	11	0	0	7	0	0	17	0
Lane Group Flow (vph)	0	621	0	0	661	0	223	593	0	95	577	0
Confl. Peds. (#/hr)	60		132	132		60	53		94	94		53
Heavy Vehicles (%)	17%	8%	4%	1%	5%	3%	1%	1%	2%	2%	0%	9%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		39.0			39.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		39.0			39.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.49			0.49		0.36	0.36		0.36	0.36	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		605			658		97	656		95	639	
v/s Ratio Prot								0.33			0.33	
v/s Ratio Perm		c0.50			0.49		c0.83			0.36		
v/c Ratio		1.03			1.00		2.30	0.90		1.00	0.90	
Uniform Delay, d1		20.5			20.5		25.5	24.2		25.5	24.2	
Progression Factor		0.98			1.00		1.00	1.00		0.86	0.84	
Incremental Delay, d2		38.9			36.3		615.7	18.2		27.7	2.3	
Delay (s)		59.0			56.8		641.2	42.4		49.7	22.5	
Level of Service		E			E		F	D		D	C	
Approach Delay (s)		59.0			56.8			204.6			26.3	
Approach LOS		E			E			F			C	

Intersection Summary

HCM Average Control Delay	92.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 9: Liberty Ave & Millvale Ave

2021 Combined
 Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	45	466	85	25	468	37	71	57	25	126	144	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%				-3%
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		1.00			1.00		0.92	1.00		0.96	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.95	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1954			1996		1391	1528		1610	1598	
Flt Permitted		0.91			0.95		0.44	1.00		0.68	1.00	
Satd. Flow (perm)		1792			1910		650	1528		1146	1598	
Peak-hour factor, PHF	0.81	0.94	0.82	0.82	0.89	0.66	0.91	0.65	0.65	0.66	0.77	0.60
Adj. Flow (vph)	56	496	104	30	526	56	78	88	38	191	187	95
RTOR Reduction (vph)	0	9	0	0	5	0	0	19	0	0	23	0
Lane Group Flow (vph)	0	647	0	0	607	0	78	107	0	191	259	0
Confl. Peds. (#/hr)	87		46	46		87	80		27	27		80
Heavy Vehicles (%)	0%	3%	8%	0%	2%	0%	5%	2%	4%	2%	1%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.59			0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1053			1122		187	439		329	459	
v/s Ratio Prot								0.07			0.16	
v/s Ratio Perm		c0.36			0.32		0.12			c0.17		
v/c Ratio		0.61			0.54		0.42	0.24		0.58	0.56	
Uniform Delay, d1		10.7			10.0		23.1	21.8		24.4	24.2	
Progression Factor		1.00			1.20		0.83	0.82		1.00	1.00	
Incremental Delay, d2		2.7			0.2		6.5	1.3		7.3	5.0	
Delay (s)		13.3			12.1		25.6	19.3		31.7	29.2	
Level of Service		B			B		C	B		C	C	
Approach Delay (s)		13.3			12.1			21.7			30.2	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 10: Ellsworth Ave & S. Aiken Ave













2021 Combined
 Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↘		↙	↘	
Volume (vph)	55	156	13	13	413	146	71	575	12	36	252	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frb, ped/bikes		1.00			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	1.00		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1782		1750	1872		1789	1789	
Flt Permitted		0.72			0.99		0.40	1.00		0.18	1.00	
Satd. Flow (perm)		1206			1759		732	1872		342	1789	
Peak-hour factor, PHF	0.69	0.92	0.60	0.60	0.85	0.85	0.84	0.96	0.69	0.46	0.78	0.78
Adj. Flow (vph)	80	170	22	22	486	172	85	599	17	78	323	68
RTOR Reduction (vph)	0	5	0	0	20	0	0	2	0	0	13	0
Lane Group Flow (vph)	0	267	0	0	660	0	85	614	0	78	378	0
Confl. Peds. (#/hr)	12		11	11		12	9		10	10		9
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	3%	1%	18%	0%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		28.0			28.0		22.0	22.0		22.0	22.0	
Effective Green, g (s)		28.0			28.0		22.0	22.0		22.0	22.0	
Actuated g/C Ratio		0.47			0.47		0.37	0.37		0.37	0.37	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		563			821		268	686		125	656	
v/s Ratio Prot								c0.33			0.21	
v/s Ratio Perm		0.22			c0.37		0.12			0.23		
v/c Ratio		0.47			0.80		0.32	0.90		0.62	0.58	
Uniform Delay, d1		11.0			13.7		13.6	17.9		15.6	15.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.8			8.2		3.1	16.6		21.2	3.7	
Delay (s)		13.8			21.9		16.7	34.5		36.8	18.9	
Level of Service		B			C		B	C		D	B	
Approach Delay (s)		13.8			21.9			32.3			21.9	
Approach LOS		B			C			C			C	

Intersection Summary		
HCM Average Control Delay	24.3	HCM Level of Service C
HCM Volume to Capacity ratio	0.84	
Actuated Cycle Length (s)	60.0	Sum of lost time (s) 10.0
Intersection Capacity Utilization	87.2%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
12: Cypress St & Millvale Ave

2021 Combined
Timing Plan: A.M. Peak Hour

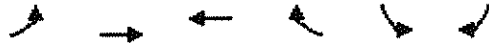
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	13	6	40	12	39	1	114	62	36	203	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.94			0.95			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1572			1499			1548			1693	
Flt Permitted		0.97			0.88			1.00			0.88	
Satd. Flow (perm)		1540			1342			1543			1502	
Peak-hour factor, PHF	0.25	0.69	0.50	0.80	0.50	0.72	0.25	0.63	0.66	0.50	0.75	0.50
Adj. Flow (vph)	4	19	12	50	24	54	4	181	94	72	271	4
RTOR Reduction (vph)	0	8	0	0	33	0	0	23	0	0	0	0
Lane Group Flow (vph)	0	27	0	0	95	0	0	256	0	0	347	0
Confl. Peds. (#/hr)	2		2	2		2	39		14	14		39
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0			44.0			44.0	
Effective Green, g (s)		24.0			24.0			44.0			44.0	
Actuated g/C Ratio		0.30			0.30			0.55			0.55	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		462			403			849			826	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.07			0.17			0.23	
v/c Ratio		0.06			0.24			0.30			0.42	
Uniform Delay, d1		19.9			21.1			9.7			10.5	
Progression Factor		1.00			1.00			0.94			0.87	
Incremental Delay, d2		0.2			1.4			0.7			1.3	
Delay (s)		20.2			22.5			9.9			10.5	
Level of Service		C			C			A			B	
Approach Delay (s)		20.2			22.5			9.9			10.5	
Approach LOS		C			C			A			B	

Intersection Summary

HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 22: Baum Blvd (S.R. 0400) & Luna Driveway

2021 Combined
 Timing Plan: A.M. Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↕	
Volume (vph)	94	738	1368	144	26	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Grade (%)		1%	1%		0%	
Total Lost time (s)		3.5	3.5		3.5	
Lane Util. Factor		0.95	0.95		1.00	
Frt		1.00	0.99		0.95	
Flt Protected		0.99	1.00		0.97	
Satd. Flow (prot)		3268	3240		1656	
Flt Permitted		0.60	1.00		0.97	
Satd. Flow (perm)		1976	3240		1656	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	820	1520	160	29	18
RTOR Reduction (vph)	0	0	10	0	14	0
Lane Group Flow (vph)	0	924	1670	0	33	0
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		56.5	56.5		16.5	
Effective Green, g (s)		56.5	56.5		16.5	
Actuated g/C Ratio		0.71	0.71		0.21	
Clearance Time (s)		3.5	3.5		3.5	
Lane Grp Cap (vph)		1396	2288		342	
v/s Ratio Prot			c0.52		c0.02	
v/s Ratio Perm		0.47				
v/c Ratio		0.90dl	0.73		0.10	
Uniform Delay, d1		6.5	7.1		25.7	
Progression Factor		0.61	0.34		1.00	
Incremental Delay, d2		1.5	1.0		0.6	
Delay (s)		5.5	3.4		26.3	
Level of Service		A	A		C	
Approach Delay (s)		5.5	3.4		26.3	
Approach LOS		A	A		C	

















Intersection Summary

HCM Average Control Delay	4.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 11: Morewood Ave & S. Millvale Ave

2021 Combined
 Timing Plan: A.M. Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	23	12	4	41	8	135	0	0	283	2
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.75	0.92	0.61	0.69	0.50	0.89	0.50	0.94	0.92	0.92	0.97	0.25
Hourly flow rate (vph)	4	0	38	17	8	46	16	144	0	0	292	8
Pedestrians		38			19			6			8	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	567	528	340	534	532	171	338			163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	567	528	340	534	532	171	338			163		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	99	100	94	96	98	95	99			100		
cM capacity (veh/h)	375	431	684	405	396	850	1072			1402		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	71	160	300
Volume Left	4	17	16	0
Volume Right	38	46	0	8
cSH	634	609	1072	1700
Volume to Capacity	0.07	0.12	0.01	0.18
Queue Length 95th (ft)	4	8	1	0
Control Delay (s)	11.1	11.7	1.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.1	11.7	1.0	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization		29.6%	ICU Level of Service
Analysis Period (min)		15	A

















HCM Unsignalized Intersection Capacity Analysis
 13: Cypress St & Gross St

2021 Combined
 Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	29	71	4	33	0	27	0	3	9	50	2
Peak Hour Factor	0.92	0.50	0.50	1.00	0.66	0.92	0.75	0.92	0.75	0.63	0.83	0.50
Hourly flow rate (vph)	0	58	142	4	50	0	36	0	4	14	60	4
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	200	54	40	79								
Volume Left (vph)	0	4	36	14								
Volume Right (vph)	142	0	4	4								
Hadj (s)	-0.43	0.01	0.12	0.01								
Departure Headway (s)	3.8	4.4	4.6	4.5								
Degree Utilization, x	0.21	0.07	0.05	0.10								
Capacity (veh/h)	913	778	726	749								
Control Delay (s)	7.8	7.7	7.9	8.0								
Approach Delay (s)	7.8	7.7	7.9	8.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.9									
HCM Level of Service			A									
Intersection Capacity Utilization			20.9%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

2021 Combined
 Timing Plan: A.M. Peak Hour











												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	0	7	17	0	24	18	648	0	0	445	128
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.60	0.92	0.78	0.80	0.92	0.86	0.80	0.94	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	80	0	9	21	0	28	22	689	0	0	484	164
Pedestrians					28			7			8	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					2			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	991	1328	573	1344	1410	381	648			717		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	849	1280	313	1300	1385	381	409			717		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	56	100	98	75	100	95	98			100		
cM capacity (veh/h)	184	122	535	86	105	604	907			859		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	89	49	252	460	648
Volume Left	80	21	22	0	0
Volume Right	9	28	0	0	164
cSH	197	168	907	1700	1700
Volume to Capacity	0.45	0.29	0.02	0.27	0.38
Queue Length 95th (ft)	43	23	2	0	0
Control Delay (s)	37.6	35.1	1.0	0.0	0.0
Lane LOS	E	E	A		
Approach Delay (s)	37.6	35.1	0.4		0.0
Approach LOS	E	E			

Intersection Summary				
Average Delay			3.6	
Intersection Capacity Utilization		45.4%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
 15: ED Dwy/Employee Garage & S. Aiken Ave

2021 Combined
 Timing Plan: A.M. Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	19	16	69	650	398	74
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.59	0.57	0.78	0.94	0.92	0.88
Hourly flow rate (vph)	32	28	88	691	433	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked						
vC, conflicting volume	997	475	517			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	997	475	517			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	95	92			
cM capacity (veh/h)	216	542	1052			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	32	28	319	461	517
Volume Left	32	0	88	0	0
Volume Right	0	28	0	0	84
cSH	216	542	1052	1700	1700
Volume to Capacity	0.15	0.05	0.08	0.27	0.30
Queue Length 95th (ft)	10	3	5	0	0
Control Delay (s)	24.6	12.0	3.0	0.0	0.0
Lane LOS	C	B	A		
Approach Delay (s)	18.7		1.2		0.0
Approach LOS	C				

Intersection Summary					
Average Delay			1.5		
Intersection Capacity Utilization			58.7%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

2021 Combined
 Timing Plan: A.M. Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑	
Volume (veh/h)	0	1	0	724	415	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.25	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	0	4	0	770	451	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				640	676	
pX, platoon unblocked						
vC, conflicting volume	836	451	451			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	836	451	451			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	306	561	1106			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	4	385	385	451
Volume Left	0	0	0	0
Volume Right	4	0	0	0
cSH	561	1700	1700	1700
Volume to Capacity	0.01	0.23	0.23	0.27
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	11.5	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.5	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		31.8%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 46: Research Garage Dwy & Morewood Ave

2021 Combined
 Timing Plan: A.M. Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Volume (veh/h)	13	18	401	95	150	388
Sign Control	Stop		Free			Free
Grade	0%		2%			-1%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	20	446	106	167	431
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			182			180
pX, platoon unblocked	0.78	0.78			0.78	
vC, conflicting volume	1263	498			551	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1196	216			283	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	97			83	
cM capacity (veh/h)	134	643			998	










Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	551	598
Volume Left	14	0	167
Volume Right	20	106	0
cSH	247	1700	998
Volume to Capacity	0.14	0.32	0.17
Queue Length 95th (ft)	10	0	12
Control Delay (s)	21.9	0.0	4.1
Lane LOS	C		A
Approach Delay (s)	21.9	0.0	4.1
Approach LOS	C		

Intersection Summary

Average Delay		2.7		
Intersection Capacity Utilization		68.9%	ICU Level of Service	C
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
 48: Luna Garage Dwy & Gross St

2021 Combined
 Timing Plan: A.M. Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	17	13	1	99	26
Sign Control	Stop		Free			Free
Grade	0%		8%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	19	14	1	110	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	264	15			16	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	264	15			16	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			93	
cM capacity (veh/h)	675	1065			1602	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	20	16	139
Volume Left	1	0	110
Volume Right	19	1	0
cSH	1032	1700	1602
Volume to Capacity	0.02	0.01	0.07
Queue Length 95th (ft)	1	0	4
Control Delay (s)	8.6	0.0	6.0
Lane LOS	A		A
Approach Delay (s)	8.6	0.0	6.0
Approach LOS	A		

Intersection Summary			
Average Delay		5.7	
Intersection Capacity Utilization		23.5%	ICU Level of Service
Analysis Period (min)		15	A

HCM Signalized Intersection Capacity Analysis
 1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2021 Combined
 Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	1136	90	102	887	34	62	131	111	50	123	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.98		1.00	0.97	
Flpb, ped/bikes		1.00			1.00			0.99		0.98	1.00	
Frt		0.99			0.99			0.95		1.00	0.94	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3299			3260			1749		1597	1692	
Flt Permitted		0.66			0.57			0.70		0.34	1.00	
Satd. Flow (perm)		2186			1877			1241		569	1692	
Peak-hour factor, PHF	0.86	0.94	0.88	0.79	0.89	0.75	0.83	0.84	0.71	0.79	0.78	0.80
Adj. Flow (vph)	93	1209	102	129	997	45	75	156	156	63	158	100
RTOR Reduction (vph)	0	7	0	0	4	0	0	31	0	0	29	0
Lane Group Flow (vph)	0	1397	0	0	1167	0	0	356	0	63	230	0
Confl. Peds. (#/hr)	11		18	18		11	61		34	34		61
Heavy Vehicles (%)	0%	1%	1%	4%	1%	6%	7%	3%	0%	7%	3%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		49.0			39.0			20.0		20.0	20.0	
Effective Green, g (s)		49.0			39.0			20.0		20.0	20.0	
Actuated g/C Ratio		0.61			0.49			0.25		0.25	0.25	
Clearance Time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Grp Cap (vph)		1436			915			310		142	423	
v/s Ratio Prot		c0.09									0.14	
v/s Ratio Perm		0.51			c0.62			c0.29		0.11		
v/c Ratio		0.97			1.28			1.15		0.44	0.54	
Uniform Delay, d1		14.9			20.5			30.0		25.3	26.0	
Progression Factor		1.00			0.88			1.00		1.00	1.00	
Incremental Delay, d2		18.1			125.0			97.8		9.6	4.9	
Delay (s)		32.9			143.0			127.8		34.8	31.0	
Level of Service		C			F			F		C	C	
Approach Delay (s)		32.9			143.0			127.8			31.8	
Approach LOS		C			F			F			C	

Intersection Summary

HCM Average Control Delay	83.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Combined
Timing Plan: PM Peak Hour

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←→			←→			←→			←→	
Volume (vph)	15	976	203	158	758	21	245	57	241	18	23	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	11	15	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			0.99			0.94			0.97	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		3247			3145			1826			1957	
Flt Permitted		0.92			0.51			0.83			0.74	
Satd. Flow (perm)		2996			1604			1551			1476	
Peak-hour factor, PHF	0.70	0.90	0.93	0.84	0.85	0.48	0.77	0.70	0.83	0.47	0.75	0.63
Adj. Flow (vph)	21	1084	218	188	892	44	318	81	290	38	31	17
RTOR Reduction (vph)	0	20	0	0	4	0	0	32	0	0	11	0
Lane Group Flow (vph)	0	1303	0	0	1120	0	0	657	0	0	75	0
Confl. Peds. (#/hr)	32		17	17		32	25		38	38		25
Heavy Vehicles (%)	0%	1%	1%	1%	1%	5%	1%	0%	1%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		38.0			48.0			21.0				21.0
Effective Green, g (s)		38.0			48.0			21.0				21.0
Actuated g/C Ratio		0.48			0.60			0.26				0.26
Clearance Time (s)		6.0			6.0			5.0				5.0
Lane Grp Cap (vph)		1423			1097			407				387
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.43			c0.52			c0.42				0.05
v/c Ratio		0.92			1.02			1.61				0.19
Uniform Delay, d1		19.5			16.0			29.5				22.9
Progression Factor		0.71			0.87			0.78				1.00
Incremental Delay, d2		3.0			31.6			283.6				1.1
Delay (s)		16.9			45.6			306.6				24.0
Level of Service		B			D			F				C
Approach Delay (s)		16.9			45.6			306.6				24.0
Approach LOS		B			D			F				C

Intersection Summary

HCM Average Control Delay	89.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 3: Baum Blvd (S.R. 0400) & Cypress St

2021 Combined
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1349	43	23	780	11	71	23	127	23	2	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	11	11	8	8	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.93			0.93	
Flt Protected		1.00			1.00			0.98			0.98	
Satd. Flow (prot)		3288			3320			1602			1421	
Flt Permitted		0.93			0.87			0.86			0.80	
Satd. Flow (perm)		3064			2879			1406			1162	
Peak-hour factor, PHF	0.40	0.91	0.69	0.90	0.85	0.36	0.74	0.89	0.84	0.58	0.47	0.46
Adj. Flow (vph)	22	1482	62	26	918	31	96	26	151	40	4	54
RTOR Reduction (vph)	0	4	0	0	3	0	0	27	0	0	40	0
Lane Group Flow (vph)	0	1562	0	0	972	0	0	246	0	0	58	0
Confl. Peds. (#/hr)	17		20	20		17	22		20	20		22
Heavy Vehicles (%)	0%	1%	5%	0%	1%	10%	0%	0%	0%	0%	6%	5%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		48.0			48.0			21.0			21.0	
Effective Green, g (s)		48.0			48.0			21.0			21.0	
Actuated g/C Ratio		0.60			0.60			0.26			0.26	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1838			1727			369			305	
v/s Ratio Prot												
v/s Ratio Perm		c0.51			0.34			c0.18			0.05	
v/c Ratio		0.85			0.56			0.67			0.19	
Uniform Delay, d1		13.1			9.7			26.4			22.9	
Progression Factor		1.22			0.40			0.93			1.00	
Incremental Delay, d2		3.8			0.1			6.8			1.4	
Delay (s)		19.8			3.9			31.4			24.3	
Level of Service		B			A			C			C	
Approach Delay (s)		19.8			3.9			31.4			24.3	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined
 Timing Plan: PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations			↔↔			↔↔			↗	↖		
Volume (vph)	109	78	1086	162	79	685	159	51	102	378	92	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.97			1.00	0.96		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.98			0.96			1.00	0.96		
Flt Protected			0.99			1.00			0.95	1.00		
Satd. Flow (prot)			3302			3098			1738	1708		
Flt Permitted			0.51			0.55			0.23	1.00		
Satd. Flow (perm)			1702			1706			426	1708		
Peak-hour factor, PHF	0.86	0.68	0.93	0.82	0.80	0.88	0.83	0.67	0.77	0.83	0.58	0.75
Adj. Flow (vph)	127	115	1168	198	99	778	192	76	132	455	159	45
RTOR Reduction (vph)	0	0	14	0	0	7	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1594	0	0	1138	0	0	132	614	0	0
Confl. Peds. (#/hr)	29	61		17	17		29	61	41		61	61
Heavy Vehicles (%)	4%	0%	1%	0%	4%	2%	2%	0%	1%	2%	0%	0%
Turn Type	pm+pt	pm+pt			Perm				Perm			pm+pt
Protected Phases	5	5	2			6				8		7
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			43.0			35.0			20.0	20.0		
Effective Green, g (s)			43.0			35.0			20.0	20.0		
Actuated g/C Ratio			0.54			0.44			0.25	0.25		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1015			746			107	427		
v/s Ratio Prot			c0.10							c0.36		
v/s Ratio Perm			c0.75			0.67			0.31			
v/c Ratio			1.57			1.53			1.23	1.44		
Uniform Delay, d1			18.5			22.5			30.0	30.0		
Progression Factor			1.09			0.73			1.08	1.06		
Incremental Delay, d2			259.4			242.8			123.8	200.4		
Delay (s)			279.6			259.2			156.2	232.2		
Level of Service			F			F			F	F		
Approach Delay (s)			279.6			259.2				218.8		
Approach LOS			F			F				F		

Intersection Summary

HCM Average Control Delay	223.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	134.1%	ICU Level of Service	H
Analysis Period (min)	15		

d1 Defacto Left Lane. Recode with 1 though lane as a left lane.
 c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined
 Timing Plan: PM Peak Hour















Movement	SBL	SBT	SBR
Lane Configurations		↔↔	
Volume (vph)	181	450	71
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		0.99	
Flpb, ped/bikes		0.99	
Frt		0.98	
Flt Protected		0.98	
Satd. Flow (prot)		3493	
Flt Permitted		0.59	
Satd. Flow (perm)		2084	
Peak-hour factor, PHF	0.79	0.91	0.77
Adj. Flow (vph)	229	495	92
RTOR Reduction (vph)	0	11	0
Lane Group Flow (vph)	0	850	0
Confl. Peds. (#/hr)	68		41
Heavy Vehicles (%)	0%	1%	0%
Turn Type	pm+pt		
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)		27.0	
Effective Green, g (s)		27.0	
Actuated g/C Ratio		0.34	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		774	
v/s Ratio Prot		c0.05	
v/s Ratio Perm		0.32	
v/c Ratio		1.71dl	
Uniform Delay, d1		26.5	
Progression Factor		0.69	
Incremental Delay, d2		59.2	
Delay (s)		77.5	
Level of Service		E	
Approach Delay (s)		77.5	
Approach LOS		E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Combined
Timing Plan: PM Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Volume (vph)	25	1250	0	0	890	12	3	32	187	52	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	14	12	12	15	12
Grade (%)		-1%			4%			3%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.94			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			1.00			0.89			0.92	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		3350			3223			1614			1779	
Flt Permitted		0.92			1.00			0.99			0.63	
Satd. Flow (perm)		3078			3223			1600			1136	
Peak-hour factor, PHF	0.92	0.98	0.92	0.92	0.94	0.46	0.38	0.75	0.88	0.68	0.92	0.82
Adj. Flow (vph)	27	1276	0	0	947	26	8	43	212	76	0	111
RTOR Reduction (vph)	0	0	0	0	2	0	0	48	0	0	66	0
Lane Group Flow (vph)	0	1303	0	0	971	0	0	215	0	0	121	0
Confl. Peds. (#/hr)	20		30	30		20	16		52	52		16
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	4%	4%	0%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		50.0			50.0			19.0			19.0	
Effective Green, g (s)		50.0			50.0			19.0			19.0	
Actuated g/C Ratio		0.62			0.62			0.24			0.24	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1924			2014			380			270	
v/s Ratio Prot					0.30							
v/s Ratio Perm		c0.42						c0.13			0.11	
v/c Ratio		0.68			0.48			0.57			0.45	
Uniform Delay, d1		9.8			8.1			26.9			26.0	
Progression Factor		0.29			1.00			1.15			1.00	
Incremental Delay, d2		0.2			0.8			0.6			5.3	
Delay (s)		3.0			8.9			31.4			31.4	
Level of Service		A			A			C			C	
Approach Delay (s)		3.0			8.9			31.4			31.4	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Centre Ave & Morewood Ave

2021 Combined
Timing Plan: PM Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	80	557	74	121	397	111	31	296	104	103	324	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	15	10	11	15	11
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frb, ped/bikes		0.99			0.99			0.98			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.97			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1801			1730			1992			1984	
Flt Permitted		0.83			0.70			0.90			0.55	
Satd. Flow (perm)		1500			1220			1803			1100	
Peak-hour factor, PHF	0.80	0.99	0.74	0.80	0.90	0.75	0.75	0.84	0.88	0.63	0.98	0.90
Adj. Flow (vph)	100	563	100	151	441	148	41	352	118	163	331	107
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	763	0	0	740	0	0	511	0	0	601	0
Confl. Peds. (#/hr)	36		81	81		36	40		34	34		40
Heavy Vehicles (%)	0%	3%	3%	4%	4%	0%	0%	0%	4%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		44.0			44.0			26.0			26.0	
Effective Green, g (s)		44.0			44.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.32			0.32	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		825			671			586			358	
v/s Ratio Prot												
v/s Ratio Perm		0.51			0.61			0.28			0.55	
v/c Ratio		0.92			1.10			0.87			1.68	
Uniform Delay, d1		16.5			18.0			25.4			27.0	
Progression Factor		1.00			0.94			1.00			0.91	
Incremental Delay, d2		17.6			62.5			16.3			314.5	
Delay (s)		34.1			79.4			41.7			339.0	
Level of Service		C			E			D			F	
Approach Delay (s)		34.1			79.4			41.7			339.0	
Approach LOS		C			E			D			F	

Intersection Summary

HCM Average Control Delay	118.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	120.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Centre Ave & Cypress St

2021 Combined
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕	↗		↕	
Volume (vph)	57	727	25	28	483	91	57	63	81	72	22	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frbp, ped/bikes		1.00			0.99			1.00	0.86		0.98	
Flpb, ped/bikes		1.00			1.00			0.98	1.00		0.94	
Frt		1.00			0.98			1.00	0.85		0.97	
Flt Protected		1.00			1.00			0.97	1.00		0.97	
Satd. Flow (prot)		1794			1794			1778	1404		1561	
Flt Permitted		0.89			0.92			0.74	1.00		0.72	
Satd. Flow (perm)		1611			1659			1350	1404		1162	
Peak-hour factor, PHF	0.78	0.91	0.79	0.69	0.86	0.68	0.74	0.91	0.77	0.50	0.75	0.75
Adj. Flow (vph)	73	799	32	41	562	134	77	69	105	144	29	59
RTOR Reduction (vph)	0	2	0	0	10	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	902	0	0	727	0	0	146	105	0	232	0
Confl. Peds. (#/hr)	77		53	53		77	27		52	52		27
Heavy Vehicles (%)	0%	3%	11%	0%	4%	0%	7%	0%	0%	0%	20%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		52.5			52.5			16.5	16.5			16.5
Effective Green, g (s)		52.5			52.5			16.5	16.5			16.5
Actuated g/C Ratio		0.66			0.66			0.21	0.21			0.21
Clearance Time (s)		5.5			5.5			5.5	5.5			5.5
Lane Grp Cap (vph)		1057			1089			278	290			240
v/s Ratio Prot												
v/s Ratio Perm		c0.56			0.44			0.11	0.07			c0.20
v/c Ratio		0.85			0.67			0.53	0.36			0.97
Uniform Delay, d1		10.7			8.4			28.3	27.2			31.5
Progression Factor		0.76			0.88			1.00	1.00			0.92
Incremental Delay, d2		2.3			0.3			6.9	3.5			49.3
Delay (s)		10.4			7.7			35.2	30.7			78.2
Level of Service		B			A			D	C			E
Approach Delay (s)		10.4			7.7			33.3				78.2
Approach LOS		B			A			C				E

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
8: Centre Ave & Liberty Ave

2021 Combined
Timing Plan: PM Peak Hour













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	470	222	61	275	108	166	511	125	116	489	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.95			0.98		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.97	1.00	
Frt		0.96			0.96		1.00	0.97		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1682		1673	1808		1744	1808	
Flt Permitted		0.73			0.76		0.12	1.00		0.12	1.00	
Satd. Flow (perm)		1225			1280		220	1808		229	1808	
Peak-hour factor, PHF	0.91	0.98	0.79	0.80	0.83	0.75	0.94	0.85	0.97	0.78	0.83	0.59
Adj. Flow (vph)	189	480	281	76	331	144	177	601	129	149	589	151
RTOR Reduction (vph)	0	19	0	0	16	0	0	10	0	0	11	0
Lane Group Flow (vph)	0	931	0	0	535	0	177	720	0	149	729	0
Confl. Peds. (#/hr)	76		137	137		76	67		110	110		67
Heavy Vehicles (%)	8%	3%	2%	0%	7%	1%	3%	0%	0%	2%	0%	6%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		36.0			36.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		36.0			36.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.45			0.45		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		551			576		88	723		92	723	
v/s Ratio Prot								0.40				0.40
v/s Ratio Perm		c0.76			0.42		c0.80			0.65		
v/c Ratio		1.69			0.93		2.01	1.00		1.62	1.01	
Uniform Delay, d1		22.0			20.8		24.0	23.9		24.0	24.0	
Progression Factor		0.92			1.00		1.00	1.00		0.62	0.61	
Incremental Delay, d2		314.9			23.5		492.7	32.6		283.3	12.0	
Delay (s)		335.1			44.3		516.7	56.6		298.3	26.6	
Level of Service		F			D		F	E		F	C	
Approach Delay (s)		335.1			44.3			146.3			72.1	
Approach LOS		F			D			F			E	

Intersection Summary

HCM Average Control Delay	163.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	131.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
9: Liberty Ave & Millvale Ave

2021 Combined
Timing Plan: PM Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	37	595	48	11	481	40	180	257	48	45	54	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.93	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.96	1.00	
Frt		0.99			0.99		1.00	0.98		1.00	0.92	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2010			1991		1394	1616		1644	1534	
Flt Permitted		0.94			0.96		0.67	1.00		0.33	1.00	
Satd. Flow (perm)		1895			1912		987	1616		579	1534	
Peak-hour factor, PHF	0.77	0.89	0.83	0.46	0.95	0.71	0.89	0.80	0.89	0.88	0.86	0.80
Adj. Flow (vph)	48	669	58	24	506	56	202	321	54	51	63	69
RTOR Reduction (vph)	0	4	0	0	5	0	0	8	0	0	47	0
Lane Group Flow (vph)	0	772	0	0	581	0	202	367	0	51	85	0
Confl. Peds. (#/hr)	102		65	65		102	67		50	50		67
Heavy Vehicles (%)	0%	2%	8%	0%	2%	0%	4%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		45.0			45.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)		45.0			45.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio		0.56			0.56		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1066			1076		308	505		181	479	
v/s Ratio Prot								c0.23				0.06
v/s Ratio Perm		c0.41			0.30		0.20			0.09		
v/c Ratio		0.72			0.54		0.66	0.73		0.28	0.18	
Uniform Delay, d1		12.9			11.0		23.8	24.5		20.7	20.0	
Progression Factor		1.00			1.07		0.70	0.70		1.00	1.00	
Incremental Delay, d2		4.3			0.2		9.4	8.0		3.9	0.8	
Delay (s)		17.2			12.0		26.2	25.2		24.6	20.8	
Level of Service		B			B		C	C		C	C	
Approach Delay (s)		17.2			12.0			25.5			21.9	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
10: Ellsworth Ave & S. Aiken Ave

2021 Combined
Timing Plan: PM Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Volume (vph)	99	411	48	14	211	102	49	355	21	140	592	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	11	11	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.97	1.00	
Frt		0.99			0.96		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1694			1752		1799	1818		1654	1770	
Flt Permitted		0.84			0.95		0.17	1.00		0.32	1.00	
Satd. Flow (perm)		1436			1667		329	1818		550	1770	
Peak-hour factor, PHF	0.73	0.90	0.70	0.65	0.91	0.93	0.89	0.80	0.71	0.92	0.91	0.89
Adj. Flow (vph)	136	457	69	22	232	110	55	444	30	152	651	76
RTOR Reduction (vph)	0	7	0	0	26	0	0	4	0	0	7	0
Lane Group Flow (vph)	0	655	0	0	338	0	55	470	0	152	720	0
Confl. Peds. (#/hr)	17		46	46		17	30		51	51		30
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	2%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.45			0.45		0.38	0.38		0.38	0.38	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		646			750		126	697		211	679	
v/s Ratio Prot								0.26			c0.41	
v/s Ratio Perm		c0.46			0.20		0.17			0.28		
v/c Ratio		1.01			0.45		0.44	0.67		0.72	1.06	
Uniform Delay, d1		16.5			11.4		13.7	15.4		15.8	18.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		38.9			2.0		10.6	5.2		19.1	51.8	
Delay (s)		55.4			13.3		24.3	20.5		34.8	70.3	
Level of Service		E			B		C	C		C	E	
Approach Delay (s)		55.4			13.3			20.9			64.1	
Approach LOS		E			B			C			E	

Intersection Summary

HCM Average Control Delay	44.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: Cypress St & Millvale Ave

2021 Combined
Timing Plan: PM Peak Hour

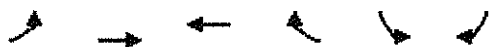
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	4	12	10	65	18	97	4	358	22	16	104	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.96			0.93			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1571			1450			1641			1659	
Flt Permitted		0.93			0.87			1.00			0.88	
Satd. Flow (perm)		1480			1283			1636			1473	
Peak-hour factor, PHF	0.50	0.55	0.75	0.77	0.53	0.77	0.50	0.88	0.59	0.55	0.98	0.25
Adj. Flow (vph)	8	22	13	84	34	126	8	407	37	29	106	4
RTOR Reduction (vph)	0	9	0	0	48	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	34	0	0	196	0	0	448	0	0	138	0
Confl. Peds. (#/hr)	9		6	6		9	45		44	44		45
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	4%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.0			22.0			46.0			46.0	
Effective Green, g (s)		22.0			22.0			46.0			46.0	
Actuated g/C Ratio		0.28			0.28			0.58			0.58	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		407			353			941			847	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.15			0.27			0.09	
v/c Ratio		0.08			0.56			0.48			0.16	
Uniform Delay, d1		21.5			24.8			9.9			8.0	
Progression Factor		1.00			1.00			1.09			0.85	
Incremental Delay, d2		0.4			6.2			1.5			0.4	
Delay (s)		21.9			31.0			12.4			7.1	
Level of Service		C			C			B			A	
Approach Delay (s)		21.9			31.0			12.4			7.1	
Approach LOS		C			C			B			A	

Intersection Summary

HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 22: Baum Blvd (S.R. 0400) & Luna Driveway

2021 Combined
 Timing Plan: PM Peak Hour















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↑	↑↔		↔↓	
Volume (vph)	15	1270	854	22	130	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11
Grade (%)		1%	1%		0%	
Total Lost time (s)		5.0	5.0		5.0	
Lane Util. Factor		0.95	0.95		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3402	3392		1655	
Flt Permitted		0.94	1.00		0.97	
Satd. Flow (perm)		3195	3392		1655	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	1411	949	24	144	94
RTOR Reduction (vph)	0	0	2	0	29	0
Lane Group Flow (vph)	0	1428	971	0	209	0
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		52.0	52.0		18.0	
Effective Green, g (s)		52.0	52.0		18.0	
Actuated g/C Ratio		0.65	0.65		0.22	
Clearance Time (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		2077	2205		372	
v/s Ratio Prot			0.29		0.13	
v/s Ratio Perm		0.45				
v/c Ratio		0.69	0.44		0.56	
Uniform Delay, d1		8.9	6.9		27.5	
Progression Factor		0.49	1.24		1.00	
Incremental Delay, d2		0.2	0.5		6.0	
Delay (s)		4.5	9.1		33.5	
Level of Service		A	A		C	
Approach Delay (s)		4.5	9.1		33.5	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 11: Morewood Ave & S. Millvale Ave

2021 Combined
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Volume (veh/h)	17	0	11	20	3	103	16	374	0	0	232	8
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.50	0.92	0.50	0.71	0.38	0.82	0.55	0.81	0.92	0.92	0.83	0.25
Hourly flow rate (vph)	34	0	22	28	8	126	29	462	0	0	280	32
Pedestrians		40			30			11			3	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			3			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	988	885	347	878	901	495	352			492		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	988	885	347	878	901	495	352			492		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	78	100	97	88	97	78	98			100		
cM capacity (veh/h)	157	263	675	227	257	561	1181			1051		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	162	491	312
Volume Left	34	28	29	0
Volume Right	22	126	0	32
cSH	225	426	1181	1700
Volume to Capacity	0.25	0.38	0.02	0.18
Queue Length 95th (ft)	19	35	2	0
Control Delay (s)	26.3	18.5	0.7	0.0
Lane LOS	D	C	A	
Approach Delay (s)	26.3	18.5	0.7	0.0
Approach LOS	D	C		

Intersection Summary			
Average Delay		4.7	
Intersection Capacity Utilization		47.7%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 13: Cypress St & Gross St

2021 Combined
 Timing Plan: PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	25	20	2	48	0	108	0	4	10	6	10
Peak Hour Factor	0.25	0.81	0.67	0.50	0.89	0.92	0.80	0.92	0.50	0.50	0.25	0.75
Hourly flow rate (vph)	0	31	30	4	54	0	135	0	8	20	24	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	61	58	143	57
Volume Left (vph)	0	4	135	20
Volume Right (vph)	30	0	8	13
Hadj (s)	-0.27	0.01	0.16	-0.02
Departure Headway (s)	4.2	4.4	4.4	4.3
Degree Utilization, x	0.07	0.07	0.17	0.07
Capacity (veh/h)	820	761	793	805
Control Delay (s)	7.5	7.8	8.3	7.6
Approach Delay (s)	7.5	7.8	8.3	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.9	
HCM Level of Service		A	
Intersection Capacity Utilization	26.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

2021 Combined
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	127	0	18	16	0	18	18	648	0	0	721	47
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.73	0.92	0.74	0.63	0.92	0.61	0.64	0.92	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	174	0	24	25	0	30	28	704	0	0	784	60
Pedestrians					61			9			6	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					5			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.66	0.66	0.66	0.66	0.66		0.66					
vC, conflicting volume	1258	1635	823	1669	1666	419	844			765		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1135	1704	479	1754	1750	419	511			765		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	93	15	100	95	96			100		
cM capacity (veh/h)	93	55	354	30	51	555	706			801		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1
Volume Total	174	24	55	263	470	844
Volume Left	174	0	25	28	0	0
Volume Right	0	24	30	0	0	60
cSH	93	354	61	706	1700	1700
Volume to Capacity	1.87	0.07	0.91	0.04	0.28	0.50
Queue Length 95th (ft)	292	4	84	2	0	0
Control Delay (s)	506.8	15.9	200.4	1.5	0.0	0.0
Lane LOS	F	C	F	A		
Approach Delay (s)	446.6		200.4	0.5		0.0
Approach LOS	F		F			

Intersection Summary		
Average Delay		54.6
Intersection Capacity Utilization	61.9%	ICU Level of Service
Analysis Period (min)		15
		B

HCM Unsignalized Intersection Capacity Analysis
 15: ED Dwy/Employee Garage & S. Aiken Ave

2021 Combined
 Timing Plan: PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	90	45	8	593	739	22
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.83	0.80	0.50	0.92	0.92	0.69
Hourly flow rate (vph)	108	56	16	645	803	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked	0.71	0.71	0.71			
vC, conflicting volume	1173	819	835			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1039	539	561			
tC, single (s)	6.8	7.0	4.4			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	31	83	98			
cM capacity (veh/h)	156	336	661			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	108	56	231	430	835
Volume Left	108	0	16	0	0
Volume Right	0	56	0	0	32
cSH	156	336	661	1700	1700
Volume to Capacity	0.69	0.17	0.02	0.25	0.49
Queue Length 95th (ft)	81	12	1	0	0
Control Delay (s)	68.3	17.9	1.0	0.0	0.0
Lane LOS	F	C	A		
Approach Delay (s)	51.1		0.4		0.0
Approach LOS	F				

Intersection Summary					
Average Delay			5.2		
Intersection Capacity Utilization			51.9%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

2021 Combined
 Timing Plan: PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑	
Volume (veh/h)	0	1	0	602	787	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.68	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	654	855	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				640	676	
pX, platoon unblocked	0.75	0.75	0.75			
vC, conflicting volume	1183	855	855			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1076	639	639			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	160	317	704			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	1	327	327	855
Volume Left	0	0	0	0
Volume Right	1	0	0	0
cSH	317	1700	1700	1700
Volume to Capacity	0.00	0.19	0.19	0.50
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	16.4	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	16.4	0.0		0.0
Approach LOS	C			

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		51.4%	ICU Level of Service A
Analysis Period (min)		15	

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 46: Research Garage Dwy & Morewood Ave

2021 Combined
 Timing Plan: PM Peak Hour










	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑			↘
Volume (veh/h)	83	131	475	13	18	440
Sign Control	Stop		Free			Free
Grade	0%		2%			-1%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	92	146	528	14	20	489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			182			180
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	1064	535			542	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	958	301			310	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	76			98	
cM capacity (veh/h)	225	594			1006	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	238	542	509
Volume Left	92	0	20
Volume Right	146	14	0
cSH	363	1700	1006
Volume to Capacity	0.65	0.32	0.02
Queue Length 95th (ft)	89	0	1
Control Delay (s)	31.8	0.0	0.6
Lane LOS	D		A
Approach Delay (s)	31.8	0.0	0.6
Approach LOS	D		

Intersection Summary			
Average Delay		6.1	
Intersection Capacity Utilization		57.1%	ICU Level of Service
Analysis Period (min)		15	B

HCM Unsignalized Intersection Capacity Analysis
 48: Luna Garage Dwy & Gross St

2021 Combined
 Timing Plan: PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	91	21	1	17	11
Sign Control	Stop		Free			Free
Grade	0%		8%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	101	23	1	19	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	74	24			24	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	74	24			24	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	90			99	
cM capacity (veh/h)	919	1053			1590	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	102	24	31
Volume Left	1	0	19
Volume Right	101	1	0
cSH	1051	1700	1590
Volume to Capacity	0.10	0.01	0.01
Queue Length 95th (ft)	6	0	1
Control Delay (s)	8.8	0.0	4.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	4.5
Approach LOS	A		

Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization		20.5%	ICU Level of Service
Analysis Period (min)		15	A

APPENDIX H

2021 Combined Conditions Mitigated Capacity Analysis

HCM Signalized Intersection Capacity Analysis
 1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	922	81	131	1138	28	59	64	66	59	145	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.99		1.00	0.98	
Flpb, ped/bikes		1.00			1.00			0.99		0.99	1.00	
Frt		0.98			1.00			0.96		1.00	0.95	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3244			3243			1749		1629	1733	
Flt Permitted		0.59			0.63			0.48		0.47	1.00	
Satd. Flow (perm)		1915			2041			860		801	1733	
Peak-hour factor, PHF	0.59	0.91	0.63	0.84	0.93	0.72	0.86	0.66	0.85	0.73	0.78	0.66
Adj. Flow (vph)	105	1013	129	156	1224	39	69	97	78	81	186	91
RTOR Reduction (vph)	0	11	0	0	2	0	0	21	0	0	22	0
Lane Group Flow (vph)	0	1236	0	0	1417	0	0	223	0	81	255	0
Confl. Peds. (#/hr)	14		9	9		14	39		19	19		39
Heavy Vehicles (%)	0%	2%	4%	5%	2%	0%	2%	5%	5%	5%	2%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		53.0			43.0			16.0		16.0	16.0	
Effective Green, g (s)		53.0			43.0			16.0		16.0	16.0	
Actuated g/C Ratio		0.66			0.54			0.20		0.20	0.20	
Clearance Time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Grp Cap (vph)		1385			1097			172		160	347	
v/s Ratio Prot		c0.08									0.15	
v/s Ratio Perm		0.51			c0.69			c0.26		0.10		
v/c Ratio		0.89			1.29			1.30		0.51	0.73	
Uniform Delay, d1		11.1			18.5			32.0		28.5	30.0	
Progression Factor		1.00			0.89			1.00		0.77	0.74	
Incremental Delay, d2		9.1			131.8			169.9		10.6	12.5	
Delay (s)		20.2			148.2			201.9		32.5	34.6	
Level of Service		C			F			F		C	C	
Approach Delay (s)		20.2			148.2			201.9			34.1	
Approach LOS		C			F			F			C	

Intersection Summary

HCM Average Control Delay	90.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	711	244	270	1069	25	226	36	119	2	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	10	10	10	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0		5.0	5.0			5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frbp, ped/bikes		0.99			1.00		1.00	0.96			0.99	
Flpb, ped/bikes		1.00			1.00		0.97	1.00			0.99	
Frt		0.96			1.00		1.00	0.88			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.98	
Satd. Flow (prot)		3158			3142		1600	1464			1913	
Flt Permitted		0.90			0.52		0.75	1.00			0.86	
Satd. Flow (perm)		2835			1651		1258	1464			1679	
Peak-hour factor, PHF	0.80	0.94	0.82	0.87	0.95	0.82	0.90	0.90	0.90	0.25	0.50	0.25
Adj. Flow (vph)	21	756	298	310	1125	30	251	40	132	8	4	4
RTOR Reduction (vph)	0	50	0	0	2	0	0	107	0	0	3	0
Lane Group Flow (vph)	0	1025	0	0	1463	0	251	65	0	0	13	0
Confl. Peds. (#/hr)	13		23	23		13	20		23	23		20
Heavy Vehicles (%)	0%	2%	0%	3%	1%	0%	1%	3%	2%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		37.0			54.0		15.0	15.0			15.0	
Effective Green, g (s)		37.0			54.0		15.0	15.0			15.0	
Actuated g/C Ratio		0.46			0.68		0.19	0.19			0.19	
Clearance Time (s)		6.0			6.0		5.0	5.0			5.0	
Lane Grp Cap (vph)		1311			1375		236	275			315	
v/s Ratio Prot					c0.19			0.04				
v/s Ratio Perm		0.36			c0.53		c0.20				0.01	
v/c Ratio		0.78			1.06		1.06	0.24			0.04	
Uniform Delay, d1		18.1			13.0		32.5	27.6			26.6	
Progression Factor		0.69			0.28		0.75	0.65			1.00	
Incremental Delay, d2		1.8			40.1		66.0	1.4			0.2	
Delay (s)		14.3			43.7		90.2	19.4			26.8	
Level of Service		B			D		F	B			C	
Approach Delay (s)		14.3			43.7			61.4			26.8	
Approach LOS		B			D			E			C	

Intersection Summary

HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 3: Baum Blvd (S.R. 0400) & Cypress St

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	670	72	116	1426	13	67	12	41	9	20	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	15	11	8	15	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.97			1.00	
Frt		0.98			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3216			3305			1828			1853	
Flt Permitted		0.84			0.74			0.84			0.84	
Satd. Flow (perm)		2706			2460			1584			1587	
Peak-hour factor, PHF	0.46	0.92	0.78	0.77	0.95	0.75	0.69	0.63	0.63	0.40	0.69	0.75
Adj. Flow (vph)	30	728	92	151	1501	17	97	19	65	22	29	25
RTOR Reduction (vph)	0	12	0	0	1	0	0	25	0	0	22	0
Lane Group Flow (vph)	0	838	0	0	1668	0	0	156	0	0	54	0
Confl. Peds. (#/hr)	13		13	13		13	26		12	12		26
Heavy Vehicles (%)	0%	2%	3%	0%	2%	0%	0%	0%	0%	13%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		59.0			59.0			10.0			10.0	
Effective Green, g (s)		59.0			59.0			10.0			10.0	
Actuated g/C Ratio		0.74			0.74			0.12			0.12	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1996			1814			198			198	
v/s Ratio Prot												
v/s Ratio Perm		0.31			0.68			0.10			0.03	
v/c Ratio		0.42			0.92			0.79			0.27	
Uniform Delay, d1		4.0			8.6			34.0			31.7	
Progression Factor		1.68			0.24			0.76			1.00	
Incremental Delay, d2		0.5			1.0			24.6			3.4	
Delay (s)		7.2			3.1			50.3			35.1	
Level of Service		A			A			D			D	
Approach Delay (s)		7.2			3.1			50.3			35.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations												
Volume (vph)	30	51	500	121	130	1274	175	43	168	316	66	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.99			1.00	0.99		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.97			0.97			1.00	0.96		
Flt Protected			0.99			1.00			0.95	1.00		
Satd. Flow (prot)			3265			3218			1734	1767		
Flt Permitted			0.52			0.69			0.20	1.00		
Satd. Flow (perm)			1725			2236			363	1767		
Peak-hour factor, PHF	0.71	0.81	0.85	0.80	0.76	0.95	0.87	0.42	0.92	0.98	0.63	0.56
Adj. Flow (vph)	42	63	588	151	171	1341	201	102	183	322	105	43
RTOR Reduction (vph)	0	0	23	0	0	5	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	821	0	0	1810	0	0	183	427	0	0
Confl. Peds. (#/hr)	5	18		18	18		5	18	19		18	18
Heavy Vehicles (%)	0%	0%	2%	0%	6%	1%	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm			Perm				Perm			Perm
Protected Phases			2			6				8		
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			47.0			47.0			23.0	23.0		
Effective Green, g (s)			47.0			47.0			23.0	23.0		
Actuated g/C Ratio			0.59			0.59			0.29	0.29		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			1013			1314			104	508		
v/s Ratio Prot										0.24		
v/s Ratio Perm			0.48			c0.81			c0.50			
v/c Ratio			0.93dl			1.38			1.76	0.84		
Uniform Delay, d1			13.0			16.5			28.5	26.8		
Progression Factor			0.72			0.63			1.06	1.09		
Incremental Delay, d2			6.5			173.0			355.8	6.2		
Delay (s)			15.8			183.4			386.1	35.4		
Level of Service			B			F			F	D		
Approach Delay (s)			15.8			183.4				140.6		
Approach LOS			B			F				F		

Intersection Summary

HCM Average Control Delay	136.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave













2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations		←↑→	
Volume (vph)	112	384	107
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		0.99	
Flpb, ped/bikes		0.99	
Frt		0.97	
Flt Protected		0.99	
Satd. Flow (prot)		3409	
Flt Permitted		0.57	
Satd. Flow (perm)		1954	
Peak-hour factor, PHF	0.79	0.95	0.72
Adj. Flow (vph)	142	404	149
RTOR Reduction (vph)	0	28	0
Lane Group Flow (vph)	0	710	0
Confl. Peds. (#/hr)	58		19
Heavy Vehicles (%)	2%	2%	0%
Turn Type	Perm		
Protected Phases		4	
Permitted Phases	4		
Actuated Green, G (s)		23.0	
Effective Green, g (s)		23.0	
Actuated g/C Ratio		0.29	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		562	
v/s Ratio Prot			
v/s Ratio Perm		0.36	
v/c Ratio		1.26	
Uniform Delay, d1		28.5	
Progression Factor		0.95	
Incremental Delay, d2		130.1	
Delay (s)		157.3	
Level of Service		F	
Approach Delay (s)		157.3	
Approach LOS		F	
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔			↔↔	
Volume (vph)	15	605	0	0	1523	10	4	22	80	35	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	14	12	12	15	12
Grade (%)		-1%			4%			3%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.96			0.97	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			1.00			0.91			0.91	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3285			3233			1620			1774	
Flt Permitted		0.87			1.00			0.98			0.80	
Satd. Flow (perm)		2852			3233			1593			1434	
Peak-hour factor, PHF	0.69	0.85	0.92	0.92	0.92	0.75	0.50	0.61	0.81	0.60	0.92	0.89
Adj. Flow (vph)	22	712	0	0	1655	13	8	36	99	58	0	135
RTOR Reduction (vph)	0	0	0	0	1	0	0	83	0	0	36	0
Lane Group Flow (vph)	0	734	0	0	1667	0	0	60	0	0	157	0
Confl. Peds. (#/hr)	16		15	15		16	15		25	25		15
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	10%	0%	0%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		56.0			56.0			13.0			13.0	
Effective Green, g (s)		56.0			56.0			13.0			13.0	
Actuated g/C Ratio		0.70			0.70			0.16			0.16	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1996			2263			259			233	
v/s Ratio Prot					c0.52							
v/s Ratio Perm		0.26						0.04			c0.11	
v/c Ratio		0.37			0.74			0.23			0.67	
Uniform Delay, d1		4.8			7.4			29.2			31.5	
Progression Factor		0.45			1.00			1.44			1.00	
Incremental Delay, d2		0.2			2.2			1.3			14.5	
Delay (s)		2.4			9.6			43.2			46.0	
Level of Service		A			A			D			D	
Approach Delay (s)		2.4			9.6			43.2			46.0	
Approach LOS		A			A			D			D	

Intersection Summary

HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Centre Ave & Morewood Ave


















2021 Combined Mitigated
Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↗		↔		↖	↔	
Volume (vph)	69	399	44	71	448	111	30	316	128	90	221	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	10	10	10	10
Grade (%)		-2%			2%			-3%			-1%	
Total Lost time (s)		5.0			5.0	5.0		5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00	0.96		0.98		1.00	0.99	
Flpb, ped/bikes		1.00			1.00	1.00		1.00		0.98	1.00	
Frt		0.99			1.00	0.85		0.96		1.00	0.96	
Flt Protected		0.99			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1746			1764	1532		1638		1516	1673	
Flt Permitted		0.67			0.85	1.00		0.94		0.31	1.00	
Satd. Flow (perm)		1178			1510	1532		1554		500	1673	
Peak-hour factor, PHF	0.89	0.87	0.85	0.79	0.82	0.81	0.68	0.94	0.85	0.90	0.90	0.90
Adj. Flow (vph)	78	459	52	90	546	137	44	336	151	100	246	100
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	589	0	0	636	137	0	531	0	100	346	0
Confl. Peds. (#/hr)	23		31	31		23	15		31	31		15
Heavy Vehicles (%)	0%	8%	12%	4%	6%	0%	7%	2%	5%	10%	1%	0%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)		41.0			41.0	41.0		29.0		29.0	29.0	
Effective Green, g (s)		41.0			41.0	41.0		29.0		29.0	29.0	
Actuated g/C Ratio		0.51			0.51	0.51		0.36		0.36	0.36	
Clearance Time (s)		5.0			5.0	5.0		5.0		5.0	5.0	
Lane Grp Cap (vph)		604			774	785		563		181	606	
v/s Ratio Prot												0.21
v/s Ratio Perm		c0.50			0.42	0.09		c0.34		0.20		
v/c Ratio		0.98			0.82	0.17		0.94		0.55	0.57	
Uniform Delay, d1		19.0			16.4	10.4		24.7		20.3	20.5	
Progression Factor		1.00			0.98	0.75		1.00		0.55	0.53	
Incremental Delay, d2		31.0			8.5	0.4		26.2		4.7	1.5	
Delay (s)		50.0			24.5	8.2		50.9		15.9	12.4	
Level of Service		D			C	A		D		B	B	
Approach Delay (s)		50.0			21.6			50.9			13.2	
Approach LOS		D			C			D			B	

Intersection Summary		
HCM Average Control Delay	33.8	HCM Level of Service
HCM Volume to Capacity ratio	0.96	C
Actuated Cycle Length (s)	80.0	Sum of lost time (s)
Intersection Capacity Utilization	116.3%	10.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		H

HCM Signalized Intersection Capacity Analysis
7: Centre Ave & Cypress St

2021 Combined Mitigated
Timing Plan: A.M. Peak Hour



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	462	56	79	560	76	36	31	34	64	62	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	
Frbp, ped/bikes		0.99			0.99			1.00	0.95		0.98	
Flpb, ped/bikes		1.00			1.00			0.99	1.00		0.98	
Frt		0.98			0.98			1.00	0.85		0.95	
Flt Protected		1.00			0.99			0.97	1.00		0.98	
Satd. Flow (prot)		3183			3412			1712	1551		1674	
Flt Permitted		0.86			0.81			0.71	1.00		0.83	
Satd. Flow (perm)		2757			2773			1248	1551		1412	
Peak-hour factor, PHF	0.78	0.85	0.84	0.92	0.85	0.75	0.73	0.68	0.50	0.60	0.94	0.82
Adj. Flow (vph)	40	544	67	86	659	101	49	46	68	107	66	94
RTOR Reduction (vph)	0	11	0	0	13	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	640	0	0	833	0	0	95	68	0	267	0
Confl. Peds. (#/hr)	51		56	56		51	28		33	33		28
Heavy Vehicles (%)	0%	10%	5%	1%	5%	0%	17%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		50.5			50.5			18.5	18.5			18.5
Effective Green, g (s)		50.5			50.5			18.5	18.5			18.5
Actuated g/C Ratio		0.63			0.63			0.23	0.23			0.23
Clearance Time (s)		5.5			5.5			5.5	5.5			5.5
Lane Grp Cap (vph)		1740			1750			289	359			327
v/s Ratio Prot												
v/s Ratio Perm		0.23			0.30			0.08	0.04			0.19
v/c Ratio		0.37			0.48			0.33	0.19			0.82
Uniform Delay, d1		7.1			7.8			25.6	24.7			29.1
Progression Factor		0.93			1.04			1.00	1.00			0.97
Incremental Delay, d2		0.2			0.5			3.0	1.2			14.8
Delay (s)		6.9			8.5			28.6	25.9			43.2
Level of Service		A			A			C	C			D
Approach Delay (s)		6.9			8.5			27.5				43.2
Approach LOS		A			A			C				D

Intersection Summary

HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
8: Centre Ave & Liberty Ave

2021 Combined Mitigated
Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	292	150	96	397	112	212	459	66	81	391	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		5.5	6.0		5.5	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.94			0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Frt		0.96			0.97		1.00	0.98		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2999			3195		1734	1823		1792	1771	
Flt Permitted		0.64			0.66		0.15	1.00		0.15	1.00	
Satd. Flow (perm)		1942			2122		281	1823		290	1771	
Peak-hour factor, PHF	0.81	0.86	0.79	0.87	0.92	0.89	0.95	0.89	0.79	0.85	0.90	0.84
Adj. Flow (vph)	110	340	190	110	432	126	223	516	84	95	434	158
RTOR Reduction (vph)	0	58	0	0	25	0	0	7	0	0	16	0
Lane Group Flow (vph)	0	582	0	0	643	0	223	593	0	95	576	0
Confl. Peds. (#/hr)	60		132	132		60	53		94	94		53
Heavy Vehicles (%)	17%	8%	4%	2%	6%	3%	1%	1%	2%	2%	1%	8%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		28.0			28.0		34.5	26.0		34.5	26.0	
Effective Green, g (s)		28.0			28.0		34.5	26.0		34.5	26.0	
Actuated g/C Ratio		0.35			0.35		0.43	0.32		0.43	0.32	
Clearance Time (s)		6.0			6.0		5.5	6.0		5.5	6.0	
Lane Grp Cap (vph)		680			743		276	592		285	576	
v/s Ratio Prot							c0.09	0.33		0.04	c0.33	
v/s Ratio Perm		0.30			c0.30		0.26			0.11		
v/c Ratio		0.86			0.86		0.81	1.00		0.33	1.00	
Uniform Delay, d1		24.1			24.2		18.0	27.0		16.6	27.0	
Progression Factor		0.99			1.00		1.00	1.00		1.08	0.89	
Incremental Delay, d2		12.2			12.8		21.9	37.2		0.3	11.2	
Delay (s)		36.2			37.1		39.9	64.2		18.1	35.2	
Level of Service		D			D		D	E		B	D	
Approach Delay (s)		36.2			37.1			57.6			32.8	
Approach LOS		D			D			E			C	

Intersection Summary

HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 9: Liberty Ave & Millvale Ave













2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖		↗	↖	
Volume (vph)	45	466	85	25	468	37	71	57	25	126	144	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		1.00			1.00		0.92	1.00		0.96	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.95	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1954			1996		1391	1528		1610	1598	
Flt Permitted		0.91			0.95		0.44	1.00		0.68	1.00	
Satd. Flow (perm)		1792			1910		650	1528		1146	1598	
Peak-hour factor, PHF	0.81	0.94	0.82	0.82	0.89	0.66	0.91	0.65	0.65	0.66	0.77	0.60
Adj. Flow (vph)	56	496	104	30	526	56	78	88	38	191	187	95
RTOR Reduction (vph)	0	9	0	0	5	0	0	19	0	0	23	0
Lane Group Flow (vph)	0	647	0	0	607	0	78	107	0	191	259	0
Confl. Peds. (#/hr)	87		46	46		87	80		27	27		80
Heavy Vehicles (%)	0%	3%	8%	0%	2%	0%	5%	2%	4%	2%	1%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		47.0			47.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.59			0.59		0.29	0.29		0.29	0.29	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1053			1122		187	439		329	459	
v/s Ratio Prot								0.07			0.16	
v/s Ratio Perm		c0.36			0.32		0.12			c0.17		
v/c Ratio		0.61			0.54		0.42	0.24		0.58	0.56	
Uniform Delay, d1		10.7			10.0		23.1	21.8		24.4	24.2	
Progression Factor		1.00			0.77		0.77	0.74		1.00	1.00	
Incremental Delay, d2		2.7			0.6		6.5	1.3		7.3	5.0	
Delay (s)		13.3			8.2		24.2	17.4		31.7	29.2	
Level of Service		B			A		C	B		C	C	
Approach Delay (s)		13.3			8.2			20.0			30.2	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 10: Ellsworth Ave & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Volume (vph)	55	156	13	13	413	146	71	575	12	36	252	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00			0.99		1.00	1.00		1.00	0.99	
Fipb, ped/bikes		1.00			1.00		0.99	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	1.00		1.00	0.97	
Fit Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1661			1782		1751	1872		1789	1789	
Flt Permitted		0.70			0.99		0.41	1.00		0.17	1.00	
Satd. Flow (perm)		1181			1759		754	1872		328	1789	
Peak-hour factor, PHF	0.69	0.92	0.60	0.60	0.85	0.85	0.84	0.96	0.69	0.46	0.78	0.78
Adj. Flow (vph)	80	170	22	22	486	172	85	599	17	78	323	68
RTOR Reduction (vph)	0	6	0	0	20	0	0	2	0	0	12	0
Lane Group Flow (vph)	0	267	0	0	660	0	85	614	0	78	379	0
Confl. Peds. (#/hr)	12		11	11		12	9		10	10		9
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	3%	1%	18%	0%	2%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.45			0.45		0.38	0.38		0.38	0.38	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		531			792		289	718		126	686	
v/s Ratio Prot								c0.33			0.21	
v/s Ratio Perm		0.23			c0.38		0.11			0.24		
v/c Ratio		0.50			0.83		0.29	0.86		0.62	0.55	
Uniform Delay, d1		11.7			14.5		12.9	17.0		15.0	14.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.4			10.0		2.6	12.4		20.7	3.2	
Delay (s)		15.1			24.5		15.4	29.4		35.7	17.7	
Level of Service		B			C		B	C		D	B	
Approach Delay (s)		15.1			24.5			27.7			20.6	
Approach LOS		B			C			C			C	

Intersection Summary

HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 12: Cypress St & Millvale Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

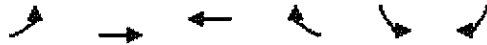
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	1	13	6	40	12	39	1	114	62	36	203	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.94			0.95			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1572			1498			1549			1693	
Flt Permitted		0.97			0.87			1.00			0.88	
Satd. Flow (perm)		1537			1337			1543			1503	
Peak-hour factor, PHF	0.25	0.69	0.50	0.80	0.50	0.72	0.25	0.63	0.66	0.50	0.75	0.50
Adj. Flow (vph)	4	19	12	50	24	54	4	181	94	72	271	4
RTOR Reduction (vph)	0	9	0	0	33	0	0	23	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	95	0	0	256	0	0	347	0
Confl. Peds. (#/hr)	2		2	2		2	39		14	14		39
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.0			22.0			46.0			46.0	
Effective Green, g (s)		22.0			22.0			46.0			46.0	
Actuated g/C Ratio		0.28			0.28			0.58			0.58	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		423			368			887			864	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.07			0.17			0.23	
v/c Ratio		0.06			0.26			0.29			0.40	
Uniform Delay, d1		21.4			22.6			8.7			9.4	
Progression Factor		1.00			1.00			1.02			0.75	
Incremental Delay, d2		0.3			1.7			0.7			1.2	
Delay (s)		21.7			24.3			9.5			8.3	
Level of Service		C			C			A			A	
Approach Delay (s)		21.7			24.3			9.5			8.3	
Approach LOS		C			C			A			A	

Intersection Summary

HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 44: Baum Blvd (S.R. 0400) & Luna Driveway

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour



















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕	↗	↘	
Volume (vph)	94	738	1368	144	26	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	11
Grade (%)		1%	1%		0%	
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	0.95	1.00	1.00	
Frt		1.00	1.00	0.85	0.95	
Flt Protected		0.99	1.00	1.00	0.97	
Satd. Flow (prot)		3268	3287	1470	1656	
Flt Permitted		0.60	1.00	1.00	0.97	
Satd. Flow (perm)		1981	3287	1470	1656	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	820	1520	160	29	18
RTOR Reduction (vph)	0	0	0	52	14	0
Lane Group Flow (vph)	0	924	1520	108	33	0
Turn Type	Perm			Perm		
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)		54.0	54.0	54.0	16.0	
Effective Green, g (s)		54.0	54.0	54.0	16.0	
Actuated g/C Ratio		0.68	0.68	0.68	0.20	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)		1337	2219	992	331	
v/s Ratio Prot			0.46		c0.02	
v/s Ratio Perm		c0.47		0.07		
v/c Ratio		0.69	0.68	0.11	0.10	
Uniform Delay, d1		7.9	7.9	4.6	26.1	
Progression Factor		1.02	0.64	0.73	1.00	
Incremental Delay, d2		2.0	0.8	0.1	0.6	
Delay (s)		10.1	5.8	3.5	26.7	
Level of Service		B	A	A	C	
Approach Delay (s)		10.1	5.6		26.7	
Approach LOS		B	A		C	

Intersection Summary

HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 11: Morewood Ave & S. Millvale Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	23	12	4	41	8	135	0	0	283	2
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.75	0.92	0.61	0.69	0.50	0.89	0.50	0.94	0.92	0.92	0.97	0.25
Hourly flow rate (vph)	4	0	38	17	8	46	16	144	0	0	292	8
Pedestrians		38			19			6			8	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	567	528	340	534	532	171	338			163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	567	528	340	534	532	171	338			163		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	99	100	94	96	98	95	99			100		
cM capacity (veh/h)	375	431	684	405	396	850	1072			1402		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	71	160	300
Volume Left	4	17	16	0
Volume Right	38	46	0	8
cSH	634	609	1072	1700
Volume to Capacity	0.07	0.12	0.01	0.18
Queue Length 95th (ft)	4	8	1	0
Control Delay (s)	11.1	11.7	1.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.1	11.7	1.0	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization		29.6%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 13: Cypress St & Gross St

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	29	71	4	33	0	27	0	3	9	50	2
Peak Hour Factor	0.92	0.50	0.50	1.00	0.66	0.92	0.75	0.92	0.75	0.63	0.83	0.50
Hourly flow rate (vph)	0	58	142	4	50	0	36	0	4	14	60	4

















Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	200	54	40	79
Volume Left (vph)	0	4	36	14
Volume Right (vph)	142	0	4	4
Hadj (s)	-0.43	0.01	0.12	0.01
Departure Headway (s)	3.8	4.4	4.6	4.5
Degree Utilization, x	0.21	0.07	0.05	0.10
Capacity (veh/h)	913	778	726	749
Control Delay (s)	7.8	7.7	7.9	8.0
Approach Delay (s)	7.8	7.7	7.9	8.0
Approach LOS	A	A	A	A

Intersection Summary

Delay	7.9
HCM Level of Service	A
Intersection Capacity Utilization	20.9%
Analysis Period (min)	15
ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	0	7	17	0	24	18	648	0	0	445	128
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.60	0.92	0.78	0.80	0.92	0.86	0.80	0.94	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	80	0	9	21	0	28	22	689	0	0	484	164
Pedestrians					28			7			8	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					2			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.77	0.77	0.77	0.77	0.77		0.77					
vC, conflicting volume	991	1328	573	1344	1410	381	648			717		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	839	1277	295	1297	1383	381	392			717		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	56	100	98	75	100	95	98			100		
cM capacity (veh/h)	184	121	541	85	104	604	906			859		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	89	49	252	460	648
Volume Left	80	21	22	0	0
Volume Right	9	28	0	0	164
cSH	197	166	906	1700	1700
Volume to Capacity	0.45	0.30	0.02	0.27	0.38
Queue Length 95th (ft)	43	23	2	0	0
Control Delay (s)	37.5	35.5	1.0	0.0	0.0
Lane LOS	E	E	A		
Approach Delay (s)	37.5	35.5	0.4	0.0	
Approach LOS	E	E			

Intersection Summary		
Average Delay		3.6
Intersection Capacity Utilization	45.4%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis
 15: ED Dwy/Employee Garage & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Volume (veh/h)	19	16	69	650	398	74
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.59	0.57	0.78	0.94	0.92	0.88
Hourly flow rate (vph)	32	28	88	691	433	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked						
vC, conflicting volume	997	475	517			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	997	475	517			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	95	92			
cM capacity (veh/h)	216	542	1052			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	32	28	319	461	517
Volume Left	32	0	88	0	0
Volume Right	0	28	0	0	84
cSH	216	542	1052	1700	1700
Volume to Capacity	0.15	0.05	0.08	0.27	0.30
Queue Length 95th (ft)	10	3	5	0	0
Control Delay (s)	24.6	12.0	3.0	0.0	0.0
Lane LOS	C	B	A		
Approach Delay (s)	18.7		1.2		0.0
Approach LOS	C				

Intersection Summary					
Average Delay			1.5		
Intersection Capacity Utilization			58.7%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑	
Volume (veh/h)	0	1	0	724	415	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.25	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	0	4	0	770	451	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				640	676	
pX, platoon unblocked						
vC, conflicting volume	836	451	451			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	836	451	451			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	306	561	1106			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	4	385	385	451
Volume Left	0	0	0	0
Volume Right	4	0	0	0
cSH	561	1700	1700	1700
Volume to Capacity	0.01	0.23	0.23	0.27
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	11.5	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.5	0.0		0.0
Approach LOS	B			

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		31.8%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 22: Research Garage Dwy & Morewood Ave

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour










						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	18	401	95	150	388
Sign Control	Stop		Free			Free
Grade	0%		2%			-1%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	20	446	106	167	431
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			182			180
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	1263	498			551	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1198	225			292	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	97			83	
cM capacity (veh/h)	134	640			997	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	551	598
Volume Left	14	0	167
Volume Right	20	106	0
cSH	248	1700	997
Volume to Capacity	0.14	0.32	0.17
Queue Length 95th (ft)	10	0	12
Control Delay (s)	21.8	0.0	4.1
Lane LOS	C		A
Approach Delay (s)	21.8	0.0	4.1
Approach LOS	C		

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization		68.9%	ICU Level of Service
Analysis Period (min)		15	C

HCM Unsignalized Intersection Capacity Analysis
 48: Luna Garage Dwy & Gross St

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	17	13	1	99	26
Sign Control	Stop		Free			Free
Grade	0%		8%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	18	14	1	108	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	258	15			15	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	258	15			15	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			93	
cM capacity (veh/h)	682	1065			1603	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	20	15	136
Volume Left	1	0	108
Volume Right	18	1	0
cSH	1033	1700	1603
Volume to Capacity	0.02	0.01	0.07
Queue Length 95th (ft)	1	0	4
Control Delay (s)	8.6	0.0	6.0
Lane LOS	A		A
Approach Delay (s)	8.6	0.0	6.0
Approach LOS	A		

Intersection Summary			
Average Delay		5.7	
Intersection Capacity Utilization		23.5%	ICU Level of Service
Analysis Period (min)		15	A

HCM Signalized Intersection Capacity Analysis
 1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	1136	90	102	887	34	62	131	111	50	123	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	13	12	11	12	12
Grade (%)		-1%			1%			-1%			1%	
Total Lost time (s)		6.0			6.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frbp, ped/bikes		1.00			1.00			0.98		1.00	0.97	
Flpb, ped/bikes		1.00			1.00			0.99		0.98	1.00	
Frt		0.99			0.99			0.95		1.00	0.94	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		3299			3260			1746		1597	1689	
Flt Permitted		0.67			0.58			0.67		0.32	1.00	
Satd. Flow (perm)		2211			1895			1183		540	1689	
Peak-hour factor, PHF	0.86	0.94	0.88	0.79	0.89	0.75	0.83	0.84	0.71	0.79	0.78	0.80
Adj. Flow (vph)	93	1209	102	129	997	45	75	156	156	63	158	100
RTOR Reduction (vph)	0	7	0	0	4	0	0	31	0	0	28	0
Lane Group Flow (vph)	0	1397	0	0	1168	0	0	357	0	63	230	0
Confl. Peds. (#/hr)	11		18	18		11	61		34	34		61
Heavy Vehicles (%)	0%	1%	1%	4%	1%	6%	7%	3%	0%	7%	3%	0%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		50.0			40.0			19.0		19.0		19.0
Effective Green, g (s)		50.0			40.0			19.0		19.0		19.0
Actuated g/C Ratio		0.62			0.50			0.24		0.24		0.24
Clearance Time (s)		6.0			6.0			5.0		5.0		5.0
Lane Grp Cap (vph)		1477			948			281		128		401
v/s Ratio Prot		c0.08										0.14
v/s Ratio Perm		0.51			c0.62			c0.30		0.12		
v/c Ratio		0.95			1.23			1.27		0.49		0.57
Uniform Delay, d1		13.8			20.0			30.5		26.3		26.9
Progression Factor		1.00			0.99			1.00		1.00		1.00
Incremental Delay, d2		13.6			105.1			146.0		12.8		5.8
Delay (s)		27.4			124.9			176.5		39.1		32.8
Level of Service		C			F			F		D		C
Approach Delay (s)		27.4			124.9			176.5				34.0
Approach LOS		C			F			F				C

Intersection Summary

HCM Average Control Delay	80.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	976	203	158	758	21	245	57	241	18	23	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	9	9	10	10	11	12	15	12
Grade (%)		-1%			1%			2%			1%	
Total Lost time (s)		6.0			6.0		5.0	5.0			5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frbp, ped/bikes		0.99			1.00		1.00	0.95			0.99	
Flpb, ped/bikes		1.00			1.00		0.97	1.00			0.99	
Frft		0.98			0.99		1.00	0.88			0.97	
Flt Protected		1.00			0.99		0.95	1.00			0.98	
Satd. Flow (prot)		3248			3145		1606	1467			1946	
Flt Permitted		0.92			0.50		0.75	1.00			0.49	
Satd. Flow (perm)		2998			1595		1276	1467			983	
Peak-hour factor, PHF	0.70	0.90	0.93	0.84	0.85	0.48	0.77	0.70	0.83	0.47	0.75	0.63
Adj. Flow (vph)	21	1084	218	188	892	44	318	81	290	38	31	17
RTOR Reduction (vph)	0	21	0	0	4	0	0	159	0	0	11	0
Lane Group Flow (vph)	0	1303	0	0	1120	0	318	212	0	0	75	0
Confl. Peds. (#/hr)	32		17	17		32	25		38	38		25
Heavy Vehicles (%)	0%	1%	1%	1%	1%	5%	1%	0%	1%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		40.0			50.0		19.0	19.0				19.0
Effective Green, g (s)		40.0			50.0		19.0	19.0				19.0
Actuated g/C Ratio		0.50			0.62		0.24	0.24				0.24
Clearance Time (s)		6.0			6.0		5.0	5.0				5.0
Lane Grp Cap (vph)		1499			1133		303	348				233
v/s Ratio Prot					c0.09			0.14				
v/s Ratio Perm		0.43			c0.53		c0.25					0.08
v/c Ratio		0.87			0.99		1.05	0.61				0.32
Uniform Delay, d1		17.7			14.7		30.5	27.2				25.2
Progression Factor		0.58			0.94		0.79	0.59				1.00
Incremental Delay, d2		2.0			23.2		58.4	5.8				3.6
Delay (s)		12.3			37.1		82.4	21.8				28.8
Level of Service		B			D		F	C				C
Approach Delay (s)		12.3			37.1			49.8				28.8
Approach LOS		B			D			D				C

Intersection Summary

HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Baum Blvd (S.R. 0400) & Cypress St

2021 Combined Mitigated
Timing Plan: PM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1349	43	23	780	11	71	23	127	23	2	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	11	11	11	8	8	8
Grade (%)		1%			-1%			3%			-1%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			1.00			0.93			0.93	
Flt Protected		1.00			1.00			0.98			0.98	
Satd. Flow (prot)		3288			3320			1599			1418	
Flt Permitted		0.93			0.87			0.86			0.78	
Satd. Flow (perm)		3065			2895			1402			1124	
Peak-hour factor, PHF	0.40	0.91	0.69	0.90	0.85	0.36	0.74	0.89	0.84	0.58	0.47	0.46
Adj. Flow (vph)	22	1482	62	26	918	31	96	26	151	40	4	54
RTOR Reduction (vph)	0	4	0	0	3	0	0	31	0	0	41	0
Lane Group Flow (vph)	0	1562	0	0	972	0	0	242	0	0	57	0
Confl. Peds. (#/hr)	17		20	20		17	22		20	20		22
Heavy Vehicles (%)	0%	1%	5%	0%	1%	10%	0%	0%	0%	0%	6%	5%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		50.0			50.0			19.0			19.0	
Effective Green, g (s)		50.0			50.0			19.0			19.0	
Actuated g/C Ratio		0.62			0.62			0.24			0.24	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1916			1809			333			267	
v/s Ratio Prot												
v/s Ratio Perm		c0.51			0.34			c0.17			0.05	
v/c Ratio		0.82			0.54			0.73			0.21	
Uniform Delay, d1		11.5			8.5			28.1			24.5	
Progression Factor		0.19			0.79			0.69			1.00	
Incremental Delay, d2		2.9			0.1			11.7			1.8	
Delay (s)		5.1			6.8			31.2			26.3	
Level of Service		A			A			C			C	
Approach Delay (s)		5.1			6.8			31.2			26.3	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour

												
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2
Lane Configurations												
Volume (vph)	109	78	1086	162	79	685	159	51	102	378	92	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	10	12	12	12	12
Grade (%)			-4%			-1%				3%		
Total Lost time (s)			5.0			5.0			5.0	5.0		
Lane Util. Factor			0.95			0.95			1.00	1.00		
Frbp, ped/bikes			1.00			0.98			1.00	0.96		
Flpb, ped/bikes			1.00			1.00			0.99	1.00		
Frt			0.98			0.96			1.00	0.96		
Fit Protected			0.99			1.00			0.95	1.00		
Satd. Flow (prot)			3298			3112			1738	1708		
Fit Permitted			0.55			0.55			0.23	1.00		
Satd. Flow (perm)			1821			1719			426	1708		
Peak-hour factor, PHF	0.86	0.68	0.93	0.82	0.80	0.88	0.83	0.67	0.77	0.83	0.58	0.75
Adj. Flow (vph)	127	115	1168	198	99	778	192	76	132	455	159	45
RTOR Reduction (vph)	0	0	14	0	0	6	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1594	0	0	1139	0	0	132	614	0	0
Confl. Peds. (#/hr)	29	61		17	17		29	61	41		61	61
Heavy Vehicles (%)	4%	0%	1%	0%	4%	2%	2%	0%	1%	2%	0%	0%
Turn Type	Perm	Perm			Perm				Perm			pm+pt
Protected Phases			2			6				8		7
Permitted Phases	2	2			6				8			4
Actuated Green, G (s)			43.0			43.0			20.0	20.0		
Effective Green, g (s)			43.0			43.0			20.0	20.0		
Actuated g/C Ratio			0.54			0.54			0.25	0.25		
Clearance Time (s)			5.0			5.0			5.0	5.0		
Lane Grp Cap (vph)			979			924			107	427		
v/s Ratio Prot										c0.36		
v/s Ratio Perm			c0.88			0.66			0.31			
v/c Ratio			1.63			1.23			1.23	1.44		
Uniform Delay, d1			18.5			18.5			30.0	30.0		
Progression Factor			0.62			0.67			0.83	0.84		
Incremental Delay, d2			285.5			113.1			123.0	200.3		
Delay (s)			296.9			125.5			148.1	225.5		
Level of Service			F			F			F	F		
Approach Delay (s)			296.9			125.5				211.8		
Approach LOS			F			F				F		

Intersection Summary

HCM Average Control Delay	194.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	134.1%	ICU Level of Service	H
Analysis Period (min)	15		

d1 Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour



Movement	SBL	SBT	SBR
Lane Configurations		↔↔↔	
Volume (vph)	181	450	71
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Grade (%)		-3%	
Total Lost time (s)		5.0	
Lane Util. Factor		0.95	
Frbp, ped/bikes		0.99	
Flpb, ped/bikes		0.99	
Frt		0.98	
Flt Protected		0.98	
Satd. Flow (prot)		3493	
Flt Permitted		0.59	
Satd. Flow (perm)		2084	
Peak-hour factor, PHF	0.79	0.91	0.77
Adj. Flow (vph)	229	495	92
RTOR Reduction (vph)	0	11	0
Lane Group Flow (vph)	0	850	0
Confl. Peds. (#/hr)	68		41
Heavy Vehicles (%)	0%	1%	0%
Turn Type	pm+pt		
Protected Phases	7	4	
Permitted Phases	4		
Actuated Green, G (s)		27.0	
Effective Green, g (s)		27.0	
Actuated g/C Ratio		0.34	
Clearance Time (s)		5.0	
Lane Grp Cap (vph)		774	
v/s Ratio Prot		c0.05	
v/s Ratio Perm		0.32	
v/c Ratio		1.71dl	
Uniform Delay, d1		26.5	
Progression Factor		0.71	
Incremental Delay, d2		59.2	
Delay (s)		77.9	
Level of Service		E	
Approach Delay (s)		77.9	
Approach LOS		E	
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕			↕↔			↕↔			↕↔	
Volume (vph)	25	1250	0	0	890	12	3	32	187	52	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	12	14	12	12	15	12
Grade (%)		-1%			4%			3%			-3%	
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		1.00			1.00			0.94			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			1.00			0.89			0.92	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		3350			3223			1614			1779	
Flt Permitted		0.92			1.00			0.99			0.63	
Satd. Flow (perm)		3078			3223			1600			1136	
Peak-hour factor, PHF	0.92	0.98	0.92	0.92	0.94	0.46	0.38	0.75	0.88	0.68	0.92	0.82
Adj. Flow (vph)	27	1276	0	0	947	26	8	43	212	76	0	111
RTOR Reduction (vph)	0	0	0	0	2	0	0	48	0	0	66	0
Lane Group Flow (vph)	0	1303	0	0	971	0	0	215	0	0	121	0
Confl. Peds. (#/hr)	20		30	30		20	16		52	52		16
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	4%	4%	0%	4%
Turn Type	Perm						Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		50.0			50.0			19.0			19.0	
Effective Green, g (s)		50.0			50.0			19.0			19.0	
Actuated g/C Ratio		0.62			0.62			0.24			0.24	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Lane Grp Cap (vph)		1924			2014			380			270	
v/s Ratio Prot					0.30							
v/s Ratio Perm		c0.42						c0.13			0.11	
v/c Ratio		0.68			0.48			0.57			0.45	
Uniform Delay, d1		9.8			8.1			26.9			26.0	
Progression Factor		0.29			1.00			0.76			1.00	
Incremental Delay, d2		0.2			0.8			0.6			5.3	
Delay (s)		3.0			8.9			20.9			31.4	
Level of Service		A			A			C			C	
Approach Delay (s)		3.0			8.9			20.9			31.4	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Centre Ave & Morewood Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	557	74	121	397	111	31	296	104	103	324	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	15	10	10	10	11
Grade (%)		-2%			2%			-3%				-1%
Total Lost time (s)		5.0			5.0	5.0		5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes		0.99			1.00	0.95		0.98		1.00	0.98	
Flpb, ped/bikes		1.00			0.99	1.00		1.00		0.98	1.00	
Frt		0.98			1.00	0.85		0.97		1.00	0.96	
Flt Protected		0.99			0.99	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1800			1776	1516		1991		1663	1683	
Flt Permitted		0.72			0.65	1.00		0.73		0.29	1.00	
Satd. Flow (perm)		1309			1171	1516		1463		504	1683	
Peak-hour factor, PHF	0.80	0.99	0.74	0.80	0.90	0.75	0.75	0.84	0.88	0.63	0.98	0.90
Adj. Flow (vph)	100	563	100	151	441	148	41	352	118	163	331	107
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	763	0	0	592	148	0	511	0	163	438	0
Confl. Peds. (#/hr)	36		81	81		36	40		34	34		40
Heavy Vehicles (%)	0%	3%	3%	4%	4%	0%	0%	0%	4%	0%	0%	0%
Turn Type	Perm			Perm		Perm	Perm			D.Pm		
Protected Phases		2			6			8				4
Permitted Phases	2			6		6	8			8		
Actuated Green, G (s)		44.0			44.0	44.0		26.0		26.0		26.0
Effective Green, g (s)		44.0			44.0	44.0		26.0		26.0		26.0
Actuated g/C Ratio		0.55			0.55	0.55		0.32		0.32		0.32
Clearance Time (s)		5.0			5.0	5.0		5.0		5.0		5.0
Lane Grp Cap (vph)		720			644	834		475		164		547
v/s Ratio Prot												0.26
v/s Ratio Perm		c0.58			0.51	0.10		c0.35		0.32		
v/c Ratio		1.06			0.92	0.18		1.08		0.99		0.80
Uniform Delay, d1		18.0			16.4	9.0		27.0		26.9		24.6
Progression Factor		1.00			0.58	0.60		1.00		0.81		0.80
Incremental Delay, d2		50.5			19.1	0.4		63.2		60.1		9.2
Delay (s)		68.5			28.6	5.8		90.2		81.9		28.9
Level of Service		E			C	A		F		F		C
Approach Delay (s)		68.5			24.0			90.2				43.2
Approach LOS		E			C			F				D


















Intersection Summary

HCM Average Control Delay	54.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	128.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
7: Centre Ave & Cypress St

2021 Combined Mitigated
Timing Plan: PM Peak Hour






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	727	25	28	483	91	57	63	81	72	22	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	11	11	11
Grade (%)		3%			-3%			-3%			-3%	
Total Lost time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	
Frbp, ped/bikes		1.00			0.98			1.00	0.94		0.99	
Flpb, ped/bikes		1.00			1.00			0.99	1.00		0.98	
Frt		0.99			0.97			1.00	0.85		0.97	
Flt Protected		1.00			1.00			0.97	1.00		0.97	
Satd. Flow (prot)		3403			3389			1797	1547		1649	
Flt Permitted		0.82			0.86			0.76	1.00		0.73	
Satd. Flow (perm)		2805			2921			1407	1547		1236	
Peak-hour factor, PHF	0.78	0.91	0.79	0.69	0.86	0.68	0.74	0.91	0.77	0.50	0.75	0.75
Adj. Flow (vph)	73	799	32	41	562	134	77	69	105	144	29	59
RTOR Reduction (vph)	0	3	0	0	24	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	901	0	0	713	0	0	146	105	0	232	0
Confl. Peds. (#/hr)	77		53	53		77	27		52	52		27
Heavy Vehicles (%)	0%	3%	11%	0%	4%	0%	7%	0%	0%	0%	20%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		41.5			41.5			27.5	27.5		27.5	
Effective Green, g (s)		41.5			41.5			27.5	27.5		27.5	
Actuated g/C Ratio		0.52			0.52			0.34	0.34		0.34	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		1455			1515			484	532		425	
v/s Ratio Prot												
v/s Ratio Perm		c0.32			0.24			0.10	0.07		c0.19	
v/c Ratio		0.62			0.47			0.30	0.20		0.55	
Uniform Delay, d1		13.6			12.3			19.2	18.5		21.2	
Progression Factor		1.24			1.07			1.00	1.00		0.96	
Incremental Delay, d2		0.5			0.7			1.6	0.8		4.8	
Delay (s)		17.5			13.8			20.8	19.3		25.3	
Level of Service		B			B			C	B		C	
Approach Delay (s)		17.5			13.8			20.2			25.3	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
8: Centre Ave & Liberty Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	470	222	61	275	108	166	511	125	116	488	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	12	12	12	12	12
Grade (%)		-3%			3%			-1%			-3%	
Total Lost time (s)		6.0			6.0		5.5	6.0		5.5	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.95			0.98		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.96		1.00	0.97		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3152			3177		1700	1820		1792	1817	
Flt Permitted		0.70			0.65		0.17	1.00		0.17	1.00	
Satd. Flow (perm)		2218			2069		298	1820		314	1817	
Peak-hour factor, PHF	0.91	0.98	0.79	0.80	0.83	0.75	0.94	0.85	0.97	0.78	0.83	0.59
Adj. Flow (vph)	189	480	281	76	331	144	177	601	129	149	588	151
RTOR Reduction (vph)	0	58	0	0	44	0	0	10	0	0	12	0
Lane Group Flow (vph)	0	893	0	0	507	0	177	720	0	149	727	0
Confl. Peds. (#/hr)	76		137	137		76	67		110	110		67
Heavy Vehicles (%)	8%	3%	2%	0%	7%	1%	3%	0%	0%	2%	0%	6%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		34.0			34.0		28.5	24.0		28.5	24.0	
Effective Green, g (s)		34.0			34.0		28.5	24.0		28.5	24.0	
Actuated g/C Ratio		0.42			0.42		0.36	0.30		0.36	0.30	
Clearance Time (s)		6.0			6.0		5.5	6.0		5.5	6.0	
Lane Grp Cap (vph)		943			879		185	546		195	545	
v/s Ratio Prot							c0.05	0.40		0.04	c0.40	
v/s Ratio Perm		c0.40			0.24		0.29			0.23		
v/c Ratio		0.95			0.58		0.96	1.32		0.76	1.33	
Uniform Delay, d1		22.1			17.5		24.8	28.0		21.3	28.0	
Progression Factor		0.49			1.00		1.00	1.00		1.16	1.12	
Incremental Delay, d2		16.6			2.7		55.7	156.1		2.6	151.5	
Delay (s)		27.5			20.3		80.5	184.1		27.3	182.8	
Level of Service		C			C		F	F		C	F	
Approach Delay (s)		27.5			20.3			163.9			156.7	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM Average Control Delay	98.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
9: Liberty Ave & Millvale Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	595	48	11	481	40	180	257	48	45	54	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	15	12	9	9	12	10	10	12
Grade (%)		-1%			1%			4%			-3%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.93	
Flpb, ped/bikes		1.00			1.00		0.91	1.00		0.96	1.00	
Frt		0.99			0.99		1.00	0.98		1.00	0.92	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2010			1991		1394	1616		1644	1534	
Flt Permitted		0.94			0.96		0.67	1.00		0.33	1.00	
Satd. Flow (perm)		1895			1912		987	1616		579	1534	
Peak-hour factor, PHF	0.77	0.89	0.83	0.46	0.95	0.71	0.89	0.80	0.89	0.88	0.86	0.80
Adj. Flow (vph)	48	669	58	24	506	56	202	321	54	51	63	69
RTOR Reduction (vph)	0	4	0	0	5	0	0	8	0	0	47	0
Lane Group Flow (vph)	0	772	0	0	581	0	202	367	0	51	85	0
Confl. Peds. (#/hr)	102		65	65		102	67		50	50		67
Heavy Vehicles (%)	0%	2%	8%	0%	2%	0%	4%	0%	0%	0%	0%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		45.0			45.0		25.0	25.0		25.0	25.0	
Effective Green, g (s)		45.0			45.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio		0.56			0.56		0.31	0.31		0.31	0.31	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1066			1076		308	505		181	479	
v/s Ratio Prot								c0.23			0.06	
v/s Ratio Perm		c0.41			0.30		0.20			0.09		
v/c Ratio		0.72			0.54		0.66	0.73		0.28	0.18	
Uniform Delay, d1		12.9			11.0		23.8	24.5		20.7	20.0	
Progression Factor		1.00			1.00		0.70	0.69		1.00	1.00	
Incremental Delay, d2		4.3			0.2		9.4	8.0		3.9	0.8	
Delay (s)		17.2			11.1		26.0	25.0		24.6	20.8	
Level of Service		B			B		C	C		C	C	
Approach Delay (s)		17.2			11.1			25.3			21.9	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 10: Ellsworth Ave & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↖	↗		↖	↗	
Volume (vph)	99	411	48	14	211	102	49	355	21	140	592	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	11	11	12
Grade (%)		1%			1%			-1%			1%	
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99			0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.97	1.00	
Frft		0.99			0.96		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1694			1752		1799	1818		1654	1770	
Flt Permitted		0.84			0.95		0.17	1.00		0.32	1.00	
Satd. Flow (perm)		1436			1667		329	1818		550	1770	
Peak-hour factor, PHF	0.73	0.90	0.70	0.65	0.91	0.93	0.89	0.80	0.71	0.92	0.91	0.89
Adj. Flow (vph)	136	457	69	22	232	110	55	444	30	152	651	76
RTOR Reduction (vph)	0	7	0	0	26	0	0	4	0	0	7	0
Lane Group Flow (vph)	0	655	0	0	338	0	55	470	0	152	720	0
Confl. Peds. (#/hr)	17		46	46		17	30		51	51		30
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	2%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)		27.0			27.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio		0.45			0.45		0.38	0.38		0.38	0.38	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		646			750		126	697		211	679	
v/s Ratio Prot								0.26			c0.41	
v/s Ratio Perm		c0.46			0.20		0.17			0.28		
v/c Ratio		1.01			0.45		0.44	0.67		0.72	1.06	
Uniform Delay, d1		16.5			11.4		13.7	15.4		15.8	18.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		38.9			2.0		10.6	5.2		19.1	51.8	
Delay (s)		55.4			13.3		24.3	20.5		34.8	70.3	
Level of Service		E			B		C	C		C	E	
Approach Delay (s)		55.4			13.3			20.9			64.1	
Approach LOS		E			B			C			E	

Intersection Summary

HCM Average Control Delay	44.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: Cypress St & Millvale Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	4	12	10	65	18	97	4	358	22	16	104	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	8	12	12	8	12	12	9	12	12	9	12
Grade (%)		-3%			1%			3%			-4%	
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.96			0.93			0.99			1.00	
Flt Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1571			1450			1641			1659	
Flt Permitted		0.93			0.87			1.00			0.88	
Satd. Flow (perm)		1480			1283			1636			1473	
Peak-hour factor, PHF	0.50	0.55	0.75	0.77	0.53	0.77	0.50	0.88	0.59	0.55	0.98	0.25
Adj. Flow (vph)	8	22	13	84	34	126	8	407	37	29	106	4
RTOR Reduction (vph)	0	9	0	0	48	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	34	0	0	196	0	0	448	0	0	138	0
Confl. Peds. (#/hr)	9		6	6		9	45		44	44		45
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	4%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.0			22.0			46.0			46.0	
Effective Green, g (s)		22.0			22.0			46.0			46.0	
Actuated g/C Ratio		0.28			0.28			0.58			0.58	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		407			353			941			847	
v/s Ratio Prot												
v/s Ratio Perm		0.02			0.15			0.27			0.09	
v/c Ratio		0.08			0.56			0.48			0.16	
Uniform Delay, d1		21.5			24.8			9.9			8.0	
Progression Factor		1.00			1.00			1.07			0.89	
Incremental Delay, d2		0.4			6.2			1.5			0.4	
Delay (s)		21.9			31.0			12.2			7.4	
Level of Service		C			C			B			A	
Approach Delay (s)		21.9			31.0			12.2			7.4	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 22: Baum Blvd (S.R. 0400) & Luna Driveway

2021 Combined Mitigated
 Timing Plan: PM Peak Hour



















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕	↗	↘	
Volume (vph)	15	1270	854	22	130	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11
Grade (%)		1%	1%		0%	
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	0.95	1.00	1.00	
Frt		1.00	1.00	0.85	0.95	
Flt Protected		1.00	1.00	1.00	0.97	
Satd. Flow (prot)		3402	3404	1523	1655	
Flt Permitted		0.94	1.00	1.00	0.97	
Satd. Flow (perm)		3197	3404	1523	1655	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	1411	949	24	144	94
RTOR Reduction (vph)	0	0	0	8	29	0
Lane Group Flow (vph)	0	1428	949	16	209	0
Turn Type	Perm			Perm		
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)		52.0	52.0	52.0	18.0	
Effective Green, g (s)		52.0	52.0	52.0	18.0	
Actuated g/C Ratio		0.65	0.65	0.65	0.22	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)		2078	2213	990	372	
v/s Ratio Prot			0.28		c0.13	
v/s Ratio Perm		c0.45		0.01		
v/c Ratio		0.69	0.43	0.02	0.56	
Uniform Delay, d1		8.9	6.8	5.0	27.5	
Progression Factor		0.39	1.03	1.26	1.00	
Incremental Delay, d2		1.0	0.5	0.0	6.0	
Delay (s)		4.5	7.5	6.3	33.5	
Level of Service		A	A	A	C	
Approach Delay (s)		4.5	7.5		33.5	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 11: Morewood Ave & S. Millvale Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	0	11	20	3	103	16	374	0	0	232	8
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			2%			-2%			2%	
Peak Hour Factor	0.50	0.92	0.50	0.71	0.38	0.82	0.55	0.81	0.92	0.92	0.83	0.25
Hourly flow rate (vph)	34	0	22	28	8	126	29	462	0	0	280	32
Pedestrians		40			30			11			3	
Lane Width (ft)		11.0			14.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			3			1			0	
Right turn flare (veh)												
Median type							None				None	
Median storage (veh)												
Upstream signal (ft)								630			1061	
pX, platoon unblocked												
vC, conflicting volume	988	885	347	878	901	495	352			492		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	988	885	347	878	901	495	352			492		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	78	100	97	88	97	78	98			100		
cM capacity (veh/h)	157	263	675	227	257	561	1181			1051		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	162	491	312
Volume Left	34	28	29	0
Volume Right	22	126	0	32
cSH	225	426	1181	1700
Volume to Capacity	0.25	0.38	0.02	0.18
Queue Length 95th (ft)	19	35	2	0
Control Delay (s)	26.3	18.5	0.7	0.0
Lane LOS	D	C	A	
Approach Delay (s)	26.3	18.5	0.7	0.0
Approach LOS	D	C		

Intersection Summary			
Average Delay		4.7	
Intersection Capacity Utilization	47.7%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 13: Cypress St & Gross St

2021 Combined Mitigated
 Timing Plan: PM Peak Hour




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	25	20	2	48	0	108	0	4	10	6	10
Peak Hour Factor	0.25	0.81	0.67	0.50	0.89	0.92	0.80	0.92	0.50	0.50	0.25	0.75
Hourly flow rate (vph)	0	31	30	4	54	0	135	0	8	20	24	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	61	58	143	57
Volume Left (vph)	0	4	135	20
Volume Right (vph)	30	0	8	13
Hadj (s)	-0.27	0.01	0.16	-0.02
Departure Headway (s)	4.2	4.4	4.4	4.3
Degree Utilization, x	0.07	0.07	0.17	0.07
Capacity (veh/h)	820	761	793	805
Control Delay (s)	7.5	7.8	8.3	7.6
Approach Delay (s)	7.5	7.8	8.3	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay		7.9	
HCM Level of Service		A	
Intersection Capacity Utilization	26.4%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 14: Patient/Visitor Garage Driveway & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	127	0	18	16	0	18	18	681	0	0	721	47
Sign Control		Stop			Stop			Free			Free	
Grade		2%			11%			-1%			1%	
Peak Hour Factor	0.73	0.92	0.74	0.63	0.92	0.61	0.64	0.92	0.92	0.92	0.92	0.78
Hourly flow rate (vph)	174	0	24	25	0	30	28	740	0	0	784	60
Pedestrians					61			9			6	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					5			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								887			429	
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	1276	1671	823	1705	1701	437	844			801		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1187	1739	554	1786	1781	437	584			801		
tC, single (s)	7.5	6.5	6.9	7.5	6.6	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	93	16	100	95	96			100		
cM capacity (veh/h)	92	56	342	30	52	540	717			776		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1
Volume Total	174	24	55	275	493	844
Volume Left	174	0	25	28	0	0
Volume Right	0	24	30	0	0	60
cSH	92	342	62	717	1700	1700
Volume to Capacity	1.90	0.07	0.89	0.04	0.29	0.50
Queue Length 95th (ft)	294	5	83	2	0	0
Control Delay (s)	518.0	16.3	194.1	1.5	0.0	0.0
Lane LOS	F	C	F	A		
Approach Delay (s)	456.5		194.1	0.5		0.0
Approach LOS	F		F			

Intersection Summary

Average Delay		54.5				
Intersection Capacity Utilization		61.9%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
 15: ED Dwy/Employee Garage & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour













Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	90	45	8	593	739	22
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.83	0.80	0.50	0.92	0.92	0.69
Hourly flow rate (vph)	108	56	16	645	803	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				739	577	
pX, platoon unblocked	0.73	0.73	0.73			
vC, conflicting volume	1173	819	835			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055	573	595			
tC, single (s)	6.8	7.0	4.4			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	31	83	98			
cM capacity (veh/h)	158	331	665			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	108	56	231	430	835
Volume Left	108	0	16	0	0
Volume Right	0	56	0	0	32
cSH	158	331	665	1700	1700
Volume to Capacity	0.69	0.17	0.02	0.25	0.49
Queue Length 95th (ft)	80	12	1	0	0
Control Delay (s)	66.6	18.1	1.0	0.0	0.0
Lane LOS	F	C	A		
Approach Delay (s)	50.1		0.3		0.0
Approach LOS	F				

Intersection Summary					
Average Delay			5.1		
Intersection Capacity Utilization			51.9%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 16: Employee Garage Secondary Exit Driveway & S. Aiken Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Volume (veh/h)	0	1	0	602	787	0
Sign Control	Stop			Free	Free	
Grade	0%			-1%	1%	
Peak Hour Factor	0.92	0.68	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	654	855	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				640	676	
pX, platoon unblocked	0.75	0.75	0.75			
vC, conflicting volume	1183	855	855			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1077	641	641			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	160	317	705			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	1	327	327	855
Volume Left	0	0	0	0
Volume Right	1	0	0	0
cSH	317	1700	1700	1700
Volume to Capacity	0.00	0.19	0.19	0.50
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	16.4	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	16.4	0.0		0.0
Approach LOS	C			

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		51.4%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 46: Research Garage Dwy & Morewood Ave

2021 Combined Mitigated
 Timing Plan: PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕		↘	↕
Volume (veh/h)	83	131	475	13	18	440
Sign Control	Stop		Free			Free
Grade	0%		2%			-1%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	92	146	528	14	20	489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			182			180
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	1064	535			542	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	958	301			310	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	76			98	
cM capacity (veh/h)	225	594			1006	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	238	542	509
Volume Left	92	0	20
Volume Right	146	14	0
cSH	363	1700	1006
Volume to Capacity	0.65	0.32	0.02
Queue Length 95th (ft)	89	0	1
Control Delay (s)	31.8	0.0	0.6
Lane LOS	D		A
Approach Delay (s)	31.8	0.0	0.6
Approach LOS	D		

Intersection Summary			
Average Delay		6.1	
Intersection Capacity Utilization		57.1%	ICU Level of Service
Analysis Period (min)		15	B

HCM Unsignalized Intersection Capacity Analysis
 48: Luna Garage Dwy & Gross St

2021 Combined Mitigated
 Timing Plan: PM Peak Hour




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↕			↘
Volume (veh/h)	1	91	21	1	17	11
Sign Control	Stop		Free			Free
Grade	0%		8%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	99	23	1	18	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	72	23			24	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	23			24	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			99	
cM capacity (veh/h)	921	1053			1591	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	100	24	30
Volume Left	1	0	18
Volume Right	99	1	0
cSH	1052	1700	1591
Volume to Capacity	0.10	0.01	0.01
Queue Length 95th (ft)	6	0	1
Control Delay (s)	8.8	0.0	4.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	4.5
Approach LOS	A		

Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization		20.5%	ICU Level of Service
Analysis Period (min)		15	A

APPENDIX I

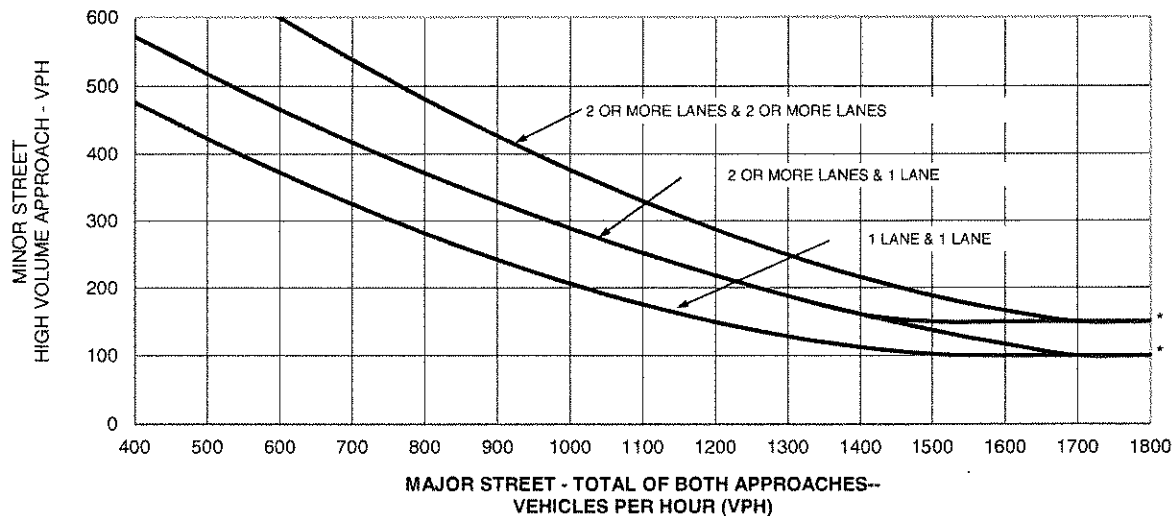
Signal Warrant Analysis

Project: UPMC Shadyside 2011 Master Plan		Calculations: CAD
Major Street	Name: Baum Boulevard	Date: 11/3/11
	Speed Limit (mph): 35	Checked by: MDS
	Approach Lanes: 2	Date: 11/3/11
Minor Street	Name: Luna Garage Driveway	
	Speed Limit (mph): 25	
	Approach Lanes: 1	
Population < 10000? No		

Warrant 3 - Peak Hour

Signal Warrant Satisfied? Yes No

Warrant 3, Peak Hour



MAJOR STREET - TOTAL OF BOTH APPROACHES-- VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies at the lower threshold volume for a minor-street approach with one lane.

Scenario	Major Street (vph)	Minor Street (vph)	Warrant Volume Minor Street	Warrant Satisfied?
2021 Combined, AM Peak	2,344	42	100	NO
2021 Combined, PM Peak	2,161	215	100	YES

Signal warrant satisfied if hourly threshold satisfied for any 1 hour of an average day.

APPENDIX J

Synchro Queuing Analysis

Queues
1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2011 Existing
Timing Plan: A.M. Peak Hour



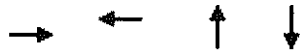
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	951	1258	213	58	269
v/c Ratio	0.60	1.18	0.68	0.24	0.59
Control Delay	10.4	101.6	37.0	31.5	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	101.6	37.0	31.5	35.2
Queue Length 50th (ft)	93	~327	70	21	94
Queue Length 95th (ft)	127	m#327	85	38	126
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1590	1069	315	239	457
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	1.18	0.68	0.24	0.59

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: Baum Blvd (S.R. 0400) & Morewood Ave

2011 Existing
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	788	1233	337	12
v/c Ratio	0.67	1.04	0.71	0.02
Control Delay	17.1	54.3	19.9	20.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.1	54.3	19.9	20.0
Queue Length 50th (ft)	79	~288	41	3
Queue Length 95th (ft)	120	#393	m78	7
Internal Link Dist (ft)	655	937	282	244
Turn Bay Length (ft)				
Base Capacity (vph)	1177	1181	477	509
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.67	1.04	0.71	0.02

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

3: Baum Blvd (S.R. 0400) & Cypress St

2011 Existing
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	726	1315	86	96
v/c Ratio	0.40	0.77	0.23	0.24
Control Delay	4.3	16.8	24.7	23.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.3	16.8	24.7	23.1
Queue Length 50th (ft)	65	278	22	25
Queue Length 95th (ft)	83	m203	m33	41
Internal Link Dist (ft)	937	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	1819	1717	379	401
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.77	0.23	0.24

Intersection Summary

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



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	686	1414	134	326	546
v/c Ratio	0.61	1.41	0.60	0.65	0.65
Control Delay	21.3	218.4	36.9	33.0	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	218.4	36.9	33.0	20.0
Queue Length 50th (ft)	126	~425	51	126	68
Queue Length 95th (ft)	156	#531	m78	m184	112
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	1128	1001	224	500	834
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	1.41	0.60	0.65	0.65

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2011 Existing
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	616	1372	104	87
v/c Ratio	0.30	0.62	0.30	0.28
Control Delay	5.4	8.3	8.8	13.6
Queue Delay	0.0	12.6	0.0	12.4
Total Delay	5.4	20.9	8.8	26.0
Queue Length 50th (ft)	34	132	3	7
Queue Length 95th (ft)	67	176	m8	37
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	2045	2224	352	315
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	850	0	200
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	1.00	0.30	0.76

Intersection Summary

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

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	510	625	435	392
v/c Ratio	0.59	0.75	0.81	0.73
Control Delay	16.5	16.1	37.9	29.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.5	16.1	37.9	29.1
Queue Length 50th (ft)	131	171	156	168
Queue Length 95th (ft)	195	197	#280	m193
Internal Link Dist (ft)	1736	824	777	282
Turn Bay Length (ft)				
Base Capacity (vph)	871	831	536	534
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.75	0.81	0.73

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
7: Centre Ave & Cypress St

2011 Existing
Timing Plan: A.M. Peak Hour

	→	←	↑	↗	↓
Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	541	707	68	32	229
v/c Ratio	0.53	0.75	0.27	0.10	0.68
Control Delay	15.6	10.8	29.8	26.4	47.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	10.8	29.8	26.4	47.7
Queue Length 50th (ft)	158	129	23	10	98
Queue Length 95th (ft)	m210	m138	38	15	m144
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1012	938	250	315	336
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.75	0.27	0.10	0.68

Intersection Summary

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

Queues
8: Centre Ave & Liberty Ave

2011 Existing
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	463	624	143	506	81	456
v/c Ratio	0.75	1.04	0.53	0.65	0.34	0.59
Control Delay	31.8	72.1	25.8	22.6	20.2	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	72.1	25.8	22.6	20.2	20.6
Queue Length 50th (ft)	132	~270	41	151	24	141
Queue Length 95th (ft)	206	#432	90	231	m35	m187
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	617	601	271	779	237	779
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	1.04	0.53	0.65	0.34	0.59

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Liberty Ave & Millvale Ave

2011 Existing
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	515	546	65	114	150	252
v/c Ratio	0.48	0.48	0.32	0.25	0.45	0.52
Control Delay	11.1	5.9	21.8	12.4	28.6	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	5.9	21.8	12.4	28.6	25.1
Queue Length 50th (ft)	104	45	16	18	49	72
Queue Length 95th (ft)	163	m103	m35	26	64	104
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1064	1138	205	458	333	481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.48	0.32	0.25	0.45	0.52

Intersection Summary

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



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	264	666	80	511	80	344
v/c Ratio	0.58	0.88	0.22	0.65	0.33	0.46
Control Delay	19.1	31.8	13.2	18.8	16.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	31.8	13.2	18.8	16.7	13.9
Queue Length 50th (ft)	54	161	14	113	15	62
Queue Length 95th (ft)	109	#286	32	187	17	91
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	459	754	370	781	241	756
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.88	0.22	0.65	0.33	0.46

Intersection Summary

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

Queues
12: Cypress St & Millvale Ave

2011 Existing
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	35	99	224	256
v/c Ratio	0.16	0.48	0.20	0.22
Control Delay	24.6	31.7	3.8	3.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.6	31.7	3.8	3.5
Queue Length 50th (ft)	8	26	25	20
Queue Length 95th (ft)	21	28	m22	30
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	219	206	1132	1183
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.48	0.20	0.22

Intersection Summary

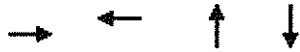
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1244	850	371	57	209
v/c Ratio	0.77	0.90	0.96	0.38	0.46
Control Delay	14.4	32.5	65.3	35.8	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	32.5	65.3	35.8	28.6
Queue Length 50th (ft)	143	130	133	18	60
Queue Length 95th (ft)	191	m#236	#241	m37	86
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1620	946	388	149	450
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.90	0.96	0.38	0.46

Intersection Summary

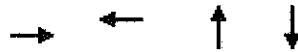
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1165	859	434	80
v/c Ratio	0.80	0.76	0.96	0.21
Control Delay	14.9	12.4	51.0	21.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.9	12.4	51.0	21.0
Queue Length 50th (ft)	208	58	174	20
Queue Length 95th (ft)	m225	m66	#197	38
Internal Link Dist (ft)	655	937	282	244
Turn Bay Length (ft)				
Base Capacity (vph)	1459	1126	450	390
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.76	0.96	0.21

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1214	797	251	124
v/c Ratio	0.56	0.38	0.93	0.60
Control Delay	5.2	1.6	59.7	36.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.2	1.6	59.7	36.1
Queue Length 50th (ft)	50	10	68	33
Queue Length 95th (ft)	m124	m14	m#181	29
Internal Link Dist (ft)	937	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	2162	2105	270	206
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.38	0.93	0.60

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1247	895	104	425	688
v/c Ratio	1.08	1.02	0.55	0.86	1.17dl
Control Delay	69.8	75.0	33.1	40.9	45.9
Queue Delay	13.8	16.9	0.0	0.0	0.0
Total Delay	83.6	91.9	33.1	40.9	45.9
Queue Length 50th (ft)	~224	~212	40	167	138
Queue Length 95th (ft)	m#346	#297	m53	m#233	#219
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	1151	878	188	493	744
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	34	40	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.12	1.07	0.55	0.86	0.92

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1089	803	183	100
v/c Ratio	0.50	0.36	0.48	0.36
Control Delay	12.1	5.7	20.2	18.3
Queue Delay	1.5	0.0	0.0	0.0
Total Delay	13.5	5.7	20.2	18.3
Queue Length 50th (ft)	175	58	22	14
Queue Length 95th (ft)	m166	80	m41	48
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	2178	2219	379	278
Starvation Cap Reductn	840	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.81	0.36	0.48	0.36

Intersection Summary

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

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	682	574	466	396
v/c Ratio	0.83	0.81	0.70	0.67
Control Delay	26.8	27.5	29.3	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.8	27.5	29.3	17.4
Queue Length 50th (ft)	215	138	158	101
Queue Length 95th (ft)	#389	#327	220	m153
Internal Link Dist (ft)	1736	824	777	282
Turn Bay Length (ft)				
Base Capacity (vph)	825	705	662	588
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.83	0.81	0.70	0.67

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	722	500	200	119	124
v/c Ratio	0.67	0.43	0.65	0.40	0.50
Control Delay	7.2	7.5	39.8	31.8	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	7.5	39.8	31.8	40.8
Queue Length 50th (ft)	88	108	73	41	46
Queue Length 95th (ft)	m125	131	#139	67	75
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1072	1152	310	300	247
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.43	0.65	0.40	0.50

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	715	445	109	598	114	598
v/c Ratio	1.13	0.75	0.66	0.77	0.67	0.76
Control Delay	97.3	28.1	42.1	27.3	37.5	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.8
Total Delay	97.3	28.1	42.1	27.3	37.5	29.7
Queue Length 50th (ft)	~183	138	34	192	41	217
Queue Length 95th (ft)	#499	203	#101	270	m46	m233
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	631	593	164	776	170	789
Starvation Cap Reductn	0	0	0	0	0	47
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.75	0.66	0.77	0.67	0.81

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	693	493	143	323	41	122
v/c Ratio	0.66	0.46	0.44	0.61	0.18	0.23
Control Delay	16.3	9.1	25.4	26.4	21.8	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	9.1	25.4	26.4	21.8	11.4
Queue Length 50th (ft)	179	70	48	110	12	16
Queue Length 95th (ft)	266	m77	m90	152	31	43
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1054	1062	325	531	234	542
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.46	0.44	0.61	0.18	0.23

Intersection Summary

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



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	621	347	52	389	160	594
v/c Ratio	1.02	0.48	0.29	0.51	0.51	0.80
Control Delay	64.3	13.6	17.2	15.6	20.2	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	13.6	17.2	15.6	20.2	25.4
Queue Length 50th (ft)	~181	59	10	78	33	140
Queue Length 95th (ft)	#341	111	30	113	76	#275
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	606	725	177	761	313	743
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.48	0.29	0.51	0.51	0.80

Intersection Summary

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

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	44	130	425	122
v/c Ratio	0.20	0.63	0.36	0.11
Control Delay	26.8	39.8	5.3	4.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.8	39.8	5.3	4.7
Queue Length 50th (ft)	11	37	53	12
Queue Length 95th (ft)	19	40	m81	m28
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	216	206	1172	1100
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.63	0.36	0.11

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1055	1372	227	60	286
v/c Ratio	0.61	1.20	1.28	0.35	0.78
Control Delay	8.6	110.0	189.3	24.6	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	110.0	189.3	24.6	35.0
Queue Length 50th (ft)	91	~355	~111	16	92
Queue Length 95th (ft)	123	m#340	#139	30	#120
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1733	1141	178	170	368
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	1.20	1.28	0.35	0.78

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Base
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	882	1342	358	16
v/c Ratio	0.57	1.02	1.06	0.04
Control Delay	9.0	34.7	74.9	22.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.0	34.7	74.9	22.0
Queue Length 50th (ft)	63	~38	~160	4
Queue Length 95th (ft)	m78	#175	m#216	8
Internal Link Dist (ft)	655	937	282	244
Turn Bay Length (ft)				
Base Capacity (vph)	1538	1311	338	367
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	1.02	1.06	0.04

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: Baum Blvd (S.R. 0400) & Cypress St

2021 Base
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	816	1431	94	102
v/c Ratio	0.39	0.74	0.45	0.48
Control Delay	6.4	3.9	27.8	36.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.4	3.9	27.8	36.1
Queue Length 50th (ft)	68	33	19	33
Queue Length 95th (ft)	m109	m30	m29	51
Internal Link Dist (ft)	937	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	2082	1937	207	214
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.74	0.45	0.48

Intersection Summary

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

Queues
4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Base
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	780	1612	142	417	652
v/c Ratio	0.69	1.08	1.06	0.82	1.24dl
Control Delay	9.7	66.9	104.2	32.9	98.5
Queue Delay	0.0	44.1	0.0	0.0	0.0
Total Delay	9.7	111.0	104.2	32.9	98.5
Queue Length 50th (ft)	86	~384	~49	106	~158
Queue Length 95th (ft)	91	#493	m#84	m144	#245
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	1134	1493	134	507	584
Starvation Cap Reductn	0	129	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	1.18	1.06	0.82	1.12

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	695	1490	110	171
v/c Ratio	0.35	0.68	0.29	0.54
Control Delay	6.3	10.0	14.7	27.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.3	10.0	14.7	27.7
Queue Length 50th (ft)	55	169	13	43
Queue Length 95th (ft)	71	224	23	95
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	2002	2195	380	317
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.68	0.29	0.54

Intersection Summary

Queues
6: Centre Ave & Morewood Ave

2021 Base
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	569	666	459	415
v/c Ratio	0.65	0.81	0.86	0.79
Control Delay	18.2	21.5	42.8	22.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.2	21.5	42.8	22.3
Queue Length 50th (ft)	154	153	168	136
Queue Length 95th (ft)	229	231	#304	m156
Internal Link Dist (ft)	1736	824	777	282
Turn Bay Length (ft)				
Base Capacity (vph)	870	824	532	527
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.81	0.86	0.79

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
7: Centre Ave & Cypress St

2021 Base
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	597	746	68	32	237
v/c Ratio	0.59	0.80	0.29	0.10	0.73
Control Delay	8.8	11.3	30.8	26.9	43.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	11.3	30.8	26.9	43.8
Queue Length 50th (ft)	67	146	23	10	88
Queue Length 95th (ft)	m140	m163	38	16	m#157
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1020	938	234	305	323
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.80	0.29	0.10	0.73

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
8: Centre Ave & Liberty Ave

2021 Base
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	520	680	152	558	92	507
v/c Ratio	0.77	0.98	0.96	0.84	0.74	0.76
Control Delay	23.9	50.7	91.1	36.7	36.4	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	50.7	91.1	36.7	36.4	22.3
Queue Length 50th (ft)	147	248	58	197	25	133
Queue Length 95th (ft)	127	#442	#152	#334	m27	m135
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	674	697	159	663	125	664
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.98	0.96	0.84	0.74	0.76

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Liberty Ave & Millvale Ave

2021 Base
Timing Plan: A.M. Peak Hour

	→	←	↙	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	566	592	69	121	159	268
v/c Ratio	0.53	0.52	0.35	0.26	0.48	0.56
Control Delay	12.0	15.8	23.8	13.8	29.4	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	15.8	23.8	13.8	29.4	26.1
Queue Length 50th (ft)	121	173	17	12	52	78
Queue Length 95th (ft)	187	m202	37	28	67	111
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1059	1133	196	459	331	482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.52	0.35	0.26	0.48	0.56

Intersection Summary

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

Queues
10: Ellsworth Ave & S. Aiken Ave

2021 Base
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	282	708	85	563	85	385
v/c Ratio	0.53	0.84	0.31	0.82	0.62	0.58
Control Delay	15.5	25.1	17.6	29.5	39.9	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	25.1	17.6	29.5	39.9	18.5
Queue Length 50th (ft)	52	159	17	142	20	81
Queue Length 95th (ft)	104	#286	39	#272	22	115
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	531	841	273	688	138	667
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.84	0.31	0.82	0.62	0.58

Intersection Summary

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

Queues
12: Cypress St & Millvale Ave

2021 Base
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	36	107	237	273
v/c Ratio	0.08	0.25	0.27	0.30
Control Delay	15.7	16.2	8.9	8.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.7	16.2	8.9	8.8
Queue Length 50th (ft)	7	21	38	40
Queue Length 95th (ft)	17	22	m38	49
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	472	432	876	910
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.08	0.25	0.27	0.30

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1380	975	393	61	221
v/c Ratio	0.89	1.01	1.07	0.43	0.49
Control Delay	21.9	36.7	94.5	36.6	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	36.7	94.5	36.6	27.9
Queue Length 50th (ft)	171	~167	~164	20	66
Queue Length 95th (ft)	#256	m#245	#269	40	92
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1546	967	369	141	451
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	1.01	1.07	0.43	0.49

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1300	990	459	86
v/c Ratio	0.89	0.92	1.02	0.22
Control Delay	17.6	27.7	56.3	21.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.6	27.7	56.3	21.3
Queue Length 50th (ft)	81	101	~71	22
Queue Length 95th (ft)	m171	#179	#139	41
Internal Link Dist (ft)	655	937	282	244
Turn Bay Length (ft)				
Base Capacity (vph)	1453	1072	450	385
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.89	0.92	1.02	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1353	924	266	134
v/c Ratio	0.73	0.52	0.64	0.37
Control Delay	10.5	3.6	25.9	20.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.5	3.6	25.9	20.3
Queue Length 50th (ft)	243	45	81	30
Queue Length 95th (ft)	m303	m36	m102	26
Internal Link Dist (ft)	937	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	1844	1792	415	359
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.73	0.52	0.64	0.37

Intersection Summary

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



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1402	1098	110	583	841
v/c Ratio	1.38	1.22	0.97	1.38	1.71dl
Control Delay	197.7	128.6	96.7	207.7	90.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	197.7	128.6	96.7	207.7	90.0
Queue Length 50th (ft)	~238	~289	38	~309	~182
Queue Length 95th (ft)	#493	#376	m#60	m#357	#298
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	1015	900	113	423	749
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.38	1.22	0.97	1.38	1.12

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1194	932	192	185
v/c Ratio	0.60	0.46	0.43	0.48
Control Delay	3.1	8.8	20.7	19.3
Queue Delay	1.5	0.0	0.0	0.0
Total Delay	4.7	8.8	20.7	19.3
Queue Length 50th (ft)	47	91	36	33
Queue Length 95th (ft)	m33	123	m41	82
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	1974	2017	443	382
Starvation Cap Reductn	551	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.46	0.43	0.48

Intersection Summary

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

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	750	634	492	419
v/c Ratio	0.87	0.87	0.81	0.82
Control Delay	29.0	25.5	37.6	33.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.0	25.5	37.6	33.0
Queue Length 50th (ft)	240	143	179	171
Queue Length 95th (ft)	#437	#374	#256	m201
Internal Link Dist (ft)	1736	824	777	282
Turn Bay Length (ft)				
Base Capacity (vph)	861	731	605	513
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	0.87	0.81	0.82

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	795	557	200	119	131
v/c Ratio	0.74	0.48	0.67	0.41	0.58
Control Delay	9.3	7.1	42.1	32.6	38.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	7.1	42.1	32.6	38.2
Queue Length 50th (ft)	108	110	74	42	44
Queue Length 95th (ft)	m173	m104	#144	68	m71
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1076	1164	298	290	227
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.48	0.67	0.41	0.58

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	778	524	115	668	132	673
v/c Ratio	1.23	0.84	1.31	0.91	1.45	0.91
Control Delay	133.7	33.1	226.7	41.8	230.3	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	133.7	33.1	226.7	41.8	230.3	16.8
Queue Length 50th (ft)	~229	169	~60	241	~72	116
Queue Length 95th (ft)	#561	#275	#140	#373	m#66	m102
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	634	623	88	731	91	741
Starvation Cap Reductn	0	0	0	0	0	4
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.84	1.31	0.91	1.45	0.91

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	764	550	152	342	43	129
v/c Ratio	0.71	0.51	0.49	0.67	0.21	0.25
Control Delay	17.2	12.2	19.3	20.4	23.6	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	12.2	19.3	20.4	23.6	11.9
Queue Length 50th (ft)	203	166	24	51	13	17
Queue Length 95th (ft)	303	m123	42	67	33	45
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1075	1083	309	511	205	525
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.51	0.49	0.67	0.21	0.25

Intersection Summary

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

	→	←	↙	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	662	368	55	450	170	655
v/c Ratio	1.02	0.47	0.44	0.64	0.75	0.96
Control Delay	59.4	12.4	27.2	20.0	40.2	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	12.4	27.2	20.0	40.2	46.5
Queue Length 50th (ft)	~186	59	11	101	41	175
Queue Length 95th (ft)	#355	110	#44	143	#117	#338
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	652	776	126	701	228	684
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.47	0.44	0.64	0.75	0.96

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	46	138	453	130
v/c Ratio	0.11	0.35	0.48	0.15
Control Delay	17.8	19.7	13.2	7.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.8	19.7	13.2	7.2
Queue Length 50th (ft)	10	31	111	26
Queue Length 95th (ft)	16	33	m141	m34
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	425	395	945	875
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.35	0.48	0.15

Intersection Summary

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

Queues
1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1247	1419	244	81	277
v/c Ratio	0.92	1.32	1.26	0.51	0.75
Control Delay	23.2	163.6	182.1	31.4	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	163.6	182.1	31.4	32.5
Queue Length 50th (ft)	120	~392	~117	25	86
Queue Length 95th (ft)	#211	m#265	#144	44	118
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1355	1076	193	160	369
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	1.32	1.26	0.51	0.75

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



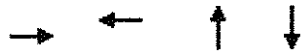
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1075	1465	453	16
v/c Ratio	0.70	1.25	1.30	0.04
Control Delay	11.1	128.4	167.4	22.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.1	128.4	167.4	22.0
Queue Length 50th (ft)	84	~200	~145	4
Queue Length 95th (ft)	m104	#495	m#184	8
Internal Link Dist (ft)	655	283	100	244
Turn Bay Length (ft)				
Base Capacity (vph)	1542	1174	349	364
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	1.25	1.30	0.04

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: Baum Blvd (S.R. 0400) & Cypress St

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	850	1669	181	76
v/c Ratio	0.42	0.90	0.89	0.39
Control Delay	5.6	7.3	63.8	30.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.6	7.3	63.8	30.2
Queue Length 50th (ft)	58	55	68	19
Queue Length 95th (ft)	100	m36	#73	36
Internal Link Dist (ft)	574	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	2042	1845	204	197
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.90	0.89	0.39

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	844	1815	183	427	738
v/c Ratio	0.80	1.56	1.76	1.21	1.16
Control Delay	17.5	276.3	381.6	135.3	112.5
Queue Delay	0.0	9.7	0.0	0.0	0.0
Total Delay	17.5	286.0	381.6	135.3	112.5
Queue Length 50th (ft)	89	~553	~109	~204	~172
Queue Length 95th (ft)	m95	#664	m#122	m#233	#185
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	1060	1167	104	352	635
Starvation Cap Reductn	0	16	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	1.58	1.76	1.21	1.16

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Combined
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	734	1668	143	193
v/c Ratio	0.38	0.76	0.36	0.66
Control Delay	6.5	11.9	13.8	37.7
Queue Delay	0.4	0.0	0.0	0.0
Total Delay	6.9	11.9	13.8	37.7
Queue Length 50th (ft)	61	211	16	61
Queue Length 95th (ft)	77	281	24	#132
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	1931	2195	402	291
Starvation Cap Reductn	645	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.76	0.36	0.66

Intersection Summary

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

Queues
6: Centre Ave & Morewood Ave

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	589	773	531	516
v/c Ratio	0.77	0.97	1.00	1.51
Control Delay	23.9	35.7	68.7	259.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.9	35.7	68.7	259.6
Queue Length 50th (ft)	176	159	~211	~293
Queue Length 95th (ft)	273	m#402	#374	m#320
Internal Link Dist (ft)	1736	824	777	102
Turn Bay Length (ft)				
Base Capacity (vph)	763	799	529	341
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.97	1.00	1.51

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
7: Centre Ave & Cypress St

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	651	846	95	68	267
v/c Ratio	0.64	0.80	0.39	0.22	0.94
Control Delay	8.7	10.5	32.9	28.7	63.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	10.5	32.9	28.7	63.8
Queue Length 50th (ft)	81	206	33	23	107
Queue Length 95th (ft)	m125	m179	50	27	m#171
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1022	1051	244	305	283
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.80	0.39	0.22	0.94

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
8: Centre Ave & Liberty Ave

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	640	672	223	600	95	594
v/c Ratio	1.03	1.00	2.30	0.90	1.01	0.91
Control Delay	60.0	58.4	635.3	43.8	61.2	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	58.4	635.3	43.8	61.2	23.8
Queue Length 50th (ft)	~215	~254	~147	220	~28	163
Queue Length 95th (ft)	m#345	#445	#222	#373	m26	m148
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	624	669	97	663	94	656
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	1.00	2.30	0.90	1.01	0.91

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Liberty Ave & Millvale Ave

2021 Combined
Timing Plan: A.M. Peak Hour

	→	←	↙	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	656	612	78	126	191	282
v/c Ratio	0.62	0.54	0.42	0.27	0.58	0.59
Control Delay	13.5	12.3	26.9	16.0	32.7	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	12.3	26.9	16.0	32.7	27.3
Queue Length 50th (ft)	149	161	20	23	65	85
Queue Length 95th (ft)	233	m131	46	36	80	119
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1061	1127	187	459	329	482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.54	0.42	0.27	0.58	0.59

Intersection Summary

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

Queues
10: Ellsworth Ave & S. Aiken Ave

2021 Combined
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	272	680	85	616	78	391
v/c Ratio	0.48	0.81	0.32	0.89	0.62	0.58
Control Delay	14.1	22.8	17.8	36.9	42.3	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	22.8	17.8	36.9	42.3	18.8
Queue Length 50th (ft)	48	149	17	162	18	84
Queue Length 95th (ft)	95	#242	39	#311	21	118
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	568	842	268	689	126	669
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.81	0.32	0.89	0.62	0.58

Intersection Summary

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

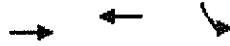
Queues
12: Cypress St & Millvale Ave

2021 Combined
Timing Plan: A.M. Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	35	128	279	347
v/c Ratio	0.07	0.29	0.32	0.42
Control Delay	15.5	16.0	8.5	10.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.5	16.0	8.5	10.8
Queue Length 50th (ft)	7	24	43	61
Queue Length 95th (ft)	16	24	m40	72
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	470	436	872	826
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.29	0.32	0.42

Intersection Summary

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



Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	924	1680	47
v/c Ratio	0.90dl	0.73	0.13
Control Delay	5.7	3.4	19.4
Queue Delay	0.0	0.0	0.0
Total Delay	5.7	3.4	19.4
Queue Length 50th (ft)	56	38	9
Queue Length 95th (ft)	m65	m67	32
Internal Link Dist (ft)	283	574	37
Turn Bay Length (ft)			
Base Capacity (vph)	1395	2299	356
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.66	0.73	0.13

Intersection Summary

- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
1: Baum Blvd (S.R. 0400) & S. Millvale Ave

2021 Combined
Timing Plan: PM Peak Hour

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1404	1171	387	63	258
v/c Ratio	1.00	1.27	1.13	0.44	0.57
Control Delay	40.9	145.5	118.9	36.5	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	145.5	118.9	36.5	28.0
Queue Length 50th (ft)	~176	~316	~170	20	69
Queue Length 95th (ft)	#342	m#239	#274	m40	102
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1401	919	341	143	452
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	1.27	1.13	0.44	0.57

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: Baum Blvd (S.R. 0400) & Morewood Ave

2021 Combined
Timing Plan: PM Peak Hour

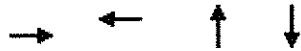
	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1323	1124	689	86
v/c Ratio	0.92	1.08	1.57	0.22
Control Delay	17.8	66.4	286.0	21.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.8	66.4	286.0	21.2
Queue Length 50th (ft)	144	~99	~375	22
Queue Length 95th (ft)	m141	#135	m#364	41
Internal Link Dist (ft)	655	283	100	244
Turn Bay Length (ft)				
Base Capacity (vph)	1443	1043	439	399
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	1.08	1.57	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: Baum Blvd (S.R. 0400) & Cypress St

2021 Combined
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1566	975	273	98
v/c Ratio	0.85	0.56	0.69	0.28
Control Delay	20.5	4.0	29.6	14.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.5	4.0	29.6	14.7
Queue Length 50th (ft)	337	54	76	14
Queue Length 95th (ft)	401	m33	m96	13
Internal Link Dist (ft)	574	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	1841	1730	395	345
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.85	0.56	0.69	0.28

Intersection Summary

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

Queues
4: Baum Blvd (S.R. 0400) & S. Atlantic Ave

2021 Combined
Timing Plan: PM Peak Hour



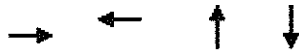
Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1608	1145	132	614	861
v/c Ratio	1.63	1.52	1.23	1.44	1.71dl
Control Delay	305.3	260.9	157.0	228.6	101.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	305.3	260.9	157.0	228.6	101.8
Queue Length 50th (ft)	~485	~345	~66	~335	~194
Queue Length 95th (ft)	#597	#433	m#66	m#317	#306
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	989	753	107	427	747
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.63	1.52	1.23	1.44	1.15

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
5: Baum Blvd (S.R. 0400) & S. Aiken Ave

2021 Combined
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1303	973	263	187
v/c Ratio	0.68	0.48	0.61	0.56
Control Delay	3.1	9.0	24.8	21.9
Queue Delay	4.3	0.0	0.0	0.0
Total Delay	7.4	9.0	24.8	21.9
Queue Length 50th (ft)	48	97	70	34
Queue Length 95th (ft)	m29	131	m65	87
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	1924	2017	428	335
Starvation Cap Reductn	533	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.94	0.48	0.61	0.56

Intersection Summary

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

Queues
6: Centre Ave & Morewood Ave

2021 Combined
Timing Plan: PM Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	763	740	511	601
v/c Ratio	0.92	1.10	0.87	1.68
Control Delay	36.3	82.9	43.5	337.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.3	82.9	43.5	337.6
Queue Length 50th (ft)	259	~331	190	~371
Queue Length 95th (ft)	#464	m#493	#292	m#429
Internal Link Dist (ft)	1736	824	777	102
Turn Bay Length (ft)				
Base Capacity (vph)	825	671	586	358
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	1.10	0.87	1.68

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
7: Centre Ave & Cypress St

2021 Combined
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	904	737	146	105	232
v/c Ratio	0.85	0.67	0.53	0.36	0.97
Control Delay	11.9	7.9	36.1	31.5	82.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	7.9	36.1	31.5	82.3
Queue Length 50th (ft)	184	153	52	36	88
Queue Length 95th (ft)	m202	m121	99	61	m#145
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1059	1098	278	290	240
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	0.67	0.53	0.36	0.97

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
8: Centre Ave & Liberty Ave

2021 Combined
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	950	551	177	730	149	740
v/c Ratio	1.67	0.93	2.01	1.00	1.62	1.01
Control Delay	325.5	45.5	514.0	58.3	304.9	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	325.5	45.5	514.0	58.3	304.9	29.8
Queue Length 50th (ft)	~567	192	~112	279	~87	~213
Queue Length 95th (ft)	m#691	#312	#180	#428	m#72	m115
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	570	592	88	732	92	735
Starvation Cap Reductn	0	0	0	0	0	1
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.67	0.93	2.01	1.00	1.62	1.01

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Liberty Ave & Millvale Ave

2021 Combined
Timing Plan: PM Peak Hour

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	775	586	202	375	51	132
v/c Ratio	0.72	0.54	0.65	0.73	0.28	0.25
Control Delay	17.7	12.2	27.4	25.8	25.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	12.2	27.4	25.8	25.9	12.1
Queue Length 50th (ft)	209	172	41	79	15	18
Queue Length 95th (ft)	313	m112	#118	124	39	47
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1069	1080	309	513	181	527
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.54	0.65	0.73	0.28	0.25

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
10: Ellsworth Ave & S. Aiken Ave

2021 Combined
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	662	364	55	474	152	727
v/c Ratio	1.01	0.47	0.43	0.68	0.72	1.06
Control Delay	58.9	12.4	26.9	21.0	39.5	73.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	12.4	26.9	21.0	39.5	73.8
Queue Length 50th (ft)	~186	59	11	109	36	~238
Queue Length 95th (ft)	#354	109	#43	153	#108	#391
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	653	776	127	702	211	685
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.47	0.43	0.68	0.72	1.06

Intersection Summary

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

Queues
12: Cypress St & Millvale Ave

2021 Combined
Timing Plan: PM Peak Hour

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	43	244	452	139
v/c Ratio	0.10	0.61	0.48	0.16
Control Delay	17.5	25.7	12.6	7.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.5	25.7	12.6	7.1
Queue Length 50th (ft)	9	61	106	27
Queue Length 95th (ft)	15	51	m127	m35
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	416	400	945	848
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.61	0.48	0.16

Intersection Summary

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

Queues
 22: Baum Blvd (S.R. 0400) & Luna Driveway

2021 Combined
 Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	1428	973	238
v/c Ratio	0.69	0.44	0.59
Control Delay	4.6	9.2	30.1
Queue Delay	0.7	0.0	0.0
Total Delay	5.3	9.2	30.1
Queue Length 50th (ft)	75	120	71
Queue Length 95th (ft)	m76	197	130
Internal Link Dist (ft)	283	574	115
Turn Bay Length (ft)			
Base Capacity (vph)	2077	2206	402
Starvation Cap Reductn	299	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.80	0.44	0.59

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1247	1419	244	81	277
v/c Ratio	0.93	1.29	1.26	0.51	0.75
Control Delay	24.3	151.4	182.1	33.6	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	151.4	182.1	33.6	34.2
Queue Length 50th (ft)	120	~389	~117	23	78
Queue Length 95th (ft)	#215	m#335	#144	44	118
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1346	1100	193	160	369
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.93	1.29	1.26	0.51	0.75

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1075	1465	251	172	16
v/c Ratio	0.79	1.11	1.06	0.45	0.05
Control Delay	13.6	65.9	94.9	8.7	23.4
Queue Delay	0.0	0.4	0.0	0.0	0.0
Total Delay	13.6	66.3	94.9	8.7	23.4
Queue Length 50th (ft)	145	-59	-101	18	4
Queue Length 95th (ft)	m156	#153	m#148	m24	9
Internal Link Dist (ft)	655	283		100	244
Turn Bay Length (ft)			110		
Base Capacity (vph)	1361	1322	236	382	318
Starvation Cap Reductn	0	1	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	1.11	1.06	0.45	0.05

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	850	1669	181	76
v/c Ratio	0.42	0.92	0.81	0.35
Control Delay	7.0	4.6	50.0	28.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.0	4.6	50.0	28.1
Queue Length 50th (ft)	74	64	62	19
Queue Length 95th (ft)	71	m36	72	36
Internal Link Dist (ft)	574	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	2008	1814	224	220
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.92	0.81	0.35

Intersection Summary

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

	→	←	↙	↑	↓
Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	844	1815	183	427	738
v/c Ratio	0.93dl	1.38	1.76	0.84	1.25
Control Delay	16.2	190.3	375.9	20.5	150.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	190.3	375.9	20.5	150.5
Queue Length 50th (ft)	63	~520	~70	94	~186
Queue Length 95th (ft)	176	#626	m#79	m107	#280
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	1037	1318	104	508	590
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	1.38	1.76	0.84	1.25

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	734	1668	143	193
v/c Ratio	0.37	0.74	0.42	0.72
Control Delay	2.4	10.0	7.3	41.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.4	10.0	7.3	41.4
Queue Length 50th (ft)	25	181	6	57
Queue Length 95th (ft)	m28	244	m7	#134
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	1997	2264	342	269
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.74	0.42	0.72

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
6: Centre Ave & Morewood Ave

2021 Combined Mitigated
Timing Plan: A.M. Peak Hour

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	589	636	137	531	100	346
v/c Ratio	0.98	0.82	0.17	0.94	0.55	0.57
Control Delay	52.8	25.8	8.4	52.9	17.3	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	25.8	8.4	52.9	17.3	12.7
Queue Length 50th (ft)	217	241	25	202	16	55
Queue Length 95th (ft)	#375	302	m38	#359	m22	m76
Internal Link Dist (ft)	1736	824		777		102
Turn Bay Length (ft)					100	
Base Capacity (vph)	604	774	785	564	182	607
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.82	0.17	0.94	0.55	0.57

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
7: Centre Ave & Cypress St

2021 Combined Mitigated
Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	651	846	95	68	267
v/c Ratio	0.37	0.48	0.33	0.19	0.82
Control Delay	6.6	7.1	29.4	26.5	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	7.1	29.4	26.5	45.6
Queue Length 50th (ft)	54	96	32	22	95
Queue Length 95th (ft)	m62	m96	48	26	m#147
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1753	1764	289	359	326
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.48	0.33	0.19	0.82

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	640	668	223	600	95	592
v/c Ratio	0.87	0.87	0.81	1.00	0.32	1.00
Control Delay	34.4	36.9	45.2	65.7	22.0	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	36.9	45.2	65.7	22.0	37.0
Queue Length 50th (ft)	118	122	67	~234	23	~167
Queue Length 95th (ft)	m#60	#205	#136	#401	m21	m148
Internal Link Dist (ft)	799	1539		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	737	769	277	600	301	592
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.87	0.81	1.00	0.32	1.00

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	656	612	78	126	191	282
v/c Ratio	0.62	0.54	0.42	0.27	0.58	0.59
Control Delay	13.5	8.4	25.4	14.5	32.7	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	8.4	25.4	14.5	32.7	27.3
Queue Length 50th (ft)	149	73	18	21	65	85
Queue Length 95th (ft)	233	m78	39	31	80	119
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1061	1127	187	459	329	482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.54	0.42	0.27	0.58	0.59

Intersection Summary

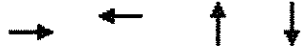
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	272	680	85	616	78	391
v/c Ratio	0.51	0.84	0.29	0.86	0.62	0.56
Control Delay	15.4	25.7	16.4	31.5	41.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	25.7	16.4	31.5	41.8	17.5
Queue Length 50th (ft)	51	155	17	157	18	81
Queue Length 95th (ft)	100	#277	38	#300	21	115
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	537	812	289	720	126	698
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.84	0.29	0.86	0.62	0.56

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	35	128	279	347
v/c Ratio	0.08	0.32	0.31	0.40
Control Delay	16.7	17.8	8.0	8.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.7	17.8	8.0	8.5
Queue Length 50th (ft)	7	26	41	56
Queue Length 95th (ft)	17	25	m39	66
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	432	400	911	865
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.08	0.32	0.31	0.40

Intersection Summary

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

Queues
 44: Baum Blvd (S.R. 0400) & Luna Driveway

2021 Combined Mitigated
 Timing Plan: A.M. Peak Hour



Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	924	1520	160	47
v/c Ratio	0.69	0.68	0.15	0.14
Control Delay	10.6	6.0	0.8	19.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.6	6.0	0.8	19.7
Queue Length 50th (ft)	66	83	1	10
Queue Length 95th (ft)	123	m93	m2	32
Internal Link Dist (ft)	283	574		115
Turn Bay Length (ft)			200	
Base Capacity (vph)	1338	2219	1044	346
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.69	0.68	0.15	0.14

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	1404	1171	387	63	258
v/c Ratio	0.97	1.23	1.24	0.49	0.60
Control Delay	33.2	127.4	160.1	41.3	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	127.4	160.1	41.3	29.9
Queue Length 50th (ft)	168	~310	~183	20	69
Queue Length 95th (ft)	#313	m#288	#287	m43	103
Internal Link Dist (ft)	1565	655	128		550
Turn Bay Length (ft)				50	
Base Capacity (vph)	1443	951	312	128	429
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.97	1.23	1.24	0.49	0.60

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1323	1124	318	371	86
v/c Ratio	0.87	1.04	1.05	0.73	0.35
Control Delay	13.0	53.8	86.4	14.9	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	53.8	86.4	14.9	26.2
Queue Length 50th (ft)	168	~123	~137	22	23
Queue Length 95th (ft)	m174	#153	m#155	m22	44
Internal Link Dist (ft)	655	283		100	244
Turn Bay Length (ft)			110		
Base Capacity (vph)	1519	1078	303	508	245
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.87	1.04	1.05	0.73	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1566	975	273	98
v/c Ratio	0.82	0.54	0.75	0.32
Control Delay	5.2	7.0	30.4	16.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.2	7.0	30.4	16.3
Queue Length 50th (ft)	40	71	84	14
Queue Length 95th (ft)	48	m54	#73	14
Internal Link Dist (ft)	574	621	296	1350
Turn Bay Length (ft)				
Base Capacity (vph)	1920	1812	364	308
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.54	0.75	0.32

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1608	1145	132	614	861
v/c Ratio	1.62	1.23	1.23	1.44	1.71dl
Control Delay	299.8	130.2	152.2	225.3	102.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	299.8	130.2	152.2	225.3	102.0
Queue Length 50th (ft)	~488	~304	~67	~343	~194
Queue Length 95th (ft)	#597	#391	m#69	m#303	#311
Internal Link Dist (ft)	621	248		245	1053
Turn Bay Length (ft)					
Base Capacity (vph)	993	930	107	427	747
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.62	1.23	1.23	1.44	1.15

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1303	973	263	187
v/c Ratio	0.68	0.48	0.61	0.56
Control Delay	3.1	9.0	16.6	21.9
Queue Delay	3.2	0.0	0.0	0.0
Total Delay	6.3	9.0	16.6	21.9
Queue Length 50th (ft)	49	97	74	34
Queue Length 95th (ft)	m30	131	m69	87
Internal Link Dist (ft)	248	1559	266	414
Turn Bay Length (ft)				
Base Capacity (vph)	1924	2017	428	335
Starvation Cap Reductn	502	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.48	0.61	0.56

Intersection Summary

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



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	763	592	148	511	163	438
v/c Ratio	1.06	0.92	0.18	1.08	0.99	0.80
Control Delay	72.0	31.7	5.9	92.2	88.4	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	31.7	5.9	92.2	88.4	30.5
Queue Length 50th (ft)	~341	206	18	~231	69	166
Queue Length 95th (ft)	#508	#386	23	#338	m#86	m208
Internal Link Dist (ft)	1736	824		777		102
Turn Bay Length (ft)					100	
Base Capacity (vph)	719	644	834	475	164	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.92	0.18	1.08	0.99	0.80

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
7: Centre Ave & Cypress St

2021 Combined Mitigated
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	904	737	146	105	232
v/c Ratio	0.62	0.48	0.30	0.20	0.55
Control Delay	17.8	13.1	21.4	19.8	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	13.1	21.4	19.8	26.2
Queue Length 50th (ft)	138	85	42	29	63
Queue Length 95th (ft)	m132	m97	79	49	m92
Internal Link Dist (ft)	824	799	158		296
Turn Bay Length (ft)					
Base Capacity (vph)	1459	1540	484	532	425
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.48	0.30	0.20	0.55

Intersection Summary

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

Queues
8: Centre Ave & Liberty Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	950	551	177	730	149	739
v/c Ratio	0.95	0.60	0.95	1.31	0.76	1.33
Control Delay	28.6	18.3	77.8	180.3	24.2	176.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	18.3	77.8	180.3	24.2	176.7
Queue Length 50th (ft)	70	73	43	~382	46	~392
Queue Length 95th (ft)	#270	101	#126	#506	m41	m#294
Internal Link Dist (ft)	799	573		349		1
Turn Bay Length (ft)						
Base Capacity (vph)	1001	924	186	556	196	557
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.60	0.95	1.31	0.76	1.33

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Liberty Ave & Millvale Ave

2021 Combined Mitigated
Timing Plan: PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	775	586	202	375	51	132
v/c Ratio	0.72	0.54	0.65	0.73	0.28	0.25
Control Delay	17.7	11.3	27.2	25.6	25.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	11.3	27.2	25.6	25.9	12.1
Queue Length 50th (ft)	209	173	42	73	15	18
Queue Length 95th (ft)	313	m122	#112	117	39	47
Internal Link Dist (ft)	170	1001		488		475
Turn Bay Length (ft)			50		200	
Base Capacity (vph)	1069	1080	309	513	181	527
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.54	0.65	0.73	0.28	0.25

Intersection Summary

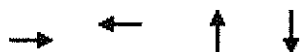
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	662	364	55	474	152	727
v/c Ratio	1.01	0.47	0.43	0.68	0.72	1.06
Control Delay	58.9	12.4	26.9	21.0	39.5	73.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	12.4	26.9	21.0	39.5	73.8
Queue Length 50th (ft)	~186	59	11	109	36	~238
Queue Length 95th (ft)	#354	109	#43	153	#108	#391
Internal Link Dist (ft)	710	1071		287		135
Turn Bay Length (ft)			55		100	
Base Capacity (vph)	653	776	127	702	211	685
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.47	0.43	0.68	0.72	1.06

Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	43	244	452	139
v/c Ratio	0.10	0.61	0.48	0.16
Control Delay	17.5	25.7	12.4	7.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.5	25.7	12.4	7.5
Queue Length 50th (ft)	9	61	106	28
Queue Length 95th (ft)	15	51	m127	m36
Internal Link Dist (ft)	187	303	981	488
Turn Bay Length (ft)				
Base Capacity (vph)	416	400	945	848
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.61	0.48	0.16

Intersection Summary

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



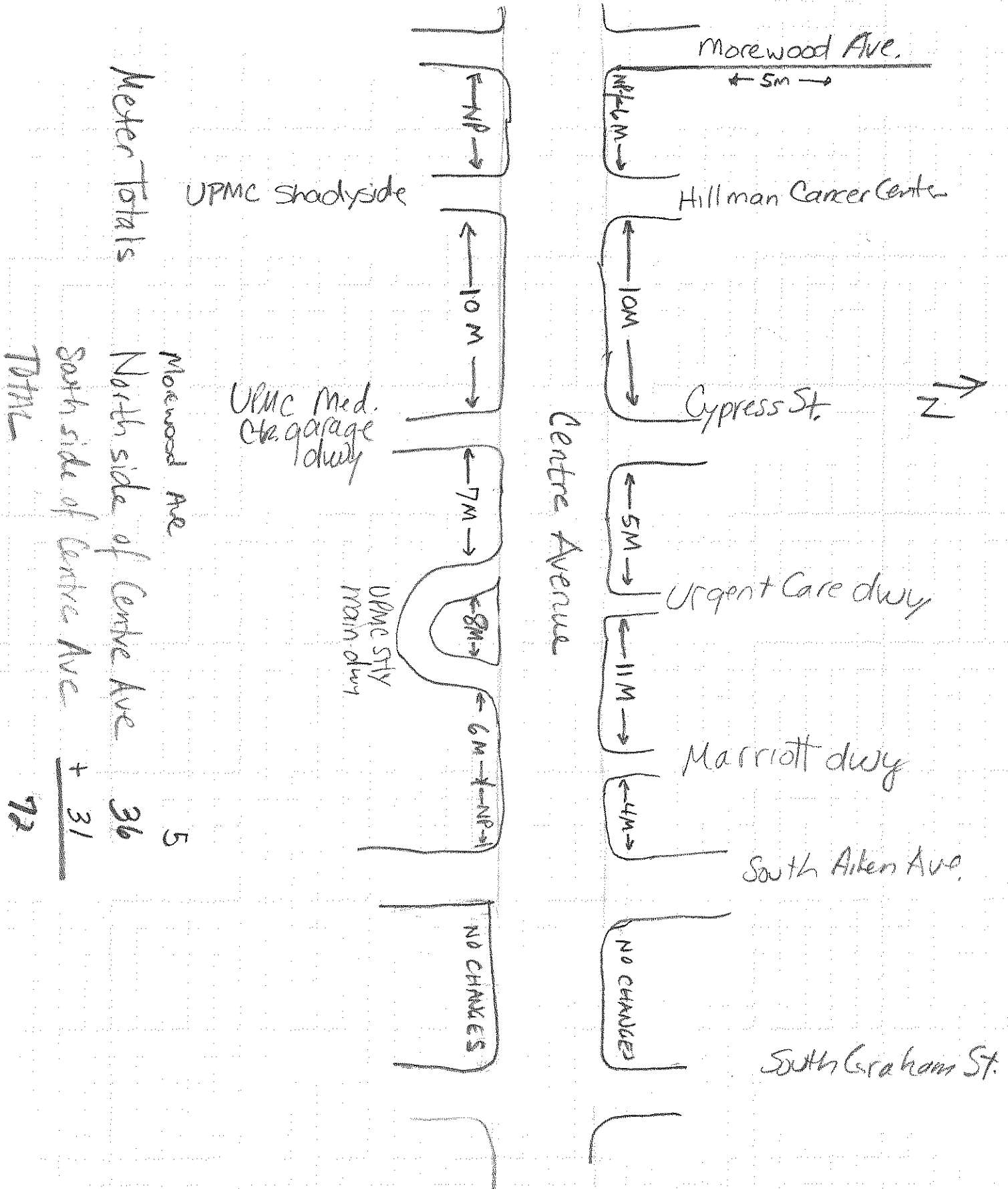
Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	1428	949	24	238
v/c Ratio	0.69	0.43	0.02	0.59
Control Delay	4.6	7.6	2.7	30.1
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	5.4	7.6	2.7	30.1
Queue Length 50th (ft)	51	76	1	71
Queue Length 95th (ft)	m68	94	m2	130
Internal Link Dist (ft)	283	574		115
Turn Bay Length (ft)			200	
Base Capacity (vph)	2077	2213	998	402
Starvation Cap Reductn	341	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.43	0.02	0.59

Intersection Summary

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

APPENDIX K

Centre Avenue and Morewood Avenue
On-Street Parking Meter Removals



Meter Totals

Morewood Ave	5
North side of Centre Ave	36
South side of Centre Ave	+ 31
TOTAL	72