

## **APPENDIX A: FATAL FLAW ANALYSIS**

## **Fatal Flaw Analysis**

A fatal flaw analysis was conducted to determine whether or not to progress this study through further analysis, based on the potential impacts and general feasibility of implementing road diet options for the corridor. Based on the results of the analysis, no 'fatal flaws' were identified. Results of the analysis are summarized in Tables 8 and 9. Table 8: Level of Service Summary – Fatal Flaw Conditions demonstrates expected LOS for various movements along the corridor and Table 9: Queue Summary – Fatal Flaw Conditions projects expected queuing distances (in feet) for various intersection movements.

The following assumptions were incorporated into the fatal flaw analysis:

- One through lane in each direction throughout the entire study area
- A 150 foot right turn lane on eastbound James Street at the Shotwell Park intersection
- 150 foot right turn lanes on eastbound James Street at the Oswego Boulevard and Sedgwick Street intersections (based on projected 2030 traffic volumes)
- Right turn lane on westbound James Street at North State Street (existing)
- 150 foot left turn lanes at all signalized intersections where a left turn lane currently does not exist today
- Traffic signal optimization along the corridor. Optimized intersection splits while maintaining cycle lengths and offsets. The overall traffic signal coordination plan was not optimized
- No changes to the number and/or configuration of travel lanes at the James Street/ Shotwell Park/ Grant Boulevard intersection. This intersection currently contains one through lane on both the eastbound and westbound approaches of James Street

**Table 8: Level of Service Summary – Fatal Flaw Conditions**

Intersection	2030 Future Condition	
	Morning Peak Hour	Evening Peak Hour
<b>James Street @ Oswego Road</b>	<b>A(9)</b>	<b>D(46)</b>
EB Left	A(5)	A(0)
EB Through	A(9)	D(42)
EB Right	A(1)	A(6)
WB Left	A(7)	D(38)
WB Through/Right	A(7)	D(51)
NB Left	C(24)	F(82)
NB Left/Through/Right	C(22)	D(37)
SB Left/Through/Right	A(0)	C(27)
<b>James Street @ North State Street</b>	<b>C(22)</b>	<b>D(40)</b>
EB Left	B(19)	D(40)
EB Through/Right	D(47)	E(76)
WB Left	B(14)	B(18)
WB Through	B(17)	C(28)
WB Right	A(4)	B(11)
NB Left	C(22)	B(20)
NB Through/Right	C(20)	D(50)
SB Left	B(15)	B(18)
SB Through/Right	B(14)	B(11)
<b>James Street @ North Townsend Street</b>	<b>B(16)</b>	<b>C(22)</b>
EB Left	A(5)	B(17)
EB Through/Right	A(8)	B(17)
WB Left	B(13)	B(15)
WB Through/Right	B(18)	C(21)
NB Left	C(26)	D(47)
NB Through	C(22)	C(23)
NB Right	A(5)	A(4)
SB Left	B(17)	B(18)
SB Through/Right	B(19)	B(19)
<b>James Street @ North McBride Street</b>	<b>A(8)</b>	<b>B(11)</b>
EB Left	A(4)	A(7)
EB Through/Right	A(3)	A(7)
WB Left	A(6)	A(4)
WB Through/Right	B(11)	A(9)
NB Left/Through/Right	B(20)	C(24)
SB Left/Through/Right	B(18)	C(29)
<b>James Street @ Catherine Street</b>	<b>B(11)</b>	<b>B(20)</b>
EB Left	A(2)	A(9)
EB Through/Right	A(2)	B(15)
WB Left	A(8)	B(19)
WB Through/Right	B(11)	B(17)
NB Left/Through/Right	C(24)	C(35)
SB Left/Through/Right	C(23)	B(18)

Intersection	2030 Future Condition	
	Morning Peak Hour	Evening Peak Hour
<b>James Street @ Lodi Street</b>	<b>C(21)</b>	<b>C(32)</b>
EB Left	B(18)	B(20)
EB Through/Right	B(14)	D(38)
WB Left	B(11)	C(25)
WB Through/Right	C(21)	C(34)
NB Left/Through/Right	C(29)	C(29)
SB Left/Through/Right	C(29)	B(20)
<b>James Street @ Oak Street</b>	<b>B(14)</b>	<b>C(21)</b>
EB Left	B(17)	A(7)
EB Through/Right	A(10)	C(22)
WB Left	A(5)	C(23)
WB Through/Right	A(8)	B(12)
NB Left/Through/Right	C(34)	C(32)
SB Left/Through/Right	B(15)	C(25)
<b>James Street @ DeWitt Street</b>	<b>B(18)</b>	<b>B(14)</b>
EB Left	B(18)	A(2)
EB Through/Right	B(14)	B(13)
WB Left	A(0)	A(8)
WB Through/Right	B(17)	B(11)
NB Left/Through/Right	B(14)	B(15)
SB Left/Through/Right	C(28)	C(32)
<b>James Street @ Segwick Street</b>	<b>B(15)</b>	<b>B(14)</b>
EB Through	A(6)	B(20)
EB Right	A(1)	A(1)
WB Left	A(9)	A(8)
WB Through	C(23)	A(8)
NB Left/Right	B(17)	B(18)
<b>James Street @ Wilson Street</b>	<b>A(9)</b>	<b>B(11)</b>
EB Through/Right	A(8)	B(15)
WB Left	A(4)	A(5)
WB Through	A(9)	A(5)
NB Left/Right	B(13)	B(15)
<b>James Street @ Teall Avenue</b>	<b>D(38)</b>	<b>E(62)</b>
EB Left	D(54)	E(72)
EB Through/Right	D(40)	E(80)
WB Left	D(55)	E(74)
WB Through/Right	D(37)	D(42)
NB Left/Through/Right	D(46)	E(73)
SB Left/Through/Right	C(27)	D(37)
<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>F(141)</b>	<b>F(171)</b>
EB Left	A(8)	A(8)
EB Through/Right	B(10)	A(10)
WB Left/Through	D(51)	D(41)
WB Right	D(41)	D(69)
NB Left/Right	C(21)	B(16)
SB Left/Through/Right (Grant)	F(624)	F(713)
SB Left/Right (Walgreens)	D(37)	D(37)

A(9) – Level of Service (Average Delay per Vehicle in Seconds)



**Table 9: Queue Summary – Fatal Flaw Conditions**

Intersection	Available Turn Bay Storage	2030 Future Condition	
		Morning Peak Hour	Evening Peak Hour
<b>James Street @ Oswego Road</b>			
EB Left	150	5	0
EB Through	-	145	375
EB Right	150	15	28
WB Left	150	21	41
WB Through/Right	-	91	423
NB Left	-	53	162
NB Left/Through/Right	-	51	137
SB Left/Through/Right	-	0	20
<b>James Street @ North State Street</b>			
EB Left	150	50	55
EB Through/Right	-	101	351
WB Left	150	47	32
WB Through	-	223	258
WB Right	150	17	84
NB Left	120	25	26
NB Through/Right	-	57	323
SB Left	120	48	47
SB Through/Right	-	74	37
<b>James Street @ North Townsend Street</b>			
EB Left	150	1	3
EB Through/Right	-	91	264
WB Left	150	15	8
WB Through/Right	-	126	403
NB Left	105	93	192
NB Through	-	146	215
NB Right	-	16	20
SB Left	150	18	27
SB Through/Right	-	103	134
<b>James Street @ North McBride Street</b>			
EB Left	150	4	10
EB Through/Right	-	30	120
WB Left	150	0	2
WB Through/Right	-	187	116
NB Left/Through/Right	-	39	54
SB Left/Through/Right	-	28	110
<b>James Street @ Catherine Street</b>			
EB Left	150	1	6
EB Through/Right	-	17	220
WB Left	150	30	41
WB Through/Right	-	213	225
NB Left/Through/Right	-	87	236
SB Left/Through/Right	-	79	76

Intersection	Available Turn Bay Storage	2030 Future Condition	
		Morning Peak Hour	Evening Peak Hour
<b>James Street @ Lodi Street</b>			
EB Left	150	15	16
EB Through/Right	-	209	538
WB Left	150	16	9
WB Through/Right	-	557	474
NB Left/Through/Right	-	83	143
SB Left/Through/Right	-	75	60
<b>James Street @ Oak Street</b>			
EB Left	150	40	2
EB Through/Right	-	121	368
WB Left	150	4	36
WB Through/Right	-	67	253
NB Left/Through/Right	-	179	99
SB Left/Through/Right	-	56	100
<b>James Street @ DeWitt Street</b>			
EB Left	150	15	2
EB Through/Right	-	185	370
WB Left	150	0	1
WB Through/Right	-	417	203
NB Left/Through/Right	-	8	18
SB Left/Through/Right	-	100	108
<b>James Street @ Segwick Street</b>			
EB Through	-	75	294
EB Right	150	1	0
WB Left	150	7	9
WB Through	-	205	97
NB Left/Right	-	29	54
<b>James Street @ Wilson Street</b>			
EB Through/Right	-	155	438
WB Left	150	7	11
WB Through	-	331	163
NB Left/Right	-	18	18
<b>James Street @ Teall Avenue</b>			
EB Left	160	99	232
EB Through/Right	-	441	671
WB Left	125	84	182
WB Through/Right	-	346	320
NB Left/Through/Right	-	236	342
SB Left/Through/Right	-	190	236
<b>James Street @ Shotwell Park / Grant Blvd.</b>			
EB Left	100	37	40
EB Through/Right	-	149	163
WB Left/Through	-	277	277
WB Right	150	173	322
NB Left/Right	-	55	50
SB Left/Through/Right (Grant)	-	358	483
SB Left/Right (Walgreens)	-	19	62

95<sup>th</sup> Percentile Maximum Queues – Queues and Storage shown in Feet

Overall, the fatal flaw analysis indicates very little change in LOS from the 2030 null conditions. Very few intersections experience a degradation in LOS between 2030 null conditions and 2030 fatal flaw conditions. Signal timing adjustments alone fixed several failing intersection approaches. The intersections that experience the most significant degradation in LOS from the 2030 null conditions to the 2030 fatal flaw conditions are:

- James Street at North State Street – Morning peak hour LOS is reduced from B to C, although average delay is only increased from 16 seconds to 22 seconds. Evening peak hour LOS is reduced from C to D, again with a small increase in average delay from 32 seconds to 40 seconds.
- James Street at Lodi Street – Morning peak hour LOS is reduced from B to C; however, average delay is only increased from 16 seconds to 21 seconds.
- James Street at Sedgwick Street – Morning and evening peak hour LOS is reduced from A to B, with average delay increasing from 8 seconds to 15 seconds, and 8 seconds to 14 seconds respectively.
- James Street at Teall Avenue – Morning peak hour LOS is reduced from C to D, with an increase in average delay of 12 seconds. Evening peak hour LOS is reduced from D to E, with a 25 second increase in average delay.

The fatal flaw analysis indicates that the loss in capacity that is caused by a reduction in travel lanes brought on by a road diet can be offset by traffic signal optimization, as noted above, resulting in LOS improvements at several intersection approaches:

- James Street at Oswego Boulevard – The northbound left turn movement on Oswego Boulevard during the evening peak hour maintains a LOS F; however, average delay is decreased from 201 seconds to 82 seconds. The northbound left/ through movement on Oswego Boulevard during the evening peak hour experiences an improvement in LOS from F to D, with a decrease in average delay of 75 seconds.
- James Street at North Townsend Street – The northbound left turn movement on North Townsend Street during the evening peak hour experiences an improvement in LOS from F to D with a decrease in delay of 61 seconds.
- James Street at Catherine Street – The evening peak hour LOS for the intersection improves from a LOS C to LOS B with a decrease in average delay of 15 seconds.

As typically occurs with a single lane configuration, the fatal flaw analysis indicates that queuing distances increased at every signalized intersection approach along James Street. This is primarily due to the fact that there is less vehicle storage under a single lane configuration than under a multiple lane configuration. In addition, the fatal flaw analysis assumed that the traffic signals at James Street and Teall Avenue and at James Street and Shotwell Park operate independently of the coordination plan, as currently exists today.

The fatal flaw analysis indicates that altering the number and configuration of travel lanes along the James Street corridor to consist of one through lane in each direction with turn lanes at several key locations will result in traffic operations that are generally acceptable for urban corridors. The analysis indicates that most intersections along James Street will operate at LOS D or better, which is generally acceptable for both signalized and unsignalized intersections. The James Street/ Teall Avenue intersection during the evening peak hour and James Street/ Shotwell Park/ Grant Boulevard intersection during the morning and evening peak hour experience intersection LOS E or worse. The James Street/Shotwell Park/Grant Boulevard intersection

experiences a failing LOS under null conditions, which remains constant under the fatal flaw analysis since the fatal flaw analysis included no changes to the number and/or configuration of travel lanes at that location. Additional mitigation measures will likely be required at these intersections.

### **Traffic Operations Analysis Conclusion**

After evaluating the fatal flaw analysis, it was concluded that a road diet option for James Street is potentially feasible and that more detailed analysis should be continued.

The fatal flaw analysis does not account for transit vehicles and the potential vehicle queue that would develop as a result of transit vehicle dwell times, especially at the busier bus stops. With approximately 800 vehicles traveling in the eastbound or westbound direction on James Street under the 2030 future condition, depending on the morning or evening peak hour, vehicles would be passing any given bus stop location at a rate of approximately one vehicle every 4.5 seconds, assuming uniform arrival patterns. Based on the average dwell time of 20 seconds per bus stop observed during the SMTC transit data collection, it would be reasonable to assume that 4-5 vehicles would queue behind a bus at each stop that it makes. Given the low turning movement volumes at the signalized intersections in the corridor, queues behind buses would likely increase by another 4-5 vehicles at each subsequent stop that the bus makes. With multiple stops in relative close proximity to each other, traffic queues could quickly build to 20 vehicles or more, resulting in significant congestion issues within the corridor. These traffic queues could be especially problematic when buses use a far side stop (a stop after passing through a traffic signal) if the vehicles block the side street movements.

With a 3-lane road diet option (one through lane in each direction and a center two-way left-turn lane), due to limited existing pavement width, transit vehicles would need to make their stops in the travel lane, which could potentially prompt drivers to avoid transit dwell times by using the center left-turn lane to pass a bus. Following discussions with SMTC, Centro, and the City of Syracuse, it was determined that allowing transit vehicles to make their stops in the travel lane under a 3-lane configuration may result in undesirable vehicle queuing and create safety hazards. Therefore, it was determined that any future options for James Street that reduce the number of travel lanes should address the issue of having transit vehicles making stops from the travel lane, and consider the impacts of buses entering and exiting the travel lane.

## **APPENDIX B: PUBLIC INVOLVEMENT**

# James Street Road Diet Study

## **Public Involvement Appendix**

The James Street Road Diet public involvement process was inclusive, comprehensive, and collaborative. The SMTC developed a Public Involvement Plan (PIP), which is attached. The PIP outlines a process to facilitate and engage the public early and often in the planning process. Through its implementation, it provides citizens, affected public agencies, businesses, local government, and other interested parties with a reasonable opportunity to comment on transportation plans and programs.

Extensive outreach occurred for the two public meetings. In preparation of the meetings, the SMTC developed fliers, which it posted to its website, [www.smtcmpo.org](http://www.smtcmpo.org); disseminated electronically to various community groups including Syracuse's Downtown, Near Northside, and Eastwood Tomorrow's Neighborhoods Today (TNT) planning area groups; and – with permission of the property owners and managers – posted throughout the corridor at the following locations to announce both public meetings:

1. (489 James) Original Italian Pizza/Colonial Laundromat
2. (518 James) United Way
3. (635 James) Arise
4. (753 James) Skyline Apartments
5. (770 James) Regency Towers
6. (953 James) Bryant & Stratton
7. High-rise apartment building at the northwest corner of James and Oak
8. (1613 James) Lincoln Middle School
9. (2329 James) Walgreens Pharmacy
10. (2384 James) Palace Theater
11. (2443 James) The Book's End
12. (2600 James) Books and Memories
13. Laundromat (corner of Ashdale and James Street)
14. (2921 James) Dunkin Donuts/Papa Johns
15. (3152 James) Coffee shop located in plaza
16. Other locations and public areas as appropriate

The dissemination of this information generated a lot of discussion among various neighborhood groups. Various community groups blogged and e-mailed each other about the project. Some of these e-mails were formalized and forwarded to the SMTC as part of the public comment record. All comments submitted on behalf of the public have been incorporated into this public involvement appendix.

In addition to disseminating fliers, the SMTC also meet with the Eastwood TNT and the Durston Ave Neighborhood Watch groups to inform them about this process as part of our outreach effort. No comments or substantive discussion was held at these meetings. The purpose of these meetings was to simply inform the participants of the process and to invite their participation at the public meetings. The SMTC included anyone who participated in meetings or who requested information as part of a stakeholder group. The stakeholder group, which included 72 individuals, received a flier invitation in the mail to the public meetings.

The SMTC also submitted press releases (attached) to local newspapers announcing the public meetings, and some newspapers ran articles about the study. Public meeting agendas (attached) were provided at each meeting, and meeting summaries were produced. Applicable meeting summaries are attached and included in the record.

In addition to being able to submit written comments throughout the planning process, the SMTC disseminated comment sheets that people could fill out and submit up to two weeks after a public meeting. Several comments were received this way and have been included as part of this appendix.

The City of Syracuse and the SMTC also received 12 calls regarding the first public meeting. Four calls were in support of the project, seven spoke against it, and one individual raised a question about how buses would be impacted, but did not indicate a preference for or against a road diet. During the conversations, callers offered the following questions and comments:

#### Questions

- How would a road diet affect emergency vehicles?
- Could traffic be calmed east of Eastwood?
- Will buses cause traffic to back up? Will there be congestion as a result?
- How will handicapped users be accommodated?
- Can we reduce the number of bus stops?
- Would bicyclists be able to use steep hills along James Street?
- Will bike racks be provided throughout the corridor?
- Will bicyclists use the lanes during the winter?

#### Comments

- A road diet would adversely affect property values.
- A road diet would adversely affect the attractiveness of the city.

# James Street Road Diet Study

## **Public Involvement Plan**

Financial assistance for the preparation of this document was provided, in part, by the U.S. Department of Transportation's Federal Highway and Federal Transit Administrations and the New York State Department of Transportation. The Syracuse Metropolitan Transportation Council (SMTC) is solely responsible for its content.

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*For further information, contact:*

*Michael Alexander, Project Manager  
Syracuse Metropolitan Transportation Council  
126 N. Salina Street, 100 Clinton Square, Suite 100  
Syracuse, New York 13202  
Phone: (315) 422-5716; Fax: (315) 422-7753; Email: [malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)  
[www.smtcmpo.org](http://www.smtcmpo.org)*



## **I. Introduction**

Engaging the public early and often in the planning process is critical to the success of any transportation plan or program, and is required by numerous state and federal laws. Such legislation underscores the need for public involvement, calling on Metropolitan Planning Organizations (MPO) such as the Syracuse Metropolitan Transportation Council (SMTC) to provide citizens, affected public agencies, businesses, local government, and other interested parties with a reasonable opportunity to comment on transportation plans and programs.

While public participation is mandated, it is also practical. No one organization has a monopoly on good ideas – they often germinate through an open exchange of information. It is the SMTC’s intention to promote the shared obligation of the public and decision makers to define the goals and objectives of the **James Street Road Diet Study**, to develop alternatives, and to evaluate the alternatives.

This Public Involvement Plan (PIP) was created under the SMTC’s umbrella Public Participation Plan (PPP), which can be found at the SMTC website, [www.smtcmpo.org](http://www.smtcmpo.org).

## **II. Goals**

The intent of the PIP for the **James Street Road Diet Study** is to:

- (1) Create public awareness relative to the study’s goals, objectives, and process, as well as publicize the public participation opportunities and activities available throughout the study; and
- (2) Involve the public throughout the planning process.

## **III. Formation of Study Advisory Committee and Interested Stakeholder Group**

The PIP includes the formation of two groups to assist the SMTC and the consultant in the study effort: a Study Advisory Committee (SAC) and a stakeholders group. Selected representatives from the following affected agencies will be invited to participate in this study as SAC members:

- New York State Department of Transportation (NYSDOT)
- Central New York Regional Transportation Authority (CNYRTA)
- Syracuse Onondaga County Planning Agency (SOCPA)
- City of Syracuse, Office of the Mayor
- City of Syracuse, Engineering Department
- City of Syracuse, Department of Public Works
- City of Syracuse, Bureau of Planning and Sustainability
- City of Syracuse Police Department
- City of Syracuse Fire Department

- Syracuse City School District [Lincoln Middle School]
- Rural Metro
- Other SMTC member agencies as appropriate

The SAC will meet regularly with the SMTC/consultant to assist in managing the project. The SAC's role will be to advise the SMTC/consultant on the technical content of deliverables and to provide needed input and guidance throughout the project.

It is anticipated that a **minimum** of three (3) SAC meetings will be held throughout the course of the study. Securing a meeting location (facility) and announcing the SAC meetings through mailings will be the responsibility of the SMTC. Running the SAC meetings (including preparation of agenda, materials, presentations, etc.), and preparing the minutes from each meeting will be the responsibility of the consultant.

The SMTC will may reach out to key stakeholders (such as Saint Joseph's Hospital, Central New York Regional Planning and Development Board, the Metropolitan Development Association, Bike CNY, etc.) prior to the first public meeting to understand additional issues and opportunities in the James Street corridor.

SMTC will maintain a list of additional interested stakeholders (a broader group of interested individuals with significant relations and interest in the study area). The stakeholders will be sent pertinent study information, kept apprised of significant study developments, notified of all public meetings, and encouraged to provide feedback and comment regarding the **James Street Road Diet Study**.

The SMTC and project sponsors will determine initial representation on the SAC, the focus groups, and the stakeholders group. However, the SMTC will actively seek input at its "kick-off meeting" and throughout the course of the study regarding additional individuals who could participate in this planning activity and provide valuable input and perspective.

#### **IV. Meetings and Public Comment**

The SMTC/consultant will hold at least two public involvement meetings at specific stages during the study. SMTC will be responsible for securing a meeting location (facility) and promoting the event through flyers, mailings and press releases. The consultant will be responsible for preparation of agenda, materials, and presenting at the public meetings. In addition, the consultant will prepare the minutes of each meeting.

The first public meeting will provide the opportunity to formally present the study to the public, review an inventory of existing conditions data, including the fatal flaw analysis, discuss issues and opportunities in the corridor, and define the goals and preliminary vision for the corridor. The public meeting may include a breakout session with smaller subgroups, possibly targeted to specific interests (such as neighborhood residents, business owners, or commuters). The input received at the first public meeting will be

incorporated in the final version of Technical Memorandum #1 prior to SAC approval of that document.

The second public meeting will take place after the SMTC/consultant and the SAC have developed a list of potential alternatives to address the study area issues and completed a preliminary evaluation of alternatives (including future capacity analysis, where applicable). The preliminary recommendations from the SAC will be presented and the public will be invited to provide input on these recommendations. Input from the community will be considered in the final evaluation of alternatives, which will be completed by the consultant and the SAC following the second public meeting.

Note: All meetings (SAC and public) will be held in a handicapped accessible facility in compliance with the Americans with Disabilities Act. The SMTC will make every effort to respond to those who notify the SMTC for the need of a sign language interpreter, assistive learning system, or any other accommodations to facilitate the public's participation in the transportation planning process.

To further increase its outreach to the public, the SMTC will be initiating and conducting public involvement activities such as material distribution at locations within study area. For instance, if deemed necessary (at the discretion of the SAC and/or other appropriate SMTC committees), the SMTC may distribute miscellaneous study-specific information at sites within the study area. This information may include one or more of the following: introductory flyer, meeting notice, comment card, or a pre-addressed questionnaire on a particular study issue. It is also the SMTC's intent to work with and encourage other agencies to include this information in their publications or to assist in material distribution.

All citizens (especially those who are not able to attend the public meetings or participate in direct contact with the SMTC staff) are encouraged to submit comments to the SMTC at any time. This message will be publicized and made clear throughout the study's project schedule, verbally, and on all study material and publications. The public is also welcome to attend any of the publicized SMTC Executive, Planning and Policy Committee meetings in which the **James Street Road Diet Study** may be on the agenda as a discussion item.

## **V. Press Releases/Media Coverage**

The SMTC will issue news releases (announcing the details of all public meetings) to all major and minor newspapers, television stations, and radio in advance. If necessary, the SMTC will also send additional news releases, or take the initiative to promote media coverage on pertinent developments pertaining to the **James Street Road Diet Study**.

If possible, all media inquiries should be directed to the SMTC staff director or project manager. However, this is not always possible. If you (e.g. SMTC committee members, SAC members, and/or interested stakeholders associated with the study) are interviewed by the media, please limit your comments to your respective agency's opinion or

involvement in the study. Speaking to the media on specific issues and questions regarding the **James Street Road Diet Study**, such as the study progress and development, is the exclusive responsibility of the SMTC.

## **VI. SMTC Publications**

The SMTC publishes a newsletter, DIRECTIONS, that offers news about its activities and particular studies. This newsletter is distributed to nearly 3,000 individuals, some of whom include the media; local, state, and federal agencies associated with the SMTC; municipal and elected officials; community agencies and representatives; and a large number of interested citizens. It is anticipated that articles on the **James Street Diet Study** (e.g. study development issues or the announcement or coverage of a public meeting) will be published in subsequent issues of DIRECTIONS. Should the need arise for the production of a separate newsletter/flyer/report to convey a timely study development the SMTC staff is prepared to perform this additional task. It is also important to note that the mailing list of the SMTC newsletter, DIRECTIONS, will be updated to include all members of the SAC, stakeholders, and others interested or involved in the **James Street Road Diet Study**.

## **VII. Miscellaneous Public Involvement Efforts**

The SMTC will ask the SAC members and interested stakeholders to assist them in notifying citizens and community groups living and/or working in the study area about the public meetings and the study in general. Such a request is imperative in order to get the “grassroots community” involved. By helping to distribute flyers/announcements and speaking to the members of the community about the **James Street Road Diet Study**, the SAC and interested stakeholders will serve to further promote public involvement in areas and to individuals that were not reached through other outreach.

Meeting notices and study-specific material previously mentioned may also be posted at libraries, local stores, shopping centers, and/or businesses.

Approved documents, such as the study’s Final Report, may be made available at libraries in the vicinity of the study area. News releases will be produced to announce the availability of such items, and the SMTC invites written comments at any time.

The SMTC web site [www.smtcmpo.org] will also serve as a resource for general information about the SMTC, the **James Street Road Diet Study**, and any final approved reports.

If a certain need arises to get public perception/opinion on a particular topic/issue, questionnaires may be used at one or more of the public meetings.

Additionally, the **James Street Road Diet Study** will include various types of visualization techniques to aid the study. Examples of techniques include mapping, aerial photographs, traffic simulation graphics, and pictures of the study area.

## **VIII. Conclusion**

It is important for the SMTC to understand public attitudes and values throughout the **James Street Road Diet Study**, as well as to solicit input from affected citizens and community representatives. Through the activities described in this public involvement plan, the SMTC/consultant will solicit public input and provide opportunities for the public to develop greater awareness of and active involvement in the project. This study has the potential to recommend transportation changes in a developed area and to alter the character of a significant community thoroughfare; therefore, public involvement will be critical to the study effort.



## Syracuse Metropolitan Transportation Council

100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, New York 13202  
Phone (315) 422-5716  
Fax (315) 422-7753  
[www.smtcmpo.org](http://www.smtcmpo.org)

# NEWS RELEASE

FOR IMMEDIATE RELEASE – SEPTEMBER 23, 2010

Contact: James D'Agostino, Director

Tel: (315) 422-5716; E-mail: [jdagostino@smtcmpo.org](mailto:jdagostino@smtcmpo.org)

## *James Street "Road Diet" Study Public Meeting*

**Syracuse, N.Y.** — A public meeting will be held on Thursday, October 7, 2010 at 6:30 p.m. at the Lincoln Middle School, 1613 James Street, in Syracuse for the James Street "Road Diet" Study.

A "road diet" study investigates the feasibility of improving a roadway's safety and efficiency for walkers, bicyclists, transit riders, and motorists by altering the existing number and/or width of automobile travel lanes. The purpose of the meeting is to:

- review project goals and objectives,
- review existing road and sidewalk conditions, and
- discuss the feasibility of altering travel lanes to better accommodate bicycle and bus traffic.

A work session to brainstorm your ideas for improvements will follow the initial presentations. We welcome your thoughts about how to improve James Street from Oswego Boulevard to Shotwell Park for all users.

The meeting is the initial public outreach for the James Street "Road Diet" Study, a planning effort being completed by the Syracuse Metropolitan Transportation Council (SMTC) on behalf of the City of Syracuse. For additional information about the project or the public meeting, or to ensure accommodation for special needs, please contact the SMTC at (315)422-5716.

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### What is the SMTC?

The Syracuse Metropolitan Transportation Council was formed in 1966 as a result of the Federal Aid Highway Act of 1962 and Urban Mass Transportation Act of 1964. Serving as the metropolitan planning organization (MPO) for the Syracuse Metropolitan area, the SMTC provides the forum for cooperative decision making in developing transportation plans and programs for Onondaga County and small portions of Madison and Oswego Counties. The SMTC is comprised of elected and appointed officials, representing local, state and federal governments or agencies having interest in or responsibility for transportation planning and programming.

Log on to the SMTC web site for the latest in transportation planning in the Syracuse Metropolitan Area: [www.smtcmpo.org](http://www.smtcmpo.org)

# James Street: How can we improve it for everyone?

**You are invited to come, learn, and share your thoughts.**

## Public Meeting

**Date: October 7, 2010**

**Time: 6:30 p.m.**

**Location: Lincoln Middle School  
1613 James Street**

The Syracuse Metropolitan Transportation Council (SMTC) is studying “road diet strategies” for the James Street Corridor between Oswego Boulevard in downtown Syracuse and Shotwell Park in Eastwood. This study will explore options such as reducing the number of travel lanes, adding bicycle lanes, and adding bus pull-off areas to increase safety and efficiency for all users.



**Transit Riders**



**Bicyclists**



**Pedestrians**



**Motorists**

For more information, or to request accommodations, contact:

Michael D. Alexander, AICP

Syracuse Metropolitan Transportation Council

100 N. Clinton Square

126 N. Salina Street, Syracuse, NY 13202

315.422.5716 | [malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)

[www.smtcmpo.org](http://www.smtcmpo.org)



*The meeting facility is handicapped accessible.*



# **James Street Road Diet Public Meeting Agenda Thursday, October 7, 2010, 6:30pm**

Lincoln Middle School  
1613 James Street  
Syracuse, New York 13203

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## **1) Welcome & Introductions (~10 minutes)**

- a) Project team introductions
- b) Who is SMTTC?
- c) Project overview

## **2) Presentation – James Street Road Diet (~30 minutes)**

- a) What is a Road Diet?
- b) Case Studies
- c) Existing Conditions
- d) Traffic Operations
- e) Preliminary Strengths & Issues
- f) Project Goals & Objectives

## **3) Discussion Session (~25 minutes)**

## **4) Discussion Summary / Questions & Answers (~15 minutes)**

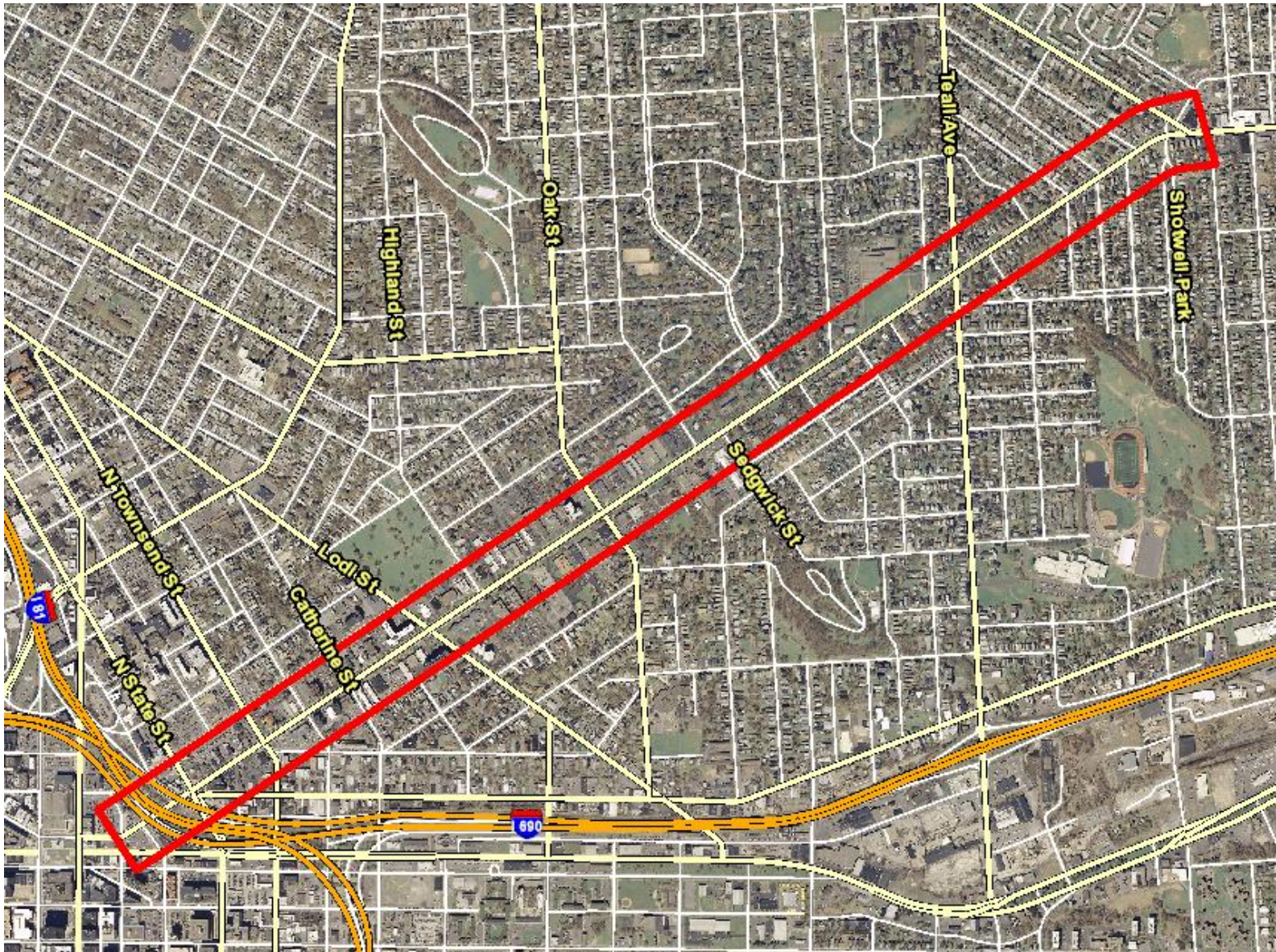
## **5) Next Steps (~5 minutes)**

### **Contact Information:**

Michael D. Alexander, AICP  
Senior Transportation Planner  
Syracuse Metropolitan Transportation Council  
100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, New York 13202  
(315) 422-5716  
Fax: (315) 422-7753  
[malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)



## James Street Road Diet Study Area





# **Summary of Public Meeting #1**

## **James Street Road Diet**

### **Thursday, October 7, 2010, 6:30pm-8:30pm**

Lincoln Middle School  
1613 James Street  
Syracuse, New York 13203

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This was the first Public Meeting for the James Street Road Diet Project. The meeting agenda is attached. Below is a summary of the discussion items from the meeting.

#### **I. Welcome and Introductions**

The meeting opened with an introduction by Mike Alexander of SMTC. Mike offered a summary of SMTC and an overview of the James Street Road Diet project. Some key points from the welcome and introductions were:

- SMTC was asked by the City of Syracuse to conduct the study.
- The study is funded through federal funds allocated specifically for planning studies conducted anywhere within the SMTC Metropolitan Planning Area (all of Onondaga County, plus small portions of Oswego and Madison Counties). These funds cannot be spent on anything else (e.g. infrastructure improvements). They must be spent on planning studies. This study is not funded using City taxes.
- SMTC does not own or control infrastructure/ facilities (in this case, the City of Syracuse and Centro do).
- It is up to the City/ Centro to implement any ideas/ recommendations that come out of this plan.
- The purpose of this study is to:
  - Identify ways to calm traffic along the corridor;
  - Improve the corridor for all users (multi-modal), including motorists, buses (transit), bicyclists, and pedestrians with minimal impacts to motorists.
- SMTC would like to hear from the public what they would like to see protected along the corridor, what they would like to see change, and what their vision for the corridor is.

#### **II. Mid-Session Question and Answer**

SMTC Director, James D'Agostino led a brief question and answer session before getting into the presentation to allow four questions to be asked regarding the general purpose of the project. A summary of this question and answer session is attached.

#### **III. Presentation – James Street Road Diet**

Mark Mistretta began with a definition of a “Road Diet” and provided examples of road diet projects, discussing their benefits. Mark highlighted the accommodation of additional transportation modes and streetscape enhancements.

Fred Frank provided an overview of the existing conditions outlined in Tech Memo #1 as well as detailed strengths of the corridor and identified problem areas. He gave an overview of the data collection methods and explained the transit headway study that was conducted by SMTC employees. The headway study indicated that the average

time for a bus stop is around 20 seconds, with only 4-5 bus stops per day lasting longer than one minute. These longer stops are typically to accommodate handicapped riders or bicyclists. Fred summarized the strengths and weaknesses of the corridor, and identified specific problem areas.

Gordon Stansbury presented the findings from the traffic analysis for both the existing conditions, the 2030 conditions, and the 2030 conditions with one travel lane in each direction (the feasibility analysis). He provided an overview of how the corridor was modeled, including provisions for transit. He concluded by indicating that the traffic and feasibility analysis shows that a "Road Diet warrants further study."

Mark Mistretta outlined the preliminary strengths and issues that were identified during the site visits and meetings with the SAC. Mark also reviewed the goals of the project, as confirmed by the SAC.

**IV. Discussion Sessions**

Mark Mistretta broke the full group down into three break-out groups where individuals had the opportunity to identify what they like about the corridor, what they don't like about the corridor, and how they envision the corridor in the future.

**V. Discussion Summary/ Question & Answer**

The break-out groups reconvened after about a 25-minute break-out session. Facilitators from each group summarized their group's discussion. A general question and answer session followed. Summaries of the break-out group discussions and general question and answer session are attached.

The meeting concluded without further discussion.

Wendel Duchscherer

Michael F. Leydecker, PE

## Summary of Public Meeting #1 Mid-Session Question and Answer

SMTC Director, James D'Agostino opened up the floor prior to beginning the existing conditions portion of the presentation so that members of the public could ask general questions pertaining to the project. The questions/ comments were as follows with responses provided by SMTC or Wendel:

1. Please clarify the reasoning for the Road Diet study on James Street.

Response: The purpose of this study is to:

- Identify ways to calm traffic along the corridor;
- Improve the corridor for all users (multi-modal), including motorists, buses (transit), bicyclists, and pedestrians with minimal impacts to motorists.

2. Concerns about school buses and emergency vehicle if Road Diet is implemented. Were the traffic counts collected while school was in session?

Response: Traffic counts were taken in early June when school was in session.

3. Left turns should include green arrow phasing.

Response: No specific design alternatives have been developed, however, it is acknowledged that certain intersections will require special attention and turning vehicles will require attention.

4. Need to accommodate persons with disabilities/ ADA accessible.

Response: Pedestrians and ADA compliance issues will be addressed when developing alternatives.

## Summary of Public Meeting #1 Break-Out Sessions

### **Break-Out Group A**

Facilitators: Mike Leydecker and Gordon Stansbury

Strengths	Weaknesses
Convenient Route	Poor sidewalk conditions in winter (kids walk in street)
Sidewalks are great for walking	Roadway is icy in winter, difficult to traverse grade
	Narrow travel lanes (DeWitt to Downtown)
	Poor traffic signal coordination
	No bicycle facilities
	Street contains confusing operations for elderly

Vision
Retain residential character
Accommodate alternative modes of travel

The group identified some potential concerns with a Road Diet as follows:

- Could cause confusing operations for elderly
- School students could use bicycle lanes to walk in.

### **Break-Out Group B**

Facilitators: Mark Mistretta and Meghan Vitale

Strengths	Weaknesses
Efficient for drivers	Left turns from travel lane
Tree canopy	Poor snow removal from sidewalks
Roadway functions fine	Crossings/ safety for people with disabilities
Good bus service	Right-on-red turns create safety concern for pedestrians (James Street/ McBride Street)
Speeding	vehicles
	Crashes at James Street/ McBride Street, intersection if concern for pedestrians
	James Street/ Lodi Avenue intersection has traffic congestion/ safety concerns
	Storm sewer catch basins are not at-grade with the pavement

	Left turning vehicles create backup at James Street/ Oak Street
	Bicyclists traveling in road block outside travel lane

Vision
Need to accommodate people with disabilities
Potential for Road Diet between downtown and Oak Street, retain roadway elsewhere
Off-road bicycle lane/ pathway
More frequent bus service between Oak Street and Downtown
Remove transit vehicles from the travel lane – would be willing to sacrifice some green space
Not East Genesee Street
Improve traffic signal timing
Improve pedestrian access/ facilities
Access control/ better design of curb cuts

The group identified some potential concerns with a Road Diet as follows:

- Impact of the growth of St. Joseph's Hospital.

### **Break-Out Group C**

Facilitators: Fred Frank and Mike Alexander

Strengths	Weaknesses
Single-family residential character of eastern end	Poor lighting
Tree canopy	Poor traffic light coordination
Convenient for commuters/ easy to drive	Street signs are not clearly visible (especially at State Street, Oak Street, and Lodi Street)
Ability to avoid turning vehicles and stopping buses	Storm sewer catch basins are not at-grade with the pavement
Sidewalks/ walkability	Litter at bus stops
Pedestrian	crossings
	Number of curb cuts
Mid-block	crossings
	Sidewalks aren't cleared of snow

Vision
Improve pedestrian facilities/ maintenance, provide mid-block crossings
Access management

Off-road bicycle facilities
Improved streetscape (like Eastwood)/ underground utilities
Retain residential character
Keep corridor as is
Remove buses from travel lanes

The group identified some potential concerns with a Road Diet as follows:

- Longer commute times/ longer waits at traffic lights
- Impact of I-81 project

### **Summary of Public Meeting #1 Break-Out Sessions**

After the Break-Out Session, each group reconvened with the group facilitators offering a summary of their group's discussion. The following is a summary of the summary discussion of all three break-out groups:

- Overall, the corridor works fine and shouldn't be altered.
- If a Road Diet is to be applied, it would work better for the portion of James Street between Downtown and Oak Street, where there is higher transit and bicycle use.
- Maintain the residential character of the eastern portion of the corridor.
- Consider bus pull-offs to remove buses from the travel lane.
- Always room to improve sidewalks and pedestrian facilities.
- Coordinate traffic signals to improve traffic flow.
- How will the I-81 study impact traffic flow along James Street and affect this study? Additional travel lanes should not be added to James Street.

### **Summary of Public Meeting #1 General Question & Answer/ Comment Session**

The following summarizes the Question & Answer/ Comment Session at the end of the meeting, with responses offered by SMTC or Wendel, if provided:

1. A general statement was made requesting that people be courteous to others while riding the bus and acknowledge handicapped persons. Can Centro run public service announcements regarding handicapped seats on buses?

Response: There are some restrictions as to what Centro can advertise, it's something we can look into.

2. Corridor flows generally well and the result of all three break-out groups is that "nobody wanted to go on a diet".

3. Look into using Syracuse University arts program to create murals on I-81 viaduct.
4. Improve bus stops- more bus shelters, and make more ADA compliant.

Response: Centro has representation on the Study Advisory Committee and the issue of bus accommodations will be addressed.

5. Need more left turn arrow phasing and left turn lanes.

Response: No specific design alternatives have been developed, however, it is acknowledged that certain intersections will require special attention and turning vehicles will require attention.

6. Add street trees where needed.
7. Better quality and quantity control of stormwater. Potential for porous pavement on bus pull-offs.

Response: One of the goals of the project is to promote a sustainable corridor, stormwater issues will be visited.

8. A two way left turn lane (TWLTL) should be provided.

Response: Turning vehicles will require attention and access management policies may be visited.

9. Coordinate traffic signals.
10. Improve pedestrian facilities/ potentially create an off-road bicycle lane between the curb and sidewalk. Would be willing to sacrifice some green space.

Response: Once alternatives are being developed, various options for bicycle and pedestrian facilities will be provided.

11. Retain residential character.
12. General need for bicycle lanes/ facilities and improved pedestrian crossings.
13. Improve pedestrian crossings/ mid block crossings (especially near school). Potential for flashing yellow traffic light that can be actuated by pedestrians when crossing the street.

Response: There are several options that can be looked at to improve pedestrian crossings.

14. Improve safety near United Way building – make drivers aware that handicapped persons are in the vicinity.



**Summary of Comments Received**  
**Public Meeting #1**  
**James Street Road Diet**  
**Thursday, October 7, 2010, 6:30pm**

The attached are comments received in reference to the Public Meeting #1 of the James Street Road Diet project.

DRAFT

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753). **Please return comment forms by October 21, 2010.**

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Place  
Stamp  
Here

**Syracuse Metropolitan Transportation Council  
Attn: Mike Alexander  
126 North Salina Street  
100 Clinton Square, Suite 100  
SYRACUSE, NY 13202**

Thank you for attending the public meeting for the **James Street 'Road Diet' Study** on October 7, 2010.  
Please provide any additional comments in the space below.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753).  
Please return comment forms by **October 21, 2010**.

I routinely bike from my home in East-wood to work downtown and back. I support the proposal to convert James Street to three traffic lanes and establish bike lanes. When traffic is heavy, I will avoid the hill section of James by detouring onto Sedgebrook, Elm, Burnett, Crouse, and the bike lane on Water Street. This is doable and reasonably direct, but it would still be good to have proper bike lanes on James.

If the "Road Diet" doesn't happen, the city could improve the existing situation by posting "Share the Road" signs. I routinely encounter drivers who think that cyclists should be using the sidewalks, not the road.

Name (optional) \_\_\_\_\_

Address (optional) \_\_\_\_\_

Email (optional) \_\_\_\_\_

Would you like to be added to the SMTC mailing list? Yes ☒ No ☐

For additional information on the **James Street 'Road Diet' Study**, please contact Mike Alexander at the SMTC by phone (315-422-5716) or email (malexander@smtcmpo.org).

Thank you for attending the public meeting for the **James Street 'Road Diet' Study** on October 7, 2010.  
Please provide any additional comments in the space below.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753).  
Please return comment forms by October 21, 2010.

- This ill-advised Road Diet will
- 1° Cause more congestion on James St
  - 2° Cause more pedestrian problems, esp. when the mass of students from Henninger H.S. and Lincoln H.S. descend on James St. at the end of the school day.
  - 3° James St. is a main arterial of commute into Syracuse and should not be a road diet.
  - 4° The E. Genesee St. Road Diet has already been seen as a disaster and dangerous.
  - 5° Side street access is difficult with 1 lane V.S. easier with 2 lanes access esp. for senior citizens.
  - 6° There are nursing homes and doctor facilities that need immediate access of emergency vehicles that need 2 lanes in both directions.

Name (optional) \_\_\_\_\_

Address (optional) \_\_\_\_\_

Email (optional) \_\_\_\_\_

Would you like to be added to the SMTC mailing list? Yes ☒ No ☐

For additional information on the **James Street 'Road Diet' Study**, please contact Mike Alexander at the SMTC by phone (315-422-5716) or email (malexander@smtcmpo.org).

JAMES STREET ROAD DIET  
PUBLIC MEETING  
OCT. 7 2010

There are two different areas: 181 to Oak Street and upper James Street.

181 to Oak Street—this is where most of the business, offices and apartments are—the highest population and highest pedestrian traffic. The following recommend changes are:

- 1] A pull off lane for bus stops.
- 2] Improved turning lanes [both left and right]
- 3] Timed lights for right hand turns on side streets.
- 4] Longer timed crossings for pedestrians.
- 5] Permanent cross walk markings.
- 6] A crosswalk light in front of united way.
- 7] A timer to change light, [with sound] to red both ways at McBride and Townsend streets for the blind to cross.
- 8] Note the increase in traffic due to improvements to St. Joe's Hospital.
- 9] Wider roadway to handle this increase in traffic.
- 10] Larger pedestrian traffic because of apartments, business in the area.
- 11] A bike path next to the sidewalk for safety reasons due to the increase traffic.
- 12] A means to slow traffic but still move traffic- timing of lights?
- 13] More trees.
- 14] Improve seating at bus stops.

Upper James

- 1] Maintain historic homes in the area- residential only
- 2] A bike path in roadway.
- 3] A crossing light in front of Lincoln school.
- 4] Improved sidewalks, curb cuts and cross walk markings.
- 5] More trees.
- 6] A means to slow down the speed of traffic as well to improve flow-timed traffic lights.
- 7] Turning lanes.
- 8] Improved lighting.

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**Sent:** Thursday, October 21, 2010 5:47 PM  
**To:** Mike Alexander  
**Subject:** James Street Road Diet Study Comments

Mike,

Thank you for coming to our recent neighborhood watch meeting. Here are some of my thoughts on the study.

I am a regular user of the James Street corridor as a motor vehicle operator, bus passenger and pedestrian.

My concerns over the idea of a center shared turn lane configuration include:

1. What happens when a bus pulls over to a stop? Can traffic move safely around?
2. With so many driveways on James Street, won't there be numerous conflicts with oncoming traffic in the center turn lane?
3. Stopped vehicles—deliveries, cabs, busses will interfere with cyclists in a bike lane that is part of the roadway.
4. There may be parts of the corridor that would benefit from the 3 lane configuration more than others. Perhaps in front of Lincoln School in order to slow that traffic.
5. Entering onto the corridor from the side streets needs to be given due consideration. It is oftentimes difficult to enter on the James from my street—especially to travel east from my street (Durstun). I would hate to see that movement restricted, prohibited or made more difficult. Having the center turn lane may facilitate entering onto the corridor more easily but I imagine it might also be more difficult to find suitable gaps to cross (when making left hand turns).
6. Whatever is done, signals need to be coordinated to allow continuous travel and eliminate racing to beat the next light.

Relative to pedestrian travel:

1. To improve the corridor for pedestrians I recommend starting with sidewalk maintenance/repairs plus mandatory snow and ice removal during winter months.
2. Road drainage at crosswalks needs improvement in some locations.
3. Some sidewalks also flood and need to be replaced on better grades to allow drainage and eliminate the need to walk around onto the grass to avoid being up to your ankles in water.
4. Pavement markings need better maintenance so drivers know where to stop their vehicles and pedestrians know where to cross.
5. Cross walks need to be wider and I think the practice of drawing the crosswalk markings just to the curb cut area is not practical especially when one curb cut per radius is employed; include the intersecting sidewalk in the crosswalk marking. It would be better to employ 2 curb cuts lined up with the sidewalks, in my opinion.
6. Vehicles need to be better cued to stop before the crosswalks and intersecting sidewalks. I am a violator of this at times—drivers aren't usually focused on pedestrians; especially at corners where obstructions block views and it is necessary to move up to see oncoming traffic, cyclists or even pedestrians.
7. Additional pedestrian green time at signalized intersections would also be welcome; often pedestrians arrive at an intersection when the vehicle light is green but the crosswalk sign is already indicating stop and not to enter the cross walk. This is so frustrating and most pedestrians, my self included, cross with the green even though pedestrian signal is red.

8. Pedestrians would be aided if vehicle traffic were slowed to perhaps 30 mph. Perhaps motorists would be less anxious to speed if traffic signals were synchronized to allow continuous vehicle travel without racing to beat the next light.

On Bicycle travel:

1. Having a safe bicycle lane would be a great improvement but I can't envision that a 4 foot wide in road strip offers much of a safety improvement. It might be better to explore a behind the curb bicycle path although conflicts with pedestrians would be inevitable (as they are today when cyclists use sidewalks).



**Sent:** Wednesday, October 27, 2010 12:22 PM

**To:** James D'Agostino

**Subject:** James St Diet - litter receptacles

**Mr. D'Agostino,**

**Thank you for conducting the public hearing on the "James Street Diet" at Lincoln Middle School. The discourse was healthy.**

**Please install litter receptacles at each Centro bus stop in the study area. This will greatly help in addressing the litter problem.**

**Thank you.**

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**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Monday, October 04, 2010 12:16 PM  
**To:** Mercurio, Paul; Mike Alexander  
**Cc:** Maxwell, Andrew  
**Subject:** FW: I agree

See note below.

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

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**From:** [REDACTED]  
**Sent:** Monday, October 04, 2010 12:00 PM  
**To:** Planning-Sustainability  
**Subject:** I agree

I read this morning Post Standard article on the James street bike lane project. Give people on bikes room. Several years ago my wife and I traveled to Sweden and liked how they arranged for physical exercise within their cities. Bike paths, walking paths and auto lanes on many highways for people to use.

Here in the USA, if you take a ride on a bike, you don't have any room to go on most of our roads.

I think that this is a great idea and should have more bike lanes within the Syracuse area.

[REDACTED]  
Minoa  
[REDACTED]

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**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Monday, October 04, 2010 1:19 PM  
**To:** Mercurio, Paul; Mike Alexander  
**Cc:** Maxwell, Andrew  
**Subject:** FW: james st road diet

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

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**From:** [REDACTED]  
**Sent:** Monday, October 04, 2010 12:24 PM  
**To:** Planning-Sustainability  
**Subject:** james st road diet

*Hello*

*I use James street going both to and from work. I think restricting the lanes would be an awful idea. With so much bus traffic, it would be stop and go from bus stop to bus stop and that doesn't include the school buses that stop along James and then there is UPS, Fed Ex and US mail trucks that also stop. James street isn't to bad as far as accidents go now, if it's not broke, don't fix it!!*

*Thanks*

*[REDACTED]  
James street commuter*

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**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Monday, October 04, 2010 11:37 AM  
**To:** Maxwell, Andrew; Mercurio, Paul  
**Cc:** Mike Alexander  
**Subject:** FW: James Street changes

See note below.

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

-----Original Message-----

From: [REDACTED]  
Sent: Monday, October 04, 2010 9:34 AM  
To: Planning-Sustainability  
Subject: James Street changes

The addition of bike lanes on James Street is a great idea. Syracuse is very unfriendly to bikes and adding bike lanes to major roads would go a long way towards making it better.

[REDACTED]

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**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Monday, October 04, 2010 1:36 PM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: James Street on a diet

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

---

**From:** [REDACTED]  
**Sent:** Monday, October 04, 2010 1:21 PM  
**To:** Planning-Sustainability  
**Subject:** James Street on a diet

Mr. Mercurio:

Hallelujah! I think putting James Street on a diet is a fabulous idea!! Slowing down and reducing that traffic on James can only help the entire neighborhood and preserve what Eastwood used to represent.

Is there any way you could please please put Stafford Ave on a diet too? I have lived in my home on Stafford Ave for 17 years and have always been a very strong proponent of living in the City but traffic has doubled on Stafford Ave in past 5 years so much so I am looking to move by next Spring due to this and this alone. I have reported the speeding and loud traffic to City Police who have said they make some attempt when can to catch speeders but have not seen it...the noisy trucks, loud speeding cars and motorcycles that use Stafford as a mini-Midler (easy cut through) have ruined this street. If there is anyway to ticket on Stafford the city would increase revenue and the safety and sanity of those living there.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

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**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Monday, October 04, 2010 11:38 AM  
**To:** Maxwell, Andrew; Mercurio, Paul  
**Cc:** Mike Alexander  
**Subject:** FW: James Street road diet

See note below.

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

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**From:** [REDACTED]  
**Sent:** Monday, October 04, 2010 10:16 AM  
**To:** Planning-Sustainability  
**Subject:** James Street road diet

Mr. Mercurio,  
While the concept is good, not on James Street, PLEASE!  
The other streets where you have implemented this concept were not major arteries in and out of the city, save East Genesee from Salt Springs. There you at least have the Fayette St. alternate. There is no alternate to James St. Add the numerous funeral processions down James St. to the numerous bus stops, and nothing will be moving.  
Please consider the weather issues, also. Having only one lane out of the city would be disastrous during a snow storm.  
We travel this road twice daily and rarely see an accident.  
This is not going to calm traffic; it will infuriate drivers and create traffic backups.  
Please take this idea to another street.  
Sincerely,

[REDACTED]  
[REDACTED]

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**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Tuesday, October 05, 2010 8:22 AM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: James st.

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

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**From:** [REDACTED]  
**Sent:** Monday, October 04, 2010 1:52 PM  
**To:** Planning-Sustainability  
**Subject:** James st.

It is a poor idea to manipulate James st. into a road diet plan...this would confuse bus and car travel...esp. at commuting hours...i don't see any significant bike travel on james st. at all as opposed to the statements in the newspaper...keep things as they are...we don't need increased congestion on james st.....

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Tuesday, October 05, 2010 8:22 AM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: James Street Corridor

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

---

**From:** [REDACTED]  
**Sent:** Monday, October 04, 2010 9:37 PM  
**To:** Planning-Sustainability  
**Subject:** James Street Corridor

I live at [REDACTED] James Street and use James Street half-dozen times a day in both directions. I would offer the following comments:

1. I don't believe major changes in James St traffic are warranted to benefit bicycle traffic. I don't see many bicycles on James St. anyway. What bicycles I do see are on the sidewalk (for understandable safety reasons) and don't seem to be causing a problem. Wheel chairs are a problem and should be banned from the road. They use James St. all the time, right there in the road.
2. Presently, one of the two traffic lanes is often bottled up by buses that stop for less than brief periods, commercial delivery vehicles that just park and drivers leave, and the wheel chairs. The idea of reducing the present two lanes to one would seriously inhibit traffic all together.
3. No left turns at some of the intersections might be a good idea. For example, Highland Street and others.



4. The traffic signals into the city in the morning are very well synchronized, except for State Street.
5. Traffic flow between Teall and Grant Avenues are generally not a problem except for the merging of the two traffic lanes into one after Grant Blvd going into Eastwood. I don't have any answer for this problem but it is a tough merge and is trouble for a car in the inside lane that wants to go straight and is forced into Shotwell Park.

[REDACTED]

[REDACTED]

[REDACTED]

---

**From:** Kerney, Owen [OKerney@ci.syracuse.ny.us]  
**Sent:** Tuesday, October 05, 2010 4:13 PM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: [PA\_CNY] James Street on a diet

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

---

**From:** [REDACTED]  
**Sent:** Tuesday, October 05, 2010 4:03 PM  
**To:** Planning-Sustainability  
**Cc:** [REDACTED]  
**Subject:** [PA\_CNY] James Street on a diet

My wife and I are the owner/occupants of a two family house on James(East) between Cook and Hastings. We have lived in this house since 1967 when there were rumors about updating James into a business corridor, joining the city and Eastwood. Respecting the seasons, we spent much time on our open, second floor porch, watching, and by our presence more or less actively participating in what went on outside of our house. When a speeding car hit the curb and overturned on our lawn I went out to help the driver out through his rear window. This, of course, was one of the most dramatic events we witnessed. Events, dramatic or seemingly insignificant, it was interesting to watch the workings of a traffic "artery." Over the years changes took place, such as the removal of a traffic light at the corner of Cook and James which made it more difficult for my wife to cross the street for the bus stop and easier for the traffic to proceed in two lanes. Curiously, but in its way logically, this helped to promote the use of the right lane on James as the passing lane (despite the recurring "sinking catch basin" hazards).

The James Street Diet. The street as an alimentary canal? Probably not a bad idea. Once more, as during the time of Urban Renewal, the city is in a process of change. This cannot help affecting how people move about by foot, by bike, by motorcycle, by motorized wheel chair, by skate board, by car, or by cab or bus, or pushing a "borrowed" shopping cart. Yes, lately we have noticed an occasional ATV and motor scooter doing the sidewalk. Speed and traffic volume is another "issue", of course. It would be foolhardy for me to try and enter my James Street driveway against the "homebound" traffic, having to wait for a chance in the inbound left, I.a. driving lane . . .

While I'm at it, between 1967 and 1985 we did not own an automobile. [REDACTED] took the bus to her office downtown and I walked to SU. When we thought we needed a car, we rented one. We bought an automobile when my walk to SU became hazardous because of demographic shifts. [REDACTED] continued to take the bus until she retired in 1995.

Yes, Paul, perhaps going on a road diet is not a bad idea. It may just help us get rid of our "cholesterol" and get our act together as a community.

[REDACTED]

--

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Wednesday, October 06, 2010 11:05 AM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: James St. traffic reconfiguration study

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

-----Original Message-----

From: [REDACTED]  
Sent: Tuesday, October 05, 2010 4:49 PM  
To: Planning-Sustainability  
Subject: James St. traffic reconfiguration study

TO: Paul Mercurio, City Transportation Planner

Dear Mr. Mercurio:

Last year, in conjunction with DPW Commissioner Pete O'Connor and AARP, we were able to install a pedestrian crossing signal and a marked pedestrian crosswalk at the corner of James and Lodi Sts. At the time, I lived in an apartment building on this corner and was able to witness the weekly carnage of pedestrian/vehicle accidents. Most of these accidents occurred as a result of posted No Right On Red signs being consistently ignored. The signal and crosswalk have helped considerably, but crossing this intersection is still questionable.

I am not that familiar with the Grant Blvd. intersection, however I am with the Teall Ave. and N. State St. crossings. I now live quite close to the Teall Ave. intersection and the sound of squealing brakes is heard daily. Short of closing these four intersections to vehicle traffic, which is not feasible, a few suggestions might be; not only a center left turn lane but also a right turn lane, particularly at the Lodi St. intersection. Also, traffic laws and posted signage need to be strictly enforced, possibly a marked police car being highly visible. Surveillance cameras are being considered for high crime areas. Since most of the city is a high crime area, why not have these cameras do double duty, identifying those who commit crimes and those who jeopardize the safety of pedestrians by ignoring traffic laws.

A recent study by AARP found that New York State has the highest rate

of pedestrian fatalities in the country. Most of these involved senior citizens and the handicapped. Let's take Syracuse out of that statistic and make all our streets safe for everyone.

Thank you for your consideration.

Sincerely,

[REDACTED]

---

**From:** Mercurio, Paul [MercurioP@ci.syracuse.ny.us]  
**Sent:** Wednesday, October 06, 2010 2:10 PM  
**To:** [REDACTED]  
**Subject:** RE: James St Diet

[REDACTED]

Thank you for your comments! I will forward them along to the SMTC, and hopefully I'll see you tomorrow. Would you like to be added to the mailing list for this project if you are unable to attend?

PSM

Paul Salvatore Mercurio, MLA  
Transportation Planner  
City of Syracuse Department of Public Works  
P: 448-8511 W: [City of Syracuse](#)

---

**From:** [REDACTED]  
**Sent:** Wednesday, October 06, 2010 12:58 PM  
**To:** Mercurio, Paul  
**Subject:** James St Diet

Paul,

The James Street "diet" has wonderful potential! In your planning please consider providing:

- Litter receptacles at each Centro bus stop;
- Attractive street lamps;
- Attractive landscaping, including adequate green space between sidewalk and street
- Dedicated, off-street bike lanes (rather than sharing the street with cars)
- Wide sidewalks
- Sub-surface utilities
- Attractive Centro bus stop shelters
- Signs reminding dog owners to clean up after their dogs

I will try to attend the Thurs night meeting at Lincoln.

Thank you.

[REDACTED]

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Wednesday, October 06, 2010 3:51 PM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: James Street traffic

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

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**From:** [REDACTED]  
**Sent:** Wednesday, October 06, 2010 2:34 PM  
**To:** Planning-Sustainability  
**Cc:** [REDACTED]  
**Subject:** James Street traffic

My name is [REDACTED]. I work as an Outreach Specialist at Aurora of CNY located on the corner of James St. & McBride. I am also visually impaired and use a white cane. It is dangerous for me to cross the street at that corner to catch the bus to go home. The "right on red" makes it particularly trecherous for me. Also, some people go through the red light, so even when I have the right of way, I'm still in danger of being run over. Also, its hard to tell if the light is red or green, can you address that? It's the same dangerous situation on the corner of S. Salina & W. Brighton Ave, where I catch & get off the bus every day. I'll be attending the meeting tomorrow and hope I can get some answers & reassurances that something will be done to make James St. and S. Salina and W. Brighton Ave intersections safer.

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Wednesday, October 06, 2010 3:52 PM  
**To:** Mike Alexander; Mercurio, Paul  
**Subject:** FW: James Street Diet

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

---

**From:** [REDACTED]  
**Sent:** Wednesday, October 06, 2010 3:00 PM  
**To:** Planning-Sustainability  
**Subject:** James Street Diet

Mr. Mercurio-

I am unable to attend the public meeting at Lincoln Middle School tomorrow evening but thought you might consider my observations helpful.

As a resident of Hampton Rd (that is bordered by James Street and Teall Avenue) I agree that the volume of traffic on James Street is an issue. I have witnessed countless instances of drivers accelerating at full throttle from the intersection of James and Teall at all hours of the day and night - including through the reduced speed school zone in front of Lincoln Middle School during the morning! However, the proposal to narrow the travel lanes from Shotwell Park to downtown to one lane in each direction is a misguided plan.

The direct affect of making this change would be to substantially bottleneck traffic through the James Street corridor. A secondary result would be that traffic on side streets such as Hampton Rd. would increase as frustrated, waylaid drivers would use Hampton Road as a cutoff to access Teall Avenue to head north on Teall Avenue. This occurs now and most offenders not only speed down Hampton Road but also ignore the stop sign at the intersection of Hampton and Chatham Road.

A more effective solution to the issue would be for the Syracuse City Police to provide consistent, meaningful speed patrol during both peak and off-peak hours to change driver behavior. As evidence that this approach works, consider the fact that it is well known that you should not speed on Route 57 in Liverpool, on Route 20 heading into Skaneateles from Auburn and any number of other locations in CNY where the local police have consistently ticketed drivers for years.

If you would like any additional comments, please feel free to contact me.

Kindly acknowledge receipt of this message.

Thank you.

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Wednesday, October 06, 2010 11:37 AM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: "road diet"

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

---

**From:** [REDACTED]  
**Sent:** Wednesday, October 06, 2010 11:29 AM  
**To:** Planning-Sustainability  
**Subject:** Re: "road diet"

A 'road diet' was performed on my end of South Salina between Seneca Turnpike and Nedrow. It's a bad idea and here is why:

1. Cars use the center turning lane for passing. If car going in opposite direction approaches same lane for turning -- you are seeing accidents.
2. Volume of thru traffic combined with local residents and Centro buses require 4 lanes. There is little to no "bike traffic," yet single lane for cars, buses, trucks for both THRU and LOCAL stop'n go traffic is cause for rage/accidents.
3. Single lanes very bumpy Rather than paint previous lane lines black, they were scrapped! You have *rake-like* gouges. Then there are the multiple manholes that are recessed from surface. It's especially bad going north.

Don't give James Street a diet.

Thank you



---

**From:** [REDACTED]  
**Sent:** Thursday, October 07, 2010 9:40 PM  
**To:** planning@ci.syracuse.ny.us; Mike Alexander; James D'Agostino  
**Subject:** James Street "Diet" Meeting

Thank you for spending the time to solicit public comments this evening on the James Street plan.

The general consensus among the majority of attendees was that James Street itself is fine. Most people revolted to the idea that they were actually considering taking it down from two lanes in each direction down to one lane. "Please don't make it a Genesee Street..." and I agree.

The feedback from the community was pretty clear. We're not opposed to improvements, but please do not overstep and reduce the overall 4 lanes of traffic, or anything which would make James Street less convenient and efficient for vehicle traffic.

- Do not reduce James Street from two lanes in each direction to one.
- Leave the speed limit alone.
- Instead, consider creating bus pull-offs in the green spaces between the road and the sidewalk.
- Consider widening a few key intersections and adding left turn lanes with green arrows (i.e Oak, Lodi, etc).
- Don't put a bike lane with traffic; consider widening the sidewalks and putting bike lanes with the sidewalks.
- Improve crosswalks, visibility, etc.
- Consider some "mid block" cross walks on some of the longer blocks that are synchronized with the lights to prevent pedestrians from walking aimlessly in the road.
- Improve light synchronization so you're not stopping at every intersection.
- Widen the scope of the corridor to improve the traffic flow for State Street/Willow Street/Pearl Street I-81 North ramp to alleviate congestion at James and State St during the evening commute.
- Also consider traffic from I-81 South, Salina Street Exit, Left hand Turn to James at Clinton Square (perhaps a green arrow), as well as left hand turn to Willow for the morning commute in this study.
- Consider removing or reconfiguring the on-street parking on James between State and Townsend -- the on street parking is in the right travel lane and problematic during rush hour.
- Improve streetscape, higher quality (better looking, more upscale) lighting, more trees, planting, etc, especially in the urban section from Oak to Oswego Street.
- Improved snow removal on the hill coming up from the city. Institute city sidewalk clearing for best results.
- Removal of "No Turn on Red" signs at Teall, Lodi, or assign hours to them

- If redesigning the intersection of James/Shotwell/Grant, try to eliminate No Turn on Red signs or install green arrows to make this area more efficient.
- Although probably out of the scope of this project, improvements to Teall from Burnett would also be helpful. Most of that traffic is headed to/from James Street.

As someone who commutes on James Street, works on James Street, and lives not far from James Street, I hope that you consider my comments, as well as the majority of the other attendees in the initial design phase of this project.

Cordially,

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Friday, October 08, 2010 11:35 AM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: street diet

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

---

**From:** [REDACTED]  
**Sent:** Thursday, October 07, 2010 10:37 PM  
**To:** Planning-Sustainability  
**Subject:** street diet

How about East Genesee Street. I never feel it is wide enough for four lanes.  
[REDACTED]

---

**From:** James D'Agostino  
**Sent:** Monday, October 11, 2010 5:07 PM  
**To:** [REDACTED]  
**Cc:** Mike Alexander; Meghan Vitale  
**Subject:** RE: James Street study

Thank you for taking the time to submit a comment on this important study.  
I assure you that we will be looking at the corridor from all perspectives - not just the rush hour perspective of moving cars efficiently. I will make sure the project managers includes your comments in both the study documentation as well as the analysis where appropriate.

-Jim D'Agostino

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**From:** [REDACTED]  
**Sent:** Mon 10/11/2010 9:56 AM  
**To:** James D'Agostino  
**Subject:** James Street study

driving up and down James St this morning, a quasi-holiday, it occurred to me what was missing from the overview of James Street : nobody is looking at how the street is used. Counting cars and bikes is only a part of the big picture and a picture that changes often.

1. Students crossing James to get to Bryant and Stratton
2. Staff crossing James to get to James Square
3. Staff and visitors in and out of Loretto's assisted living site on the corner of James and Sedgwick
4. Bus drop off and pick up at the Merriday across from Lincoln Middle school
5. The Henninger kids who cross James to the bus stop after sports practise

to program for "rush" hours is missing the life of the street.

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Monday, October 11, 2010 11:35 AM  
**To:** Mike Alexander  
**Cc:** [REDACTED] Meghan Vitale  
**Subject:** Re: James Street Road Diet Public Meeting Announcement

Mike,

I wanted to apologize for not attending the public meeting. I had a community event that got rescheduled to that Thursday due to rain. Unfortunately, I was involved in this police appreciation event and could not get out of it. I do remain very interested in this project and would like to continue receiving updates. How did the first meeting go? Much attendance?

Again, I sincerely apologize for missing it.

Best Regards,

[REDACTED]

---


**From:** Mike Alexander  
**Sent:** Thursday, October 14, 2010 4:02 PM  
**To:** 'Michael F. Leydecker'  
**Cc:** Meghan Vitale  
**Subject:** Police Comments  
**Attachments:** SKMBT\_42110101315450.pdf

Mike,

I attended a neighborhood watch meeting last night and was approached by [REDACTED] (Commanding Officer Community Policing Division – SPD) regarding the JSRD study. He is very interested in seeing speeds reduced along the corridor (or at least find ways to slow folks down) and handed me (attached) some speeding stats that he collected. He hopes to increase signage, including flashing lights in the school zone, etc. in an effort to slow drivers down. As you will see from the stats, more than 85% of cars speed along James Street in the 1500-1600 blocks (in front of the school). I asked him to submit a letter with all of his concerns. I will forward when it is available.

Michael D. Alexander, A.I.C.P.  
Senior Transportation Planner  
Syracuse Metropolitan Transportation Council  
100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, NY 13202

[malexander@smttempo.org](mailto:malexander@smttempo.org)  
(P) 315-422-5716  
(F) 315-422-7753

 Think Green - Please consider the environment before you print this email.

October 25, 2010

Syracuse Metropolitan Transportation Council  
126 N Salina St # 100  
Syracuse, NY 13202-1008

**Re: James Street**

Dear Sir/Madam:

I read with interest the article in *The Post Standard* regarding changing James Street from two lanes of traffic to one, adding a center left turn lane and creating a bike lane.

Two of Liberty Resources' properties reside on James Street. At both sites, we provide services to the residents of our community. Some walk, some ride a bus, some ride a bike, and some drive to our facilities. We strongly support this change to James Street and appreciate your leadership in making the road safer for our constituents.

Should you have questions, I can be reached at [REDACTED] Thank you again for your attention to this important safety issue.

Yours truly,

[REDACTED]

[REDACTED]

---

**From:** Planning-Sustainability [Planning@ci.syracuse.ny.us]  
**Sent:** Thursday, October 28, 2010 3:05 PM  
**To:** Mercurio, Paul; Mike Alexander  
**Subject:** FW: Road Diet and other locations in need of improvement  
**Attachments:** WalkabilitySurveyResults final 9.10.10 wp.xlsx; CompleteStreetsWK.Report. final.pdf; final\_5\_county\_report.pdf

Paul,  
FYI - I missed this email earlier this week.

Thanks,  
Owen

Owen Kerney  
Deputy Director  
Bureau of Planning & Sustainability  
City of Syracuse  
315.448.8110  
[okerney@ci.syracuse.ny.us](mailto:okerney@ci.syracuse.ny.us)

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**From:** [REDACTED]  
**Sent:** Monday, October 25, 2010 2:14 PM  
**To:** Mercurio, Paul; Planning-Sustainability  
**Cc:** [REDACTED]  
**Subject:** Road Diet and other locations in need of improvement

Paul,

Recently one of our members sent me this article about James Street (below). I wanted to take the opportunity to make you aware of a report that we released in May that maps the most dangerous locations in Onondaga County. We also directed agencies and AARP members and volunteers to survey intersections of concern during Complete Streets Week: Making NY Walkable for All Generations in April. Please see results attached, the report on the walkability findings and the 5 County report.

We hope to make sure that many if not all of the areas of concern will be addressed in one way or another and encourage you to reach out to my two colleagues who are responsible for the Onondaga area (cced in this message) to work together to find solutions.

[REDACTED]  
[REDACTED]

Please let me know of any other ways that AARP can be of assistance. Thanks!

[http://www.syracuse.com/news/index.ssf/2010/10/putting\\_james\\_street\\_on\\_a\\_diet.html](http://www.syracuse.com/news/index.ssf/2010/10/putting_james_street_on_a_diet.html)

[REDACTED]  
[REDACTED]





## **Syracuse Metropolitan Transportation Council**

**100 Clinton Square**  
**126 N. Salina Street, Suite 100**  
**Syracuse, New York 13202**  
**Phone (315) 422-5716**  
**Fax (315) 422-7753**  
[www.smtcmpo.org](http://www.smtcmpo.org)

# **NEWS RELEASE**

## **FOR IMMEDIATE RELEASE – AUGUST 8, 2011**

Contact: James D'Agostino, Director

Tel: (315) 422-5716; E-mail: [jdagostino@smtcmpo.org](mailto:jdagostino@smtcmpo.org)

## ***James Street “Road Diet” Study Public Meeting***

**Syracuse, N.Y.** — A second and final public meeting will be held on Wednesday, August 31, 2011 at 6:30 p.m. at the Lincoln Middle School, 1613 James Street, in Syracuse for the James Street “Road Diet” Study.

A “road diet” study investigates the feasibility of improving a roadway’s safety and efficiency for walkers, bicyclists, transit riders, and motorists by altering the existing number and/or width of automobile travel lanes. The purpose of the meeting is to:

- review the various alternatives and associated analysis, and
- solicit public comment on the alternatives.

The public meeting will include a formal presentation that will be followed by an interactive session. The interactive session will consist of three stations. Each station will focus on a different corridor segment. Illustrations representing different alternatives designed specifically for each corridor segment will be presented. Participants will have the opportunity to select which alternative concept they like the best for each segment following a brief overview.

The James Street “Road Diet” Study is a planning effort being completed by the Syracuse Metropolitan Transportation Council (SMTC) at the request of the City of Syracuse. For additional information about the project or the public meeting, or to ensure accommodation for special needs, please contact the SMTC at (315) 422-5716.

---

## **What is the SMTC?**

The Syracuse Metropolitan Transportation Council was formed in 1966 as a result of the Federal Aid Highway Act of 1962 and Urban Mass Transportation Act of 1964. Serving as the metropolitan planning organization (MPO) for the Syracuse Metropolitan area, the SMTC provides the forum for cooperative decision making in developing transportation plans and programs for Onondaga County and small portions of Madison and Oswego Counties. The SMTC is comprised of elected and appointed officials, representing local, state and federal governments or agencies having interest in or responsibility for transportation planning and programming.

**Log on to the SMTC web site for the latest in transportation  
planning in the Syracuse Metropolitan Area: [www.smtcmpo.org](http://www.smtcmpo.org)**



# James Street: How can we improve it for everyone?

## Public Meeting

**Date: Wednesday, August 31, 2011**

**Time: 6:30 p.m.**

**Location: Lincoln Middle School  
1613 James Street**

*Public review and comment on five design alternatives.*

The Syracuse Metropolitan Transportation Council (SMTC) is studying “road diet strategies” for the James Street Corridor between Oswego Boulevard in downtown Syracuse and Shotwell Park in Eastwood. This study explores options such as reducing the number of travel lanes, adding bicycle lanes, and adding bus pull-off areas to increase safety and efficiency for all users. We have developed five corridor design alternatives for review. Please come and learn about the alternatives and provide us with comments and thoughts about which one you like best.



For more information, or to request accommodations, contact:

Michael D. Alexander, AICP

Syracuse Metropolitan Transportation Council

100 N. Clinton Square

126 N. Salina Street, Syracuse, NY 13202

315.422.5716 | [malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)

[www.smtcmpo.org](http://www.smtcmpo.org)



*The meeting facility is accessible. Please advise the SMTC at least one week before the meeting of any special accommodations required to facilitate your participation at this public meeting.*



**James Street Road Diet  
Public Meeting Agenda  
Wednesday, August 31, 2011, 6:30pm**

Lincoln Middle School  
1613 James Street  
Syracuse, New York 13203

---

**1) Welcome & Introductions**

- a) Project team introductions

**2) Presentation – James Street Road Diet (~30 minutes)**

- a) Who is SMTTC?
- b) Project background
- c) Overview of 1<sup>st</sup> meeting
- d) Process overview
- e) Today's objectives
- f) Alternatives overview
- g) Traffic implications

**3) Limited Questions & Answers (5 to 10 minutes)**

**4) Stations (30 to 45 minutes)**

- a) Urban Core Area
- b) Urban Multiple Use Area
- c) Urban Residential Area

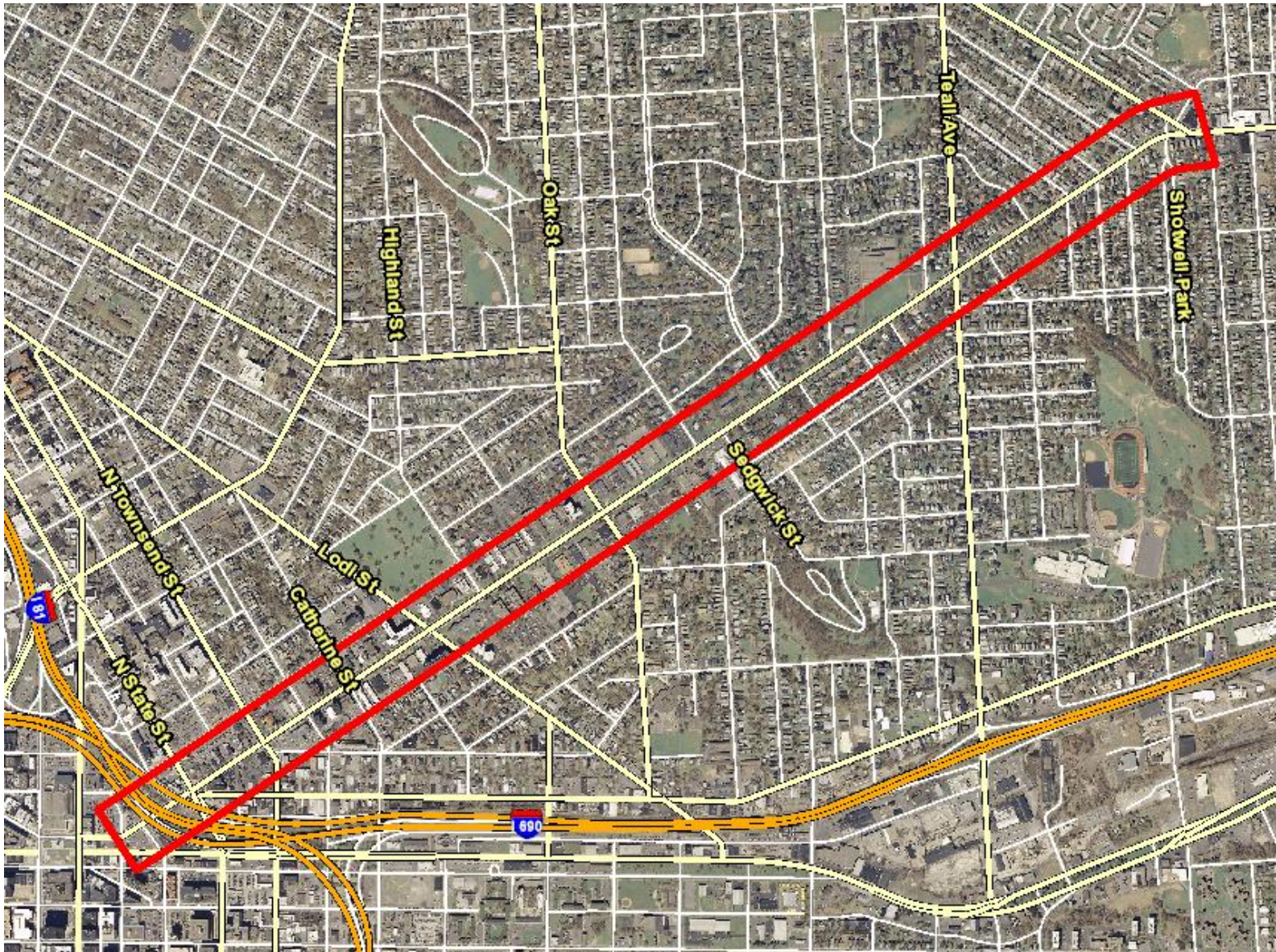
**5) Summary / Next Steps / Questions & Answers**

**Contact Information:**

Michael D. Alexander  
Syracuse Metropolitan Transportation Council  
100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, New York 13202  
(315) 422-5716  
Fax: (315) 422-7753  
[malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)



## James Street Road Diet Study Area





## **Summary of Public Meeting #2**

### **James Street Road Diet**

### **Wednesday, August 31, 2011, 6:30pm**

Lincoln Middle School  
1613 James Street  
Syracuse, New York 13203

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This was the second Public Meeting for the James Street Road Diet Project. The meeting agenda is attached. Below is a summary of the discussion items from the meeting.

#### **I. Welcome and Introductions**

The meeting opened with an introduction by Mike Alexander of SMTC. Mike offered a summary of SMTC and an overview of the James Street Road Diet project. Some key points from the welcome and introductions were:

- SMTC was asked by the City of Syracuse to conduct the study.
- The study is funded through federal funds allocated specifically for planning studies conducted anywhere within the SMTC Metropolitan Planning Area (all of Onondaga County, plus small portions of Oswego and Madison Counties). These funds cannot be spent on anything else (e.g. infrastructure improvements). They must be spent on planning studies. This study is not funded using City taxes.
- SMTC does not own or control infrastructure/ facilities (in this case, the City of Syracuse and Centro do).
- It is up to the City/ Centro to implement any ideas/ recommendations that come out of this plan.
- The purpose of this study is to:
  - Identify ways to calm traffic along the corridor;
  - Improve the corridor for all users (multi-modal), including motorists, buses (transit), bicyclists, and pedestrians with minimal impacts to motorists.
- Review of key points from the first public meeting.
- SMTC would like feedback from the public on the design alternatives that were developed.

#### **II. Presentation of Alternatives**

Fred Frank of Wendel introduced the five alternatives that were developed along with features of each alternative. The five alternatives presented were:

- Alternative 1 – No Build
- Alternative 2 – Pavement Reallocation
- Alternative 3 – Enhanced Transit
- Alternative 4 – Roadway Reconstruction
- Alternative 5 – Traffic Signal Coordination Without Road Diet Element

A brief explanation of the benefits of each alternative was provided as well as an explanation of how alternatives will be evaluated.

Gordon Stansbury provided a summary of the traffic implications of each alternative, including the measures of effectiveness that are to be used in evaluating each alternative. In general, the public preferred a roundabout design over the five-legged signalized intersection design. Some concern was expressed as to whether buses can adequately maneuver around a roundabout.

**III. Mid-Session Question and Answer**

Mike Alexander and Mark Mistretta facilitated a mid-session question and answer session before the break-out groups began. This brief question and answer session focused on any questions directly related to process. Questions and comments related to the individual alternatives were reserved for the break-out sessions. A summary of this question and answer session is attached.

**IV. Break-Out Sessions**

Mike Alexander facilitated the group breaking out into the three workstations. The three workstations were facilitated by Wendel and SMTC staff and were determined based on the three character areas of the corridor, Urban Core, Urban Multiple Use, and Urban Residential areas. At each of these workstations, the group facilitator provided an in-depth summary of each alternative for that particular character area, discussed the features of each alternative, and engaged the public in a question and answer session. Each workstation session lasted approximately 15 minutes, after which time the group would rotate to another workstation.

Each citizen was given three stickers to indicate the alternative that they preferred in each character area.

In addition to the three workstations, Gordon Stansbury facilitated a separate workstation that focused on the possible alternatives for the intersection of James Street/ Grant Boulevard/ Shotwell Park.

**V. Discussion Summary/ Wrap-Up Question & Answer Session**

The break-out groups reconvened after about a 45-minute break-out session. Mike Alexander then facilitated a general wrap-up and question and answer session. A summary of this session is attached.

The meeting concluded without further discussion.

Wendel Duchscherer

Michael F. Leydecker, PE

## Summary of Public Meeting #2 Mid-Session Question and Answer

Mike Alexander and Mark Mistretta facilitated a mid-session question and answer session before the break-out groups began. This brief question and answer session focused on any questions directly related to process. Questions and comments related to the individual alternatives were reserved for the break-out sessions. The questions/comments were as follows with responses provided by SMTC or Wendel:

1. On average, it will take about 15 seconds less to travel the entire length of the James Street corridor under Alternative 5. Is this correct?

Response: It's difficult to say what the reduction in travel time is for each individual since the travel time saved is determined network-side, but on average, each driver traveling the entire corridor would experience a travel time reduction of about 15 seconds.

The following tables display the arterial and network Measures of Effectiveness for the five alternatives.

Measure of Effectiveness	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5
<i>Arterial</i>			
Travel Time EB (sec)	394.3	401.9 (+7.6)	416.2 (+21.9)
Travel Time WB (sec)	385.5	369.2 (-16.3)	348.6 (-36.9)
Signal Delay EB (sec)	115.4	121.3 (+5.9)	137.3 (+21.9)
Signal Delay WB (sec)	111.6	95.3 (-16.3)	74.7 (-36.9)
Arterial Speed EB (mph)	19.4	19.2 (-0.2)	18.4 (-1.0)
Arterial Speed WB (mph)	19.6	20.4 (+0.8)	21.7 (+1.2)
<i>Network</i>			
Total Delay (hrs)	151	111 (-40)	96 (-55)
Total Stops (#)	11,715	11,690 (-25)	10,505 (-1,210)
Fuel Consumption (gal)	321	292 (-29)	274 (-47)

Measure of Effectiveness	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5
<i>Arterial</i>			
Travel Time EB (sec)	438.3	436.8 (-1.5)	412.6 (-25.7)
Travel Time WB (sec)	444.2	436.3 (-7.9)	406.9 (-37.3)
Signal Delay EB (sec)	159.4	156.3 (-3.1)	133.7 (-25.7)
Signal Delay WB (sec)	170.3	162.4 (-7.9)	133.0 (-27.3)
Arterial Speed EB (mph)	17.5	17.6 (+0.1)	18.6 (+1.1)
Arterial Speed WB (mph)	17.0	17.3 (+0.3)	18.6 (+1.6)
<i>Network</i>			
Total Delay (hrs)	275	194 (-81)	171 (-104)
Total Stops (#)	16,373	15,507 (-866)	14,499 (-1,874)
Fuel Consumption (gal)	460	397 (-63)	374 (-86)

2. If one of these alternatives were implemented, how would it be paid for?

Response: The City of Syracuse, as the facility owner, could pay for the project by itself or could request reimbursement through federal dollars.

3. It would be helpful in identifying a preferred alternative if associated costs for each alternative were provided.

Response: Comment taken. Costs were not developed for each alternative but will be developed in general for a preferred alternative.

4. Was there an alternative developed that looked at keeping the roadway as is, but removing stopped buses from the travel lane?

Response: This concept was not developed as an alternative because it may not meet the goals of the project.

5. Will any of these alternatives require improvements on adjacent properties?

Response: Improvements recommended in every alternative are within the James Street right-of-way.

6. Concerned about the impacts of implementing a road diet and doesn't like the results of the road diet on Genesee Street in the City of Syracuse.

Response: Comment acknowledged.



7. During rush hour, long queues are present on James Street. What are the implications of delay and queuing with any of the alternatives?

Response: In general, delays and queuing are reduced because left turning vehicles are removed from the travel lane.

8. Concerned about the safety of buses pulling out of the pull-off lane into traffic.

Response: Each alternative that recommends a bus pull-off also recommends that the bus stop be placed at the far side of an intersection, allowing a bus to pull out of a pull-off lane while the traffic light for James Street is on the red phase.

9. Does this study provide pedestrian amenities?

Response: This study is a multi-modal study and takes all modes of transportation into account.

## Summary of Public Meeting #2 Break-Out Sessions

### ***Urban Core Character Area (Oswego Boulevard to Lodi Street)***

Facilitators: Fred Frank and Danielle Krol

The questions/ comments were as follows with responses provided by SMTC or Wendel:

1. Wonder who will use bike lanes in winter.

Response: Comment acknowledged.

2. Maintenance of sidewalks has been an issue. Will pedestrian and bicycle facilities be maintained?

Response: Paul Mercurio from the City of Syracuse explained that the City has a law in place that places the responsibility for the maintenance of sidewalks onto the adjacent property owner. If desired, this project could certainly include as one of its recommendations that the City revisit this law and consider taking over the maintenance of the sidewalks or multi-use trails that could be constructed along the James Street corridor.

3. Wonders if the ultimate goal of this project is to provide bike lanes.

Response: Comment acknowledged.

4. People can ride bikes in the parks.

Response: Comment acknowledged.

5. Would be helpful if associated costs were provided for each alternative. In general, which alternative is the most expensive and which the most inexpensive?

Response: In general, Alternative 1 would be the most inexpensive since it involves no improvements. Alternatives 3 and 5 would be in the middle as relocating the curb is not necessary. Alternatives 2 and 4 would be the most expensive since they involve moving the curb to some extent (either for bus pull-offs or to make the roadway wider or narrower)

6. The pedestrian signal at the intersection of James Street and Lodi stays on red phase.

Response: Comment acknowledged.

7. Countdown timers for pedestrian signals with sound notification should be placed at every intersection.

Response: Comment acknowledged.

8. Save the trees!

Response: Comment acknowledged.

9. Is there any consideration for green stormwater options in this section like in the Urban Residential area?

Response: While not specifically identified in the Urban Core area, green stormwater options can be implemented, such as the use of rain gardens.

Each citizen was given three stickers to indicate the alternative that they preferred in each character area. Below is list of how the alternatives ranked from 1 through 5 for this character area, with 1 being the alternative most preferred and 5 being the alternative least preferred.

1. Alternative 5 – Traffic Signal Coordination w/o Road Diet
2. Alternative 2 – Pavement Reallocation
3. Alternative 1 – Retain Existing Conditions
4. Alternative 3 – Enhanced Transit
4. Alternative 4 – Roadway Reconstruction

***Urban Multiple Use Character Area (Lodi Street to Sedgwick Street)***

Facilitators: Mike Leydecker and Meghan Vitale

The questions/ comments were as follows with responses provided by SMTC or Wendel:

1. Under Alternative 3, how are left turn lanes included at intersections?

Response: Under Alternative 3, dedicated left turn lanes would be provided at signalized intersections by widening the intersections.

2. General concern over whether left turns will be impacted by any of the alternatives.

Response: Under alternatives 3 and 5, dedicated left turn lanes would be provided at signalized intersections. Under alternatives 2 and 4, a continuous center two way left turn lane would be provided to remove left turning vehicles from the travel lane.

3. There may be an issue with elevation change at bus stops.

Response: Comment acknowledged.

4. Countdown timers for pedestrian signals with sound notification should be placed at every intersection.

Response: Comment acknowledged.

5. An exclusive traffic signal phase should be considered at the intersection of James Street and Lodi that would allow pedestrians to cross with all approaches on a red phase.

Response: Comment acknowledged.

6. Removal of snow from sidewalks is an issue.

Response: Comment acknowledged.

7. General concern over how safe allowing bicycles to share a dedicated lane with buses is.

Response: Comment acknowledged.

8. Wondered if there is the potential to incorporate a center bike lane.

Response: Comment acknowledged.

9. Under Alternative 4, why would on-street parking be necessary? All the businesses have their own lots.

Response: Comment acknowledged.

10. Under Alternative 2, would buses need to cross over the bike lane to access a bus pull-off?

Response: Yes, the bike lane would be continuous along the right side of the travel lane. Buses would need to use caution when crossing over the bike lane to access the bus pull-off.

11. Don't think it's necessary to change out curb ramps that were just reconstructed.

Response: Comment acknowledged.

12. This study changes the emphasis of the corridor from individual cars to a shared corridor.

Response: Comment acknowledged.

13. Save the trees!

Response: Comment acknowledged.

14. Consideration should be given to using alternative fuel buses.

Response: Comment acknowledged.

15. How do speeds impact on-street parking?

Response: In general, on-street parking aids in calming the speed of traffic as it makes the roadway appear narrower and provides street activity; both which tend to force drivers to slow down.

16. Pedestrian safety should be a primary concern (especially in winter).

Response: Comment acknowledged.

Each citizen was given three stickers to indicate the alternative that they preferred in each character area. Below is list of how the alternatives ranked from 1 through 5 for this alternative, with 1 being the alternative most preferred and 5 being the alternative least preferred.

1. Alternative 5 – Traffic Signal Coordination w/o Road Diet
2. Alternative 4 – Roadway Reconstruction
3. Alternative 2 – Pavement Reallocation
4. Alternative 1 – Retain Existing Conditions
4. Alternative 3 – Enhanced Transit

***Urban Residential Character Area (Sedgwick Street to Shotwell Park)***

Facilitators: Mark Mistretta and Mike Alexander

The questions/ comments were as follows with responses provided by SMTTC or Wendel:

1. Sidewalks should be replaced/ repaired where necessary to meet ADA requirements.

Response: Comment acknowledged.

2. Wondered if on-street bicycle facilities would be maintained and cleared of snow.

Response: Comment acknowledged.

3. More trash receptacles are needed along corridor (especially at bus stops).

Response: Comment acknowledged.

4. Protect the street trees!

Response: Comment acknowledged.

5. Would be helpful if associated costs were provided for each alternative.

Response: Comment acknowledged.

6. General concerns about preservation of corridor.

Response: Comment acknowledged.

7. With Alternative 3, do bicyclists use the center lanes?

Response: Bicyclists use the dedicated transit/ bicycle outside lanes.

8. Wondered if additional environmental review would be required.

Response: If an alternative is implemented, additional environmental review will be required prior to implementing any alternative that disturbs additional land.

9. Another alternative should be considered that utilizes Alternative 5 but provides bus pull-offs to removed stopped buses from the travel lane.

Response: Comment acknowledged.

10. General concern over who would maintain sidewalks.

Response: As is required by law currently, adjacent property owners would be responsible for the maintenance of the sidewalk along the frontage of their property.

11. General concerns over how the multi-use trail would interact with side streets.

Response: The multi-use trail would cross adjacent side streets at grade and include crossings similar to those used for sidewalk crossings. Changes would

need to be made to the grade of the approaches to each side street so that the multi-use trail comes into the side street at-grade.

Each citizen was given three stickers to indicate the alternative that they preferred in each character area. Below is list of how the alternatives ranked from 1 through 5, with 1 being the alternative most preferred and 5 being the alternative least preferred.

1. Alternative 5 – Traffic Signal Coordination w/o Road Diet
2. Alternative 4 – Roadway Reconstruction
3. Alternative 2 – Pavement Reallocation
4. Alternative 3 – Enhanced Transit
5. Alternative 1 – Retain Existing Conditions

***Cumulative Results of Break-Out Sessions***

The following table summarizes the results of the break-out sessions in terms of identifying the number of dots that the public placed on the alternatives for each character area.

	Character Area		
	Urban Core	Urban Multiple Use	Urban Residential
<b>Alternative 1</b>	5	3	1
<b>Alternative 2</b>	6	5	3
<b>Alternative 3</b>	3	3	2
<b>Alternative 4</b>	3	9	10
<b>Alternative 5</b>	14	10	11

## Summary of Public Meeting #2 Final Question and Answer

After the Break-Out Sessions, the entire group reconvened with Mike Alexander and Mark Mistretta facilitating a final question and answer session. The following is a summary of the summary discussion with responses offered by SMTC or Wendel, if provided:

1. What is the overall timeframe and who will be responsible for implementing this plan?

Response: The study will be completed in the fall of 2011. After that, it will be the responsibility of the City of Syracuse to implement any recommended improvements. There is currently no timeframe for that action. Also, the City may choose to implement now, later, or never.

2. General comment that the government is broke and should be spending money.

Response: Comment acknowledged.

3. In the future, it would be helpful in identifying a preferred alternative to see associated costs for each alternative.

Response: Comment acknowledged.

4. Would have been nice if an alternative was developed that looked at keeping the roadway as is (four lanes), but removing stopped buses from the travel lane.

Response: Comment acknowledged.

5. Sidewalks need to be maintained and cleared of snow.

Response: Comment acknowledged.

6. This study should provide a recommendation that the City change their law regarding sidewalk maintenance.

Response: Comment acknowledged.

7. Approximately what percentage of bus stops would be eliminated under the proposed alternatives?

Response: Only a handful of bus stops would be eliminated. Most would consist of relocating the bus stop closer to an intersection and to the far side of an intersection.



8. Under a scenario where there is only one travel lane in each direction, drivers will get stuck behind slow moving buses. With four lanes, slower moving vehicles can be passed.

Response: Comment acknowledged.

9. Consideration needs to be given to who will maintain a multi-use trail if constructed.

Response: Comment acknowledged.

10. As an observation, in Paris, there is a high volume of bicycles and pedestrians along streets.

Response: Comment acknowledged.

11. Pedestrian crossings are not safe. A solution should be developed now to make crosswalks safer and to ease the conflict between pedestrians and vehicles.

Response: Comment acknowledged.

12. Sidewalks should be replaced or improved where necessary.

Response: Comment acknowledged.

13. Over time, the alternatives presented will result in lower maintenance costs and lower fuel costs than can be expected if the corridor is kept as is.

Response: Comment acknowledged.

**Summary of Comments Received**  
**Public Meeting #2**  
**James Street Road Diet**  
**Wednesday, August 31, 2011, 6:30pm**

The attached are comments received in reference to Public Meeting #2 of the James Street Road Diet project.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753). **Please return comment forms by September 14, 2011.**

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Place  
Stamp  
Here

**Syracuse Metropolitan Transportation Council  
Attn: Mike Alexander  
126 North Salina Street  
100 Clinton Square, Suite 100  
Syracuse, NY 13202**

**Mike,**

**The meeting on the James Street Diet, at Lincoln School, August 31, was great. Your efforts at soliciting public involvement at the outset is commendable. In your planning of the corridor, please include the installation of Litter Receptacles.**

**The litter problem is particularly bad at bus stops. Is funding available to provide Litter Receptacles at bus stops throughout Syracuse? That would no doubt prove effective at tackling our litter problem.**

**Thank you.**

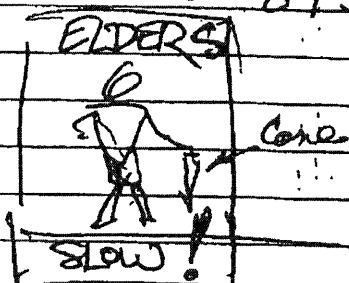


Thank you for attending the public meeting for the **James Street 'Road Diet' Study** on August 31, 2011.  
Please provide any additional comments in the space below.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753).  
Please return comment forms by September 14, 2011.

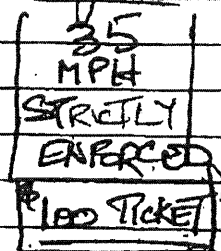
① Elder Cluster @ High Rises esp Lodi & James  
⇒ install sign W. bound

~ 843 James St



② ~ Speed on down hill Westbound  
James 950 → to James 700

⇒ install sign



③ WINTER PEDESTRIANS IN ROAD - STUDENTS

(SIDEWALKS UNSHOVELLED)

TRY A PAID SIDEWALK CLEARER IN CONCERT

W/ Neighborhood Groups

& TICKET

STUDENTS

WHEN SNOW IS NOT DEEP.

DARK  
@  
~ 4:45pm

Name (optional)

Address (optional)

Email (optional)

Would you like to be added to the SMTC mailing list? Yes ☐ No ☐ AM ON NOW!

For additional information on the **James Street 'Road Diet' Study**, please contact Mike Alexander at the SMTC by phone (315-422-5716) or email (malexander@smtcmpo.org).

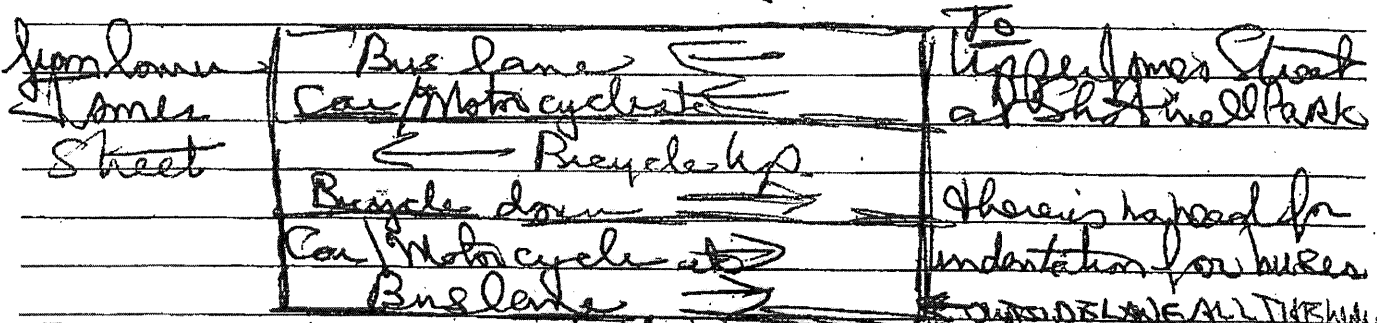
RECEIVED SEP 08 2011

Thank you for attending the public meeting for the **James Street 'Road Diet' Study** on August 31, 2011. Please provide any additional comments in the space below.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753). Please return comment forms by September 14, 2011.

As I am an avid bicyclist and have been for over 50 years, the only one of the five alternatives that you showed, on Wednesday night that might be feasible is Alternative Three. All you would need to do is paint lines separating the bus/bike lanes from the car/truck lanes, and marking arrows for left or right turns depending if going up or down James St.

The other alternative (the one I asked someone there is, please don't do) and this is done on some roads in Vancouver, British Columbia. The bike path goes down the middle of the road in either direction and the vehicular traffic is on the outside. See diagram below.



Bushes or a hedge would need to be planted between the bike path and the vehicular traffic, but not so high one can't see over the top.

Name (optional) \_\_\_\_\_  
Address (optional) \_\_\_\_\_  
Email (optional) \_\_\_\_\_

Would you like to be added to the SMTC mailing list? Yes ☐ No ☐ I already receive them, ☒

For additional information on the **James Street 'Road Diet' Study**, please contact Mike Alexander at the SMTC by phone (315-422-5716) or email (malexander@smtcmpo.org).

I've been mulling over my discontent with the 5 options for James Street. It appears to me that cars are first, buses second, and people last.

I have lived a block off James Street for 40 years. Other than doing nothing, the options are designed for two peak travel times of about 15 minutes. The rest of the day, people on foot are trying to get to work, to school, to medical care, to recreation, etc. I saw nothing that made crossing James more convenient for these people.

I have no answers, but at this time I don't think your consultants do either.

[REDACTED]



Thank you for attending the public meeting for the **James Street 'Road Diet' Study** on August 31, 2011. Please provide any additional comments in the space below.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753). Please return comment forms by September 14, 2011.

Thanks for the opportunity to comment. I run up & down James St. from Catherine up past Shotwell, and feel like there is already great pedestrian conditions. However, bike lanes are desperately needed, as they have no where to go right now. I also feel the road is too narrow for 4 lane traffic, but fear 2 lane traffic if those two lanes stay as narrow as the current lanes are. While alt #3 addresses smart growth principles, I am wary of the 10' travel lanes. I hate the idea of parking on James St - so, I like alt #4, but with NO parking in the residential area for sure.

My rankings :	URBAN CORE	URBAN M/U	URBAN RES
Top choice (1)	4 (parking for bike & bike lane)	2 (clear bike lanes)	2 (clear bike lanes)
(2)	3 (clear bike lanes)	4 (wide lanes)	4 (very rain garden!)
(3)	5 (less \$ spent on project)	5 (less \$)	3 (narrow lanes)
(4)	2 (get stuck behind bus)	3 (narrow lanes)	5 (narrow lanes)
Least fav. choice (5)	1 (no bike lane)	1 (no bike lane)	1 (no bike lane)

Hope this is helpful! Thanks again!

Name (optional) \_\_\_\_\_

Address (optional) \_\_\_\_\_

Email (optional) \_\_\_\_\_

Would you like to be added to the SMTC mailing list? Yes ☒ No ☐

For additional information on the **James Street 'Road Diet' Study**, please contact Mike Alexander at the SMTC by phone (315-422-5716) or email (malexander@smtcny.org).

Michael,

I attended the James St. Diet meeting on August 31<sup>st</sup>. I both live and work on James Street. I whole heartedly endorse "Option 5" as I feel it is the best of both worlds. Please understand that as aesthetically pleasing the other options may be, productivity and commerce also are a major concern. Both myself and my company make 100's of trips a day on James Street. Slowing traffic will have an undo burden on our business and only be an incentive to move to the suburbs.

"Option 5" saves gasoline, improves traffic delays and provides alternate use for cycling, walking, etc. And above all, it is the least expensive and most efficient use of *tax payer dollars* to affect a change for the better on James Street.

This isn't Seattle. While gentrification is a laudable goal, there is a time and place where it makes sense. James Street is not it.

Sincerely,

Thank you for attending the public meeting for the **James Street 'Road Diet' Study** on August 31, 2011. Please provide any additional comments in the space below.

This form can be returned to the comment box or to any SMTC staff member at tonight's meeting. You may also return this form via mail (SMTC, 126 N. Salina St., Suite 100, Syracuse, N.Y. 13202) or fax (315-422-7753). Please return comment forms by September 14, 2011.

It is my opinion that ~~NO~~ changes  
or enhancements need be made what so ever  
of the James St. area

Name (optional) \_\_\_\_\_

Address (optional) \_\_\_\_\_

Email (optional) \_\_\_\_\_

Would you like to be added to the SMTC mailing list? Yes ☒ No ☐

For additional information on the **James Street 'Road Diet' Study**, please contact Mike Alexander at the SMTC by phone (315-422-5716) or email (malexander@smtcmpo.org).

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**From:** Mike Alexander  
**Sent:** Monday, August 15, 2011 8:15 AM  
**To:** Michael F. Leydecker  
**Cc:** 'Frederick Frank'; Mario Colone; Meghan Vitale  
**Subject:** FW: Public Meeting 8/31 James Street

Mike,

Please see the citizen comment below and incorporate it into our public comment and outreach effort documentation.  
Thanks.

Michael D. Alexander, A.I.C.P.  
Senior Transportation Planner  
Syracuse Metropolitan Transportation Council  
100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, NY 13202

[malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)  
(P) 315-422-5716  
(F) 315-422-7753

 **Think Green** - Please consider the environment before you print this email.

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**From:** [REDACTED]  
**Sent:** Saturday, August 13, 2011 4:06 PM  
**To:** Mike Alexander  
**Subject:** Public Meeting 8/31 James Street

Mr. Alexander, I cannot attend the meeting on 8/31 but I offer the following comment: I live [REDACTED] directly across the Street from the Lincoln Middle School. I support any road diet strategy that will reduce the speed limit, and make James Street more pedestrian and bicycle friendly. Since I retired I am walking more and have become acutely aware of how car centric the road and traffic signals are. The crossings are downright dangerous to pedestrians.

Of special note is the almost total disregard for the school zone speed limit....granted the current speed limit postings are totally inadequate. The city police could have a trap set every school day all day long and 95% of drivers could be ticketed....4 officers using 4 cars could not stop all the violators.....very dangerous.

In addition to whatever diet strategy is selected, prominent warnings....lights, signs, markings should be installed in the school zone.

A plan for all users should be the unalterable principle.

[REDACTED]

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**From:** Mike Alexander  
**Sent:** Friday, September 02, 2011 9:53 AM  
**To:** 'Michael F. Leydecker'  
**Cc:** Meghan Vitale; 'Frederick Frank'; 'Mark Mistretta'; 'Gordon T. Stansbury'  
**Subject:** JSRD - Phone Call Comment

Mike,

At 9:45am this morning I received a call from [REDACTED] He was unable to attend the meeting and requested that I send him a comment form. He indicated that he was opposed to any changes to the corridor. He is concerned about traffic patterns and does not believe that a Road Diet is a feasible option. He also expressed reservations about making any improvements to facilities, and expressed concerns about loitering and vandalism.

Michael D. Alexander, A.I.C.P.  
Senior Transportation Planner  
Syracuse Metropolitan Transportation Council  
100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, NY 13202

[malexander@smtcmpo.org](mailto:malexander@smtcmpo.org)  
(P) 315-422-5716  
(F) 315-422-7753

 Think Green - Please consider the environment before you print this email.

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**From:** Mike Alexander  
**Sent:** Wednesday, September 14, 2011 10:02 AM  
**To:** 'Frederick Frank'; Michael F. Leydecker; 'Mark Mistretta'; 'Gordon T. Stansbury'; Meghan Vitale  
**Subject:** FW: James Street "Diet" Meeting

Team,

Please see the comments below for consideration and note the recipients of the initial email. We must acknowledge and address these concerns in our final report. Thank you.

Michael D. Alexander, A.I.C.P.  
Senior Transportation Planner  
Syracuse Metropolitan Transportation Council  
100 Clinton Square  
126 N. Salina Street, Suite 100  
Syracuse, NY 13202

malexander@smtcmpo.org  
(P) 315-422-5716  
(F) 315-422-7753

 **Think Green** - Please consider the environment before you print this email.

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**From:** [REDACTED]  
**Sent:** Tuesday, September 13, 2011 6:10 PM  
**To:** planning@ci.syracuse.ny.us; Mike Alexander; James D'Agostino  
**Cc:** mayor  
**Subject:** Re: James Street "Diet" Meeting

I just wanted to follow up on the public meeting held 8/29/2011 regarding the James Street Diet Study. Thank you for your time and presenting all of the options currently under consideration. It was nice to see some options available, and I especially liked to see the options in closer detail.

I would formally like to suggest, as I did in the meeting, that all of the Option 5 be considered as the desire of the majority of the public. I think it remained very clear that the majority of the people in the meeting did not want a "diet" at all for James Street. Many members of the community were concerned about cost, and option 5, "Traffic Signal Coordination without Road Diet" offered I think an overall compromise among what the city desires and what the public desires.

I think converting one of the sidewalks to a multi-use trail obtains the goals of having bicycle options -- without sacrificing travel lanes. However, as discussed, if this is done, the city will have to embark on a separate plowing option for this path to keep it clear of snow. No business or residence is going to want twice the amount of snow to shovel.

The only option that wasn't considered that I think we would like to see an Option 5 with cut-outs for the bus stops. Use the right of way and allow the busses to get out of the travel lanes. This would improve safety, and offer vehicle travel times far superior than any other option, and yet provide bicycle options on the multi use trail -- and some streetscape improvements.

Using the green dots as a visual tally, it seemed like the Option 5's had the majority of the votes in all three sectors. Perhaps there was one section where there was another option that was close. But, if you added up all the Option 5 votes across all sectors, Option 5 visually looked like the winner. And, that's what many of the voices of the public at the meeting seemed to echo. It most closely addresses the issues we discussed back in October 2010 as well.

I think SMTC needs to be extremely clear in its final report -- the diet concept is not what the public wants. The public is not opposed to some changes, but is concerned about cost and driving efficiency. The city wanted a diet, the public does not. The final report should present that in very clear terms. If the report does not conclude this, then the public's comments were not represented accurately. The "diet" concept needs to be dropped, and instead, it should be a James Street Improvement project, focusing on landscaping, bus cut outs, a multi-use trail, and other streetscape and safety improvements.

Cordially,

A large, solid black rectangular redaction mark covering the signature area.

## **APPENDIX C: CNYRTA SERVICE STANDARDS AND GUIDELINES**



## CNYRTA (CENTRO) SERVICE STANDARDS & GUIDELINES

### I. CONVENIENCE AND SPEED

#### A. Minimum Policy Headways

In situations where passenger loads do not meet minimum standards, but some level of service is desirable) a policy headway will be used.

DENSITY	WEEKDAYS		SATURDAY	SUNDAY
	PEAK	OFF PEAK		
Urban lines	30	60	40	60
Suburban lines	30	90	90	♦
Rural	NA	♦	None	None

♦Service should be provided only if minimum productivity can be assured for specific trips. No policy headways should be enforced.

#### NOTES:

1. Shorter headways may be provided if warranted by passenger load.
2. Regularly spaced headways should be operated on all lines which have headways greater than 10 minutes if possible. However, at peak hours, headways may be "bunched" to correspond with demand and downtown start times.
3. A combination of running time and financial constraints may warrant headways slightly greater than minimum headway. When demand on a route justifies two vehicles during the peak, but the running time per trip is 35 minutes, rather than add a third bus, a 35 minute peak headway could be tolerated, as long as loading standards are not surpassed.
4. Lines which do not meet the minimum performance (passenger / mile) standards, do not justify a minimum policy headway, unless for other reasons, it is deemed desirable to provide a minimum level of service.
5. Certain peak & non-peak trips are specialized commuter trips that were designed to make only one or two trips for an entire peak or non-peak period. These trips may be intended to transport at times designated by passenger demand. These trips may extend beyond the 30 minute peak & 90 minute non-peak guidelines in the policy listed above.

## MAXIMUM LOADING STANDARDS

The loading standards should not exceed the levels shown below:

TIME PERIOD	% OF SEATING CAPACITY MAXIMUM LOAD	AVERAGE NUMBER OF PASSENGERS
Peak - Maximum for any one trip	1.55	70
Peak - One hour average	1.30	60
Off Peak – Maximum for one trip	1.00	45
Off Peak – Average 5 hour period (9am-2pm)	1.00	45

### NOTES:

1. Frequencies should be improved or schedules realigned when ridership exceeds these standards.
2. If the total number of passenger minutes spent standing exceeds 150 passenger minutes consistently, additional service should be provided.

## **II. SCHEDULE RELIABILITY**

Adherence to a published schedule is critical to insure the reliability of service to the public. This is particularly important at transfer points, where dependable transfer connections are necessary. Adherence to the published schedule is also important during times when long headways are operated.

## SCHEDULE ADHERENCE STANDARD

More than one minute early		More than 5 minutes late		
Any Headway		10 Minute Headway	10-30 minutes	> 30
Peak	5%	20%	5%	5%
Mid-day	5%	20%	5%	5%

- A. Any line exceeding the percentage for number of trips which are late will be defined as having a serious schedule adherence problem.
- B. No trips should leave a terminal or time point ahead of schedule.
- C. Schedules must have recovery time built into them to insure that schedules can be maintained, but recovery time should be minimal.

### **III. DIRECTNESS OF SERVICE**

At the present time, CNY Centro "through routes" nearly all of it's lines to minimize deadhead mileage and to facilitate one-vehicle transportation. However, when two separate routes having a common terminus exhibit an average transfer rate of 25% per hour, the two routes should become candidates for linking into one through route. This linkage decision should not be made until it is compared with the percentage of through riders. The feasibility of this linkage will be determined by the following criteria:

- \*The routes must travel corridors on the opposite side of the terminal
- \*The routes must have identical headways and hours of operation
- \*The combined round trip running time of the two routes should not exceed four hours

### **IV. ROUTE LAYOUT**

The directness of a bus route is a measure of convenience and speed. Long, circuitous routing will make the route less desirable to the public. Consequently, the alignment of any route should be as direct as possible.

This is especially true for suburban routes. The goal of transit is to replicate auto travel times as much as possible. Consequently, suburban routes should be structured to minimize deviations off of the main travel corridor. Shelters and Park & Ride lots should be located along the suburban trunk lines to reduce the need for small deviations.

### **V. SPEED**

Travel time on the transit system must be reasonably competitive with those provided by the private auto. It is unlikely that, in most cases, the travel time by transit will be equal to or less than that for a similar trip by car. However, through the provision of express or limited stop service, direct routings and minimum transfer times, travel times by bus can be close to or better than the time for an equivalent trip by auto. The transit system should set goals for system speed improvement as an internal management objective.

#### **A. Travel Time Standard**

##### **Auto Travel time**

0 - 20 minutes

##### **Bus Travel Time**

No greater than two times the auto travel time

More than 20 minutes

No greater than 20 minutes > the auto travel time

NOTES:

1. Express (or non-stop) service from suburban communities will be provided to downtown Syracuse or to other major employment centers in the following cases:
2. If ridership of 40 passengers per bus can be assured on a regular basis.
3. If implementation of express service will aid in balancing peak period passenger loads on heavily utilized lines.
4. If travel time standards specified above can not be met, particularly for an employment center outside of downtown Syracuse.
5. Express service should justify a premium fare when there is a local alternative.

## **VI. SAFETY AND COMFORT**

### **A. Bus Shelter Standards**

Bus shelters are important aspects of user comfort and safety. Shelters will be installed upon customer request only if proper criteria is first met. Upon request, an investigation (using the criteria listed below) will begin. The decision to install a shelter will be based upon the following factors:

1. At least 50 passengers a day must board or transfer at a specific site.
2. There must be no alternate shelter available (i.e. a building overhang, etc.)
3. There must be sufficient space to install a shelter.
4. If over 15% of the users of a stop are seniors / disabled, then the boarding standard may be cut by 50% or up to 25 passengers.
5. Location of shelters along suburban trunk lines should be made, if the installation of a shelter can eliminate the need for a route deviation.

### **B. Shelter Benches**

The most common amenity that is placed within the shelter environment is a bench. As with the shelter placement, benches will be installed upon request, only if proper criteria is first met. The decision to install a bench will be based on the following factors:

- a. If over 15% of the users are senior/ disabled, it maybe determined that placement of a bench is necessary.
- b. If the number of passengers waiting at a shelter consistently exceeds the shelter capacity, it will be determined that the placement of a bench would take up shelter space and therefore not be installed.

### **C. Equipment Guidelines**

1. One door suburban buses should not be used on regular routes where standees are commonplace.
2. The assignment of buses to routes must be done to assure that no one route is given a disproportionate percentage of old buses or buses without padded seats, air conditioning, etc.
3. Due to a low bridge - roadway condition on the Onondaga Lake Parkway, all Liverpool routes must be assigned a vehicle under the height restriction of 10'9".
4. Soft seat coaches are assigned to some suburban routes due to the extended travel distance and

the extent of highway travel.

## **VII. ACCESS**

There is no single definition of what constitutes "access" to a bus route. Certainly, access is a function of the average walking time to a bus stop, but it is also a function of the headways on the line.

### **1 - Regular Bus Route Spacing Standard**

Population Density	Route Spacing	Maximum Walking Distance to Bus Line
Urban Area (3600/sq.mile)	1/2 mile (6-8 blocks)	1/4 mile (3-4 blocks)
Suburban Area (1800-3600/sq.mile)	1 mile (12-14 blocks)	1/2 mile (6-7 blocks)
Rural Area (1800 persons/sq.mile)	♦	♦

♦ as warranted by ridership

#### **NOTE:**

1. Spacing between routes must be tempered by street patterns, topography, and the location of major activity centers.

**CNYRTA  
BUS ROUTE PLANNING  
SERVICE STANDARDS**

**CRITERIA FOR SERVICE TO RESIDENTIAL AREAS**

**DISTANCE TO NEAREST TRANSIT ROUTE**

**CNYRTA**

PERCENT OF HOUSEHOLDS WITHOUT AUTOS	POPULATION DENSITY (Persons/Square Mile)		
	OVER 5,000	2,000-5,000	UNDER 2,000
OVER 20	1,300 Feet	2,600 Feet	*
1--20	2,600 Feet	3,900 Feet	*
UNDER 10	3,900 Feet	*	*

\* Service should be targeted to particular residential concentrations based on length of route extensions and population.

# SERVICE STANDARDS CURRENTLY SANCTIONED BY CNY RTA

## PRODUCTIVITY STANDARDS FOR INDIVIDUAL LINES

BOARD OF DIRECTORS

1/20/98

TYPE OF SERVICE	MINIMUM TOTAL		PRIVATE OPERATORS MIN./PASSEN- GER/RD. TRIP
	PASSENGER/TOTAL MILE	PASSENGER/TOTAL HRS.	
Weekday Urban	2.70	33	—
Weekday Local Suburban	1.62	20	33
Weekday Express Suburban	**1.12 - ***0.61	—	33
Weekday Rural*	—	—	—
Night	—	20	—
Weekends	—	20	—
Dial-a-Ride (combined urban & non-urban)	—	3.5	—

\*Undefined at this time

\*\*Syracuse & Oswego

\*\*\*Onondaga Coach

- NOTE: (1) Lines below the standard should be modified to bring the line into conformance with the standard. Individual trips on an existing route do not have to meet the standard if the overall line does meet the standard.
- (2) New services should be able to achieve 75% of the minimum standard within six months and 100% within one year.
- (3) All trial services should be operated at least six months with adequate public information. (A special new service marketing package will be prepared.)
- (4) New route extensions must meet the standards without causing any appreciable reduction in service frequency or quality. They must also not cause the addition of extra peak vehicles or drivers unless this extra peak equipment is required due to overcrowding or the potential for dramatically improved ridership.

## **APPENDIX D: TRAFFIC 5 B5 @ ~~MC~~-G RESULTS**



**James Street Diet  
Syracuse, NY**

**Level of Service Summary – Morning Peak Hour**

<b>Intersection</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<b>James Street @ Oswego Boulevard</b>	<b>A(8)</b>	<b>A(8)</b>	<b>A(7)</b>
EB Left/Through/Right	A(7)	A(7)	A(7)
WB Left/Through/Right	A(6)	A(4)	A(2)
NB Left	C(24)	C(24)	C(24)
NB Left/Through/Right	C(22)	C(22)	C(22)
SB Left/Through/Right	A(0)	A(0)	A(0)
<b>James Street @ North State Street</b>	<b>B(16)</b>	<b>B(15)</b>	<b>B(16)</b>
EB Left	C(28)	C(27)	C(29)
EB Through/Right	C(22)	C(22)	C(23)
WB Left/Through	B(14)	B(11)	B(15)
WB Right	A(4)	A(1)	A(3)
NB Left	C(22)	C(22)	C(22)
NB Through/Right	B(20)	B(20)	B(20)
SB Left	B(13)	B(15)	B(13)
SB Through/Right	B(13)	B(14)	B(13)
<b>James Street @ North Townsend Street</b>	<b>B(12)</b>	<b>B(17)</b>	<b>B(15)</b>
EB Left	-	B(13)	-
EB (Left)/Through/Right	A(5)	B(18)	C(20)
WB Left	-	B(11)	-
WB (Left)/Through/Right	A(8)	B(138)	A(4)
NB Left	C(26)	C(26)	C(26)
NB Through	C(22)	C(22)	C(22)
NB Right	A(5)	A(5)	A(5)
SB Left	B(17)	B(17)	B(17)
SB Through/Right	B(19)	B(19)	B(19)
<b>James Street @ North McBride Street</b>	<b>A(6)</b>	<b>A(6)</b>	<b>A(6)</b>
EB Left	-	A(4)	-
EB (Left)/Through/Right	A(2)	A(3)	A(8)
WB Left	-	A(2)	-
WB (Left)/Through/Right	A(7)	A(5)	A(3)
NB Left/Through/Right	B(20)	B(20)	B(20)
SB Left/Through/Right	B(18)	B(18)	B(18)
<b>James Street @ Catherine Street</b>	<b>A(9)</b>	<b>A(10)</b>	<b>A(10)</b>
EB Left	-	A(4)	-
EB (Left)/Through/Right	A(1)	A(4)	A(2)
WB Left	-	A(5)	-
WB (Left)/Through/Right	A(8)	A(8)	A(10)
NB Left/Through/Right	C(24)	C(24)	C(24)
SB Left/Through/Right	C(23)	C(23)	C(23)

<b>Intersection</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<b>James Street @ Lodi Street</b>	<b>B(16)</b>	<b>B(12)</b>	<b>B(14)</b>
EB Left	-	A(4)	-
EB (Left)/Through/Right	B(11)	A(5)	A(7)
WB Left	-	A(2)	-
WB (Left)/Through/Right	A(10)	A(5)	A(7)
NB Left/Through/Right	C(29)	C(29)	C(29)
SB Left/Through/Right	C(29)	C(29)	C(29)
<b>James Street @ Oak Street</b>	<b>B(12)</b>	<b>B(18)</b>	<b>B(14)</b>
EB Left	-	B(18)	-
EB (Left)/Through/Right	A(8)	B(12)	A(8)
WB Left	-	A(10)	-
WB (Left)/Through/Right	A(5)	B(14)	A(9)
NB Left/Through/Right	C(33)	D(39)	C(32)
SB Left/Through/Right	B(15)	B(19)	B(17)
<b>James Street @ DeWitt Street</b>	<b>B(11)</b>	<b>B(13)</b>	<b>A(8)</b>
EB Left	-	A(6)	-
EB (Left)/Through/Right	B(11)	A(5)	A(5)
WB Left	-	A(0)	-
WB (Left)/Through/Right	A(5)	B(11)	A(4)
NB Left/Through/Right	B(14)	B(20)	B(17)
SB Left/Through/Right	C(27)	D(43)	C(33)
<b>James Street @ Sedgwick Street</b>	<b>A(8)</b>	<b>A(9)</b>	<b>A(7)</b>
EB Through/Right	A(4)	A(9)	A(5)
WB Left	-	A(2)	-
WB (Left)/Through	B(11)	A(7)	A(5)
NB Left/Right	B(17)	C(25)	C(22)
<b>James Street @ Wilson Street</b>	<b>A(5)</b>	<b>A(5)</b>	<b>A(2)</b>
EB Through/Right	A(6)	A(4)	A(1)
WB Left	-	A(1)	-
WB (Left)/Through	A(4)	A(4)	A(2)
NB Left/Right	B(13)	B(17)	B(17)
<b>James Street @ Teall Avenue</b>	<b>C(26)</b>	<b>C(26)</b>	<b>C(21)</b>
EB Left	D(42)	D(46)	C(34)
EB Through/Right	C(30)	B(17)	C(24)
EB Right	-	A(5)	-
WB Left	D(43)	D(49)	D(47)
WB Through/Right	C(32)	B(15)	B(13)
NB Left/Through/Right	C(23)	D(42)	C(26)
SB Left/Through/Right	B(16)	B(20)	B(16)
<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>F(141)</b>	<b>E(63)</b>	<b>D(52)</b>
EB Left	A(8)	A(3)	A(3)
EB Through/Right	B(11)	B(18)	C(29)
WB Left/Through	D(51)	D(50)	D(50)
WB Right	D(41)	D(36)	D(36)
NB Left/Right	C(21)	B(11)	A(9)
SB Left/Through/Right (Grant)	F(624)	F(214)	F(136)
SB Left/Right (Walgreens)	D(37)	D(39)	D(44)

A(9) – Level of Service (Average Delay per Vehicle in Seconds)

**James Street Diet  
Syracuse, NY**

**Level of Service Summary – Evening Peak Hour**

<b>Intersection</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<b>James Street @ Oswego Boulevard</b>	<b>D(52)</b>	<b>C(26)</b>	<b>C(30)</b>
EB Left/Through/Right	B(15)	C(28)	C(27)
WB Left/Through/Right	D(36)	B(17)	C(26)
NB Left	F(201)	D(54)	E(62)
NB Left/Through/Right	F(112)	C(24)	C(28)
SB Left/Through/Right	C(26)	C(33)	C(28)
<b>James Street @ North State Street</b>	<b>C(32)</b>	<b>C(30)</b>	<b>C(24)</b>
EB Left	C(28)	C(27)	C(23)
EB Through/Right	C(27)	C(22)	B(19)
WB Left/Through	C(28)	C(25)	C(21)
WB Right	B(14)	B(14)	B(11)
NB Left	B(20)	B(20)	B(18)
NB Through/Right	D(49)	D(49)	D(37)
SB Left	B(15)	B(18)	B(17)
SB Through/Right	A(10)	B(11)	A(10)
<b>James Street @ North Townsend Street</b>	<b>C(23)</b>	<b>C(21)</b>	<b>B(16)</b>
EB Left	-	B(20)	-
EB (Left)/Through/Right	A(6)	B(16)	B(12)
WB Left	-	B(15)	-
WB (Left)/Through/Right	A(7)	B(20)	A(7)
NB Left	F(108)	D(47)	D(47)
NB Through	C(31)	C(23)	C(23)
NB Right	A(4)	A(4)	A(4)
SB Left	C(27)	B(18)	B(18)
SB Through/Right	C(23)	B(19)	B(19)
<b>James Street @ North McBride Street</b>	<b>A(8)</b>	<b>B(11)</b>	<b>B(11)</b>
EB Left	-	A(4)	-
EB (Left)/Through/Right	A(3)	A(4)	A(4)
WB Left	-	A(6)	-
WB (Left)/Through/Right	A(5)	B(11)	B(11)
NB Left/Through/Right	C(24)	C(25)	C(24)
SB Left/Through/Right	C(29)	C(30)	C(29)
<b>James Street @ Catherine Street</b>	<b>C(35)</b>	<b>B(20)</b>	<b>B(18)</b>
EB Left	-	A(6)	-
EB (Left)/Through/Right	A(4)	A(10)	B(15)
WB Left	-	B(19)	-
WB (Left)/Through/Right	A(7)	B(18)	B(13)
NB Left/Through/Right	F(141)	D(42)	C(34)
SB Left/Through/Right	C(26)	B(20)	B(18)

<b>Intersection</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<b>James Street @ Lodi Street</b>	<b>C(23)</b>	<b>C(22)</b>	<b>C(21)</b>
EB Left	-	A(4)	-
EB (Left)/Through/Right	B(17)	A(9)	B(11)
WB Left	-	A(6)	-
WB (Left)/Through/Right	C(23)	B(18)	B(12)
NB Left/Through/Right	C(29)	D(39)	D(38)
SB Left/Through/Right	B(20)	C(25)	C(25)
<b>James Street @ Oak Street</b>	<b>B(17)</b>	<b>B(18)</b>	<b>B(13)</b>
EB Left	-	A(4)	-
EB (Left)/Through/Right	B(14)	A(10)	A(4)
WB Left	-	B(17)	-
WB (Left)/Through/Right	B(11)	B(12)	A(6)
NB Left/Through/Right	C(32)	D(46)	D(46)
SB Left/Through/Right	C(25)	C(33)	C(32)
<b>James Street @ DeWitt Street</b>	<b>A(9)</b>	<b>B(17)</b>	<b>A(9)</b>
EB Left	-	A(5)	-
EB (Left)/Through/Right	A(4)	B(15)	A(5)
WB Left	-	A(5)	-
WB (Left)/Through/Right	A(7)	B(11)	A(6)
NB Left/Through/Right	B(15)	C(21)	B(18)
SB Left/Through/Right	C(31)	D(44)	D(36)
<b>James Street @ Sedgwick Street</b>	<b>A(8)</b>	<b>A(8)</b>	<b>A(8)</b>
EB Through/Right	A(9)	A(6)	A(6)
WB Left	-	A(0)	-
WB (Left)/Through	A(6)	A(8)	A(9)
NB Left/Right	B(18)	C(31)	C(23)
<b>James Street @ Wilson Street</b>	<b>A(8)</b>	<b>A(3)</b>	<b>A(2)</b>
EB Through/Right	B(11)	A(3)	A(2)
WB Left	-	A(1)	-
WB (Left)/Through	A(3)	A(2)	A(1)
NB Left/Right	B(15)	C(21)	B(19)
<b>James Street @ Teall Avenue</b>	<b>D(37)</b>	<b>C(33)</b>	<b>C(27)</b>
EB Left	E(63)	D(52)	D(47)
EB Through/(Right)	D(41)	C(23)	B(18)
EB Right	-	A(3)	-
WB Left	E(60)	E(69)	D(52)
WB Through/Right	D(37)	C(20)	C(22)
NB Left/Through/Right	C(32)	D(48)	C(33)
SB Left/Through/Right	C(23)	C(24)	C(21)
<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>F(171)</b>	<b>F(84)</b>	<b>E(80)</b>
EB Left	A(8)	A(3)	A(3)
EB Through/Right	B(11)	B(11)	B(12)
WB Left/Through	D(41)	C(33)	C(33)
WB Right	E(69)	D(53)	D(53)
NB Left/Right	B(16)	B(12)	B(12)
SB Left/Through/Right (Grant)	F(713)	F(309)	F(292)
SB Left/Right (Walgreens)	D(37)	D(47)	D(51)

A(9) – Level of Service (Average Delay per Vehicle in Seconds)

**James Street Diet  
Syracuse, NY**

**Queue Summary – Morning Peak Hour**

<b>Intersection</b>	<b>Available Turn Bay Storage</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<b>James Street @ Oswego Boulevard</b>				
EB Left/Through/Right	-	78	78	78
WB Left/Through/Right	-	48	12	12
NB Left	-	53	53	53
NB Left/Through/Right	-	51	51	51
SB Left/Through/Right	-	0	0	0
<b>James Street @ North State Street</b>				
EB Left	150	55	37	32
EB Through/Right	-	112	77	67
WB Left/Through	-	134	92	107
WB Right	150	28	7	25
NB Left	120	25	25	25
NB Through/Right	-	56	57	56
SB Left	120	45	48	45
SB Through/Right	-	68	74	68
<b>James Street @ North Townsend Street</b>				
EB Left	~150	-	19	-
EB (Left)/Through/Right	-	11	274	125
WB Left	~150	-	16	-
WB (Left)/Through/Right	-	21	132	35
NB Left	105	93	93	93
NB Through	-	146	146	146
NB Right	-	16	16	16
SB Left	150	18	18	18
SB Through/Right	-	103	103	103
<b>James Street @ North McBride Street</b>				
EB Left	~150	-	4	-
EB (Left)/Through/Right	-	18	31	43
WB Left	~150	-	1	-
WB (Left)/Through/Right	-	117	50	22
NB Left/Through/Right	-	39	39	39
SB Left/Through/Right	-	28	28	28
<b>James Street @ Catherine Street</b>				
EB Left	~150	-	3	-
EB (Left)/Through/Right	-	8	67	15
WB Left	~150	-	16	-
WB (Left)/Through/Right	-	102	183	9
NB Left/Through/Right	-	87	87	87
SB Left/Through/Right	-	79	79	79

Intersection	Available Turn Bay Storage	2030 Alternative 1	2030 Alternatives 2, 3, and 4	2030 Alternative 5
<b>James Street @ Lodi Street</b>				
EB Left	~150	-	6	-
EB (Left)/Through/Right	-	62	140	135
WB Left	~150	-	2	-
WB (Left)/Through/Right	-	187	61	210
NB Left/Through/Right	-	83	83	83
SB Left/Through/Right	-	75	75	75
<b>James Street @ Oak Street</b>				
EB Left	~150	-	60	-
EB (Left)/Through/Right	-	61	237	88
WB Left	~150	-	10	-
WB (Left)/Through/Right	-	10	183	86
NB Left/Through/Right	-	178	207	165
SB Left/Through/Right	-	55	67	58
<b>James Street @ DeWitt Street</b>				
EB Left	~150	-	6	-
EB (Left)/Through/Right	-	90	83	71
WB Left	~150	-	0	-
WB (Left)/Through/Right	-	22	54	28
NB Left/Through/Right	-	8	10	9
SB Left/Through/Right	-	99	150	115
<b>James Street @ Sedgwick Street</b>				
EB Through/Right	-	17	210	34
WB Left	~150	-	1	-
WB (Left)/Through	-	171	8	48
NB Left/Right	-	59	79	75
<b>James Street @ Wilson Street</b>				
EB Through/Right	-	80	205	13
WB Left	~150	-	2	-
WB (Left)/Through	-	93	236	45
NB Left/Right	-	18	23	23
<b>James Street @ Teall Avenue</b>				
EB Left	160	94	79	68
EB Through/(Right)	-	180	219	141
EB Right	~200		16	
WB Left	125	80	60	60
WB Through/Right	-	161	144	86
NB Left/Through/Right	-	180	183	134
SB Left/Through/Right	-	147	124	102
<b>James Street @ Shotwell Park / Grant Blvd.</b>				
EB Left	100	37	6	5
EB Through/Right	-	149	214	260
WB Left/Through	-	277	245	245
WB Right	150	173	137	137
NB Left/Right	-	55	35	32
SB Left/Through/Right (Grant)	-	357	240	213
SB Left/Right (Walgreens)	-	19	18	19

95<sup>th</sup> Percentile Maximum Queues – Queues and Storage shown in Feet

**James Street Diet  
Syracuse, NY**

**Queue Summary – Evening Peak Hour**

<b>Intersection</b>	<b>Available Turn Bay Storage</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<b>James Street @ Oswego Boulevard</b>				
EB Left/Through/Right	-	128	162	162
WB Left/Through/Right	-	163	186	183
NB Left	-	181	151	155
NB Left/Through/Right	-	167	121	126
SB Left/Through/Right	-	19	20	20
<b>James Street @ North State Street</b>				
EB Left	150	53	25	21
EB Through/Right	-	146	88	70
WB Left/Through	-	136	140	119
WB Right	150	82	82	71
NB Left	120	26	26	24
NB Through/Right	-	322	322	305
SB Left	120	44	47	47
SB Through/Right	-	35	37	35
<b>James Street @ North Townsend Street</b>				
EB Left	~150	-	6	-
EB (Left)/Through/Right	-	40	84	90
WB Left	~150	-	9	-
WB (Left)/Through/Right	-	42	402	42
NB Left	105	219	192	191
NB Through	-	240	215	215
NB Right	-	22	20	20
SB Left	150	32	27	27
SB Through/Right	-	151	134	134
<b>James Street @ North McBride Street</b>				
EB Left	~150	-	5	-
EB (Left)/Through/Right	-	32	59	47
WB Left	~150	-	3	-
WB (Left)/Through/Right	-	57	153	168
NB Left/Through/Right	-	54	55	54
SB Left/Through/Right	-	110	113	110
<b>James Street @ Catherine Street</b>				
EB Left	~150	-	5	-
EB (Left)/Through/Right	-	30	153	172
WB Left	~150	-	26	-
WB (Left)/Through/Right	-	75	220	181
NB Left/Through/Right	-	313	253	234
SB Left/Through/Right	-	91	79	76
<b>James Street @ Lodi Street</b>				
EB Left	~150	-	1	-
EB (Left)/Through/Right	-	230	71	216
WB Left	~150	-	2	-
WB (Left)/Through/Right	-	196	335	146

<b>Intersection</b>	<b>Available Turn Bay Storage</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
NB Left/Through/Right	-	143	183	181
SB Left/Through/Right	-	60	74	74
<b>James Street @ Oak Street</b>				
EB Left	~150	-	3	-
EB (Left)/Through/Right	-	190	323	39
WB Left	~150	-	39	-
WB (Left)/Through/Right	-	130	259	80
NB Left/Through/Right	-	100	135	126
SB Left/Through/Right	-	101	134	125
<b>James Street @ DeWitt Street</b>				
EB Left	~150	-	8	-
EB (Left)/Through/Right	-	18	433	84
WB Left	~150	-	0	-
WB (Left)/Through/Right	-	91	320	122
NB Left/Through/Right	-	18	22	19
SB Left/Through/Right	-	107	150	117
<b>James Street @ Sedgwick Street</b>				
EB Through/Right	-	93	107	114
WB Left	~150	-	18	-
WB (Left)/Through	-	43	218	82
NB Left/Right	-	54	75	66
<b>James Street @ Wilson Street</b>				
EB Through/Right	-	198	117	39
WB Left	~150	-	2	-
WB (Left)/Through	-	67	145	4
NB Left/Right	-	18	25	23
<b>James Street @ Teall Avenue</b>				
EB Left	160	264	163	162
EB Through/(Right)	-	245	242	137
EB Right	~200	-	20	-
WB Left	125	177	140	117
WB Through/Right	-	143	104	66
NB Left/Through/Right	-	258	220	194
SB Left/Through/Right	-	200	146	133
<b>James Street @ Shotwell Park / Grant Blvd.</b>				
EB Left	100	41	13	11
EB Through/Right	-	163	164	159
WB Left/Through	-	277	223	223
WB Right	150	322	256	256
NB Left/Right	-	50	40	39
SB Left/Through/Right (Grant)	-	482	369	364
SB Left/Right (Walgreens)	-	62	63	67

95<sup>th</sup> Percentile Maximum Queues – Queues and Storage shown in Feet



**James Street Diet  
Syracuse, NY**

**Arterial and Network Measures of Effectiveness – Morning Peak Hour**

<b>Measure of Effectiveness</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<i>Arterial</i>			
Travel Time EB (sec)	394.3	401.9 (+7.6)	416.2 (+21.9)
Travel Time WB (sec)	385.5	369.2 (-16.3)	348.6 (-36.9)
Signal Delay EB (sec)	115.4	121.3 (+5.9)	137.3 (+21.9)
Signal Delay WB (sec)	111.6	95.3 (-16.3)	74.7 (-36.9)
Arterial Speed EB (mph)	19.4	19.2 (-0.2)	18.4 (-1.0)
Arterial Speed WB (mph)	19.6	20.4 (+0.8)	21.7 (+1.2)
<i>Network</i>			
Total Delay (hrs)	151	111 (-40)	96 (-55)
Total Stops (#)	11,715	11,690 (-25)	10,505 (-1,210)
Fuel Consumption (gal)	321	292 (-29)	274 (-47)

**Arterial and Network Measures of Effectiveness – Evening Peak Hour**

<b>Measure of Effectiveness</b>	<b>2030 Alternative 1</b>	<b>2030 Alternatives 2, 3, and 4</b>	<b>2030 Alternative 5</b>
<i>Arterial</i>			
Travel Time EB (sec)	438.3	436.8 (-1.5)	412.6 (-25.7)
Travel Time WB (sec)	444.2	436.3 (-7.9)	406.9 (-37.3)
Signal Delay EB (sec)	159.4	156.3 (-3.1)	133.7 (-25.7)
Signal Delay WB (sec)	170.3	162.4 (-7.9)	133.0 (-27.3)
Arterial Speed EB (mph)	17.5	17.6 (+0.1)	18.6 (+1.1)
Arterial Speed WB (mph)	17.0	17.3 (+0.3)	18.6 (+1.6)
<i>Network</i>			
Total Delay (hrs)	275	194 (-81)	171 (-104)
Total Stops (#)	16,373	15,507 (-866)	14,499 (-1,874)
Fuel Consumption (gal)	460	397 (-63)	374 (-86)

*Arterial Measures of Effectiveness*

Travel Time = Average total travel time per vehicle traveling through entire corridor in seconds  
Signal Delay = Average total signal delay per vehicle traveling through entire corridor in seconds  
Arterial Speed – Overall average speed for length of corridor including delay/stopped time

*Network Measures of Effectiveness*

Total Delay = Total cumulative delay time for all traffic traveling within the corridor in hours  
Total Stops = Total cumulative number of vehicle stops within the corridor  
Fuel Consumption = Total cumulative fuel consumed by all vehicles in corridor in gallons

All Measures of Effectiveness are for the morning or evening peak hours only.

**James Street Diet  
Syracuse, NY**

**James Street/ Shotwell Park/ Grant Boulevard Intersection Alternatives**

**Roundabout**

**Morning Peak Hour**

<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>a(3)</b>	<b>Maximum Queue</b>
Eastbound James St.	a(4)	119 feet
Westbound James St.	a(3)	160 feet
Northbound Shotwell Park	a(2)	48 feet
Southbound Grant Blvd.	a(3)	103 feet
Southbound Eastwood Rd.	a(2)	16 feet

a(5) – Level of Service (Average Delay per Vehicle in Seconds)

**Evening Peak Hour**

<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>a(8)</b>	<b>Maximum Queue</b>
Eastbound James St.	a(7)	228 feet
Westbound James St.	b(11)	221 feet
Northbound Shotwell Park	a(3)	93 feet
Southbound Grant Blvd.	a(8)	199 feet
Southbound Eastwood Rd.	a(2)	16 feet

a(5) – Level of Service (Average Delay per Vehicle in Seconds)

**Five Legged Signal**

**Morning Peak Hour**

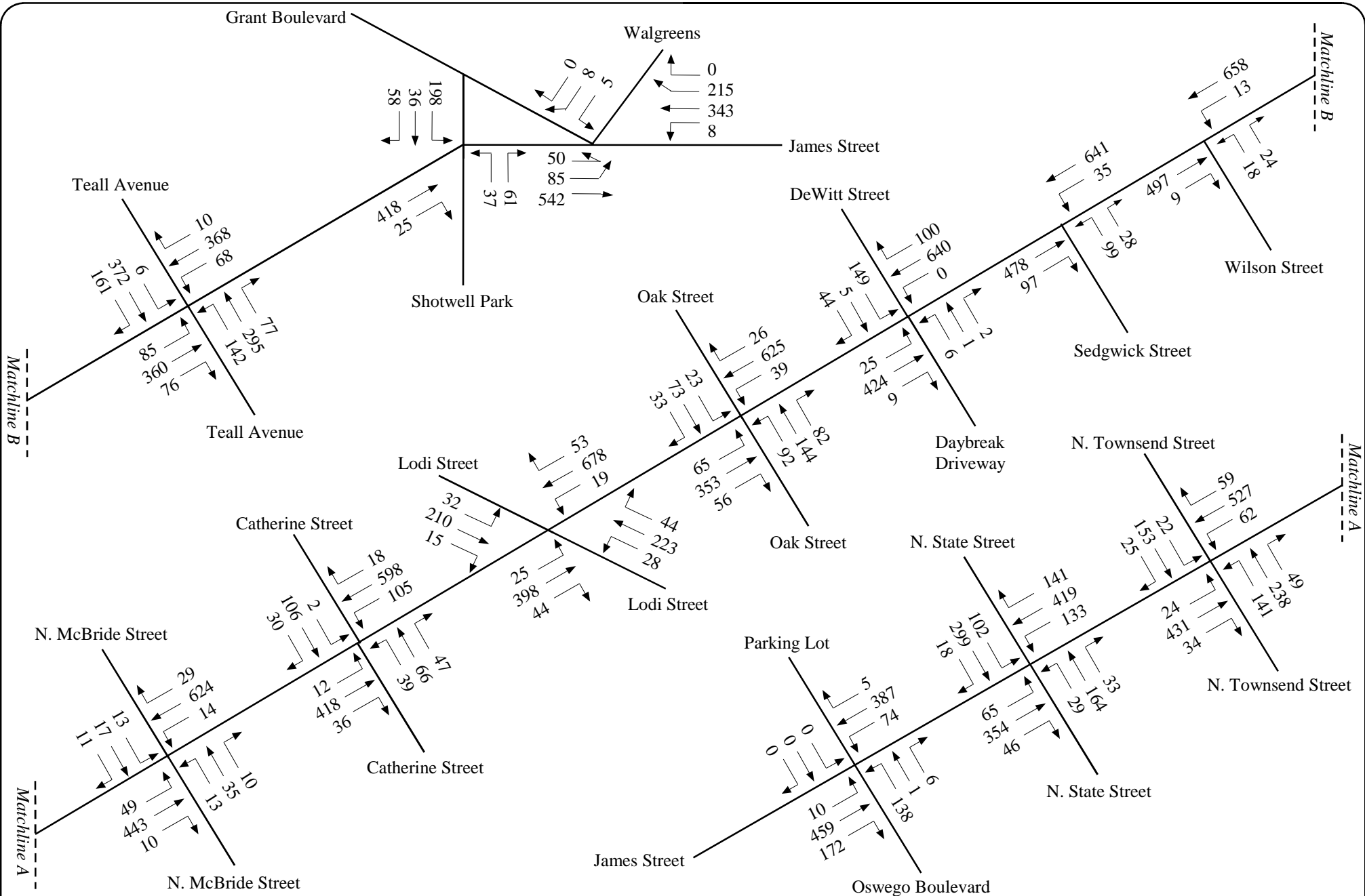
<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>C(27)</b>	<b>Maximum Queue</b>
EB Left - James	B(20)	85 feet
EB Through - James	B(18)	250 feet
WB Left/Through - James	C(34)	344 feet
WB Right - James	C(27)	206 feet
NB Left/Through/Right - Shotwell	B(18)	80 feet
SB Left - Grant	D(47)	254 feet
SB Through/Right – Grant	B(13)	62 feet
SW Left/Through/Right - Eastwood	D(37)	39 feet

A(5) – Level of Service (Average Delay per Vehicle in Seconds)

**Evening Peak Hour**

<b>James Street @ Shotwell Park / Grant Blvd.</b>	<b>D(44)</b>	<b>Maximum Queue</b>
EB Left - James	E(65)	181 feet
EB Through - James	C(21)	288 feet
WB Left/Through - James	D(53)	462 feet
WB Right - James	D(48)	396 feet
NB Left/Through/Right - Shotwell	B(16)	74 feet
SB Left - Grant	E(70)	358 feet
SB Through/Right – Grant	B(15)	90 feet
SW Left/Through/Right - Eastwood	D(45)	70 feet

A(5) – Level of Service (Average Delay per Vehicle in Seconds)



**James Street Diet**  
 2009 Existing Traffic Volumes  
 Morning Peak Hour

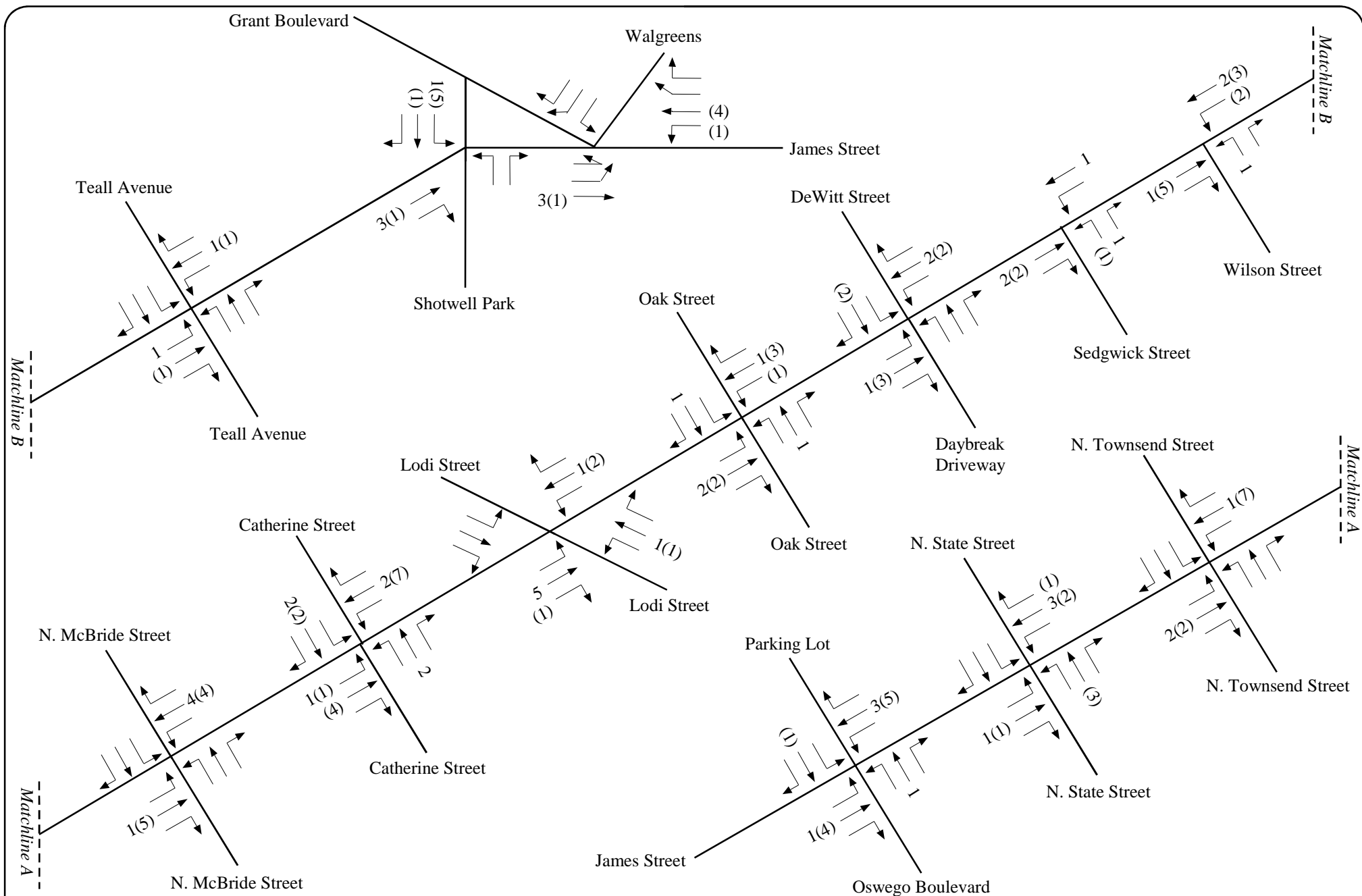
**Figure 1**





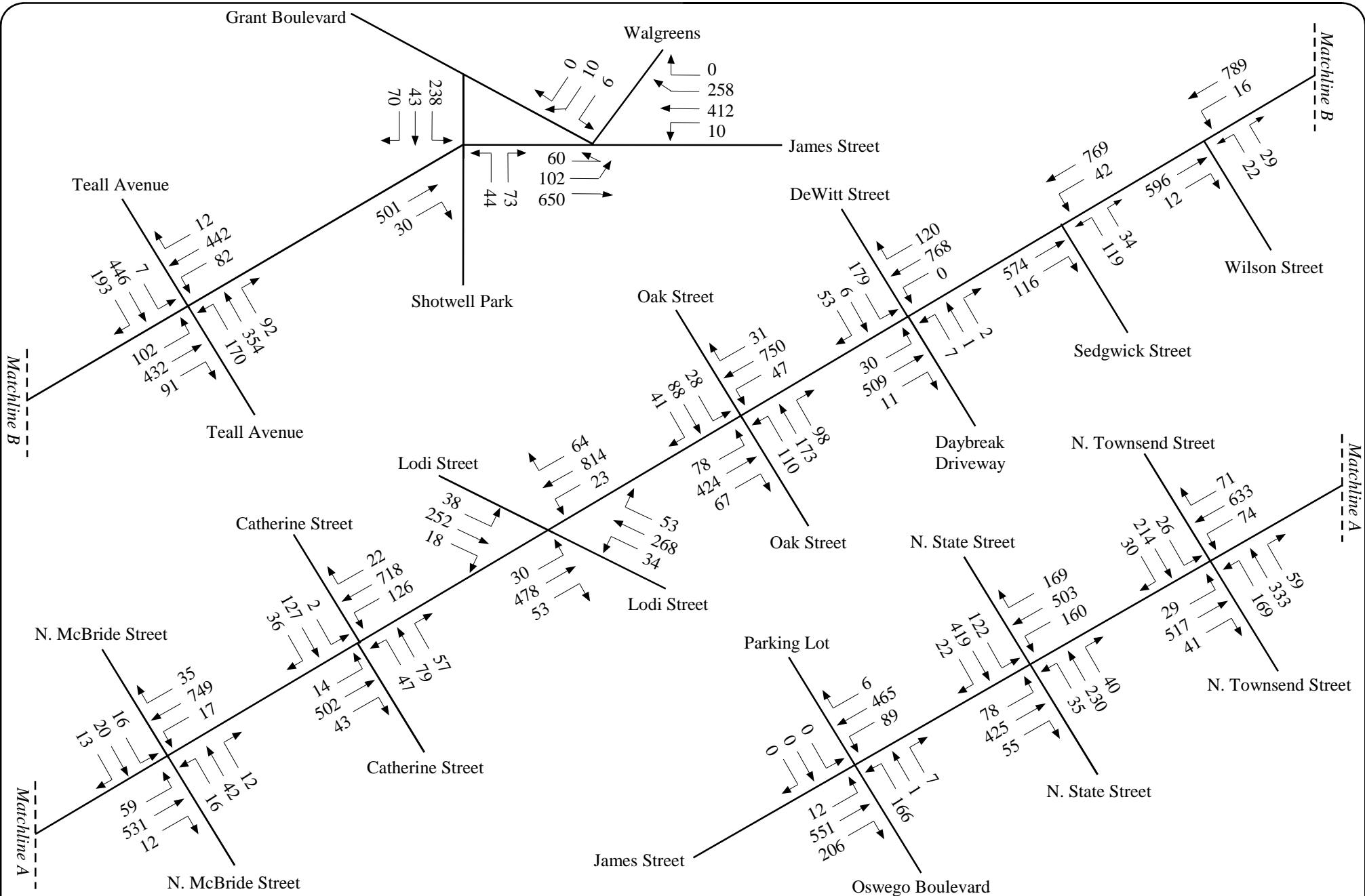


**GTS Consulting**



**James Street Diet**  
 2009 Existing Bicyclist Volumes  
 Morning (Evening) Peak Hour

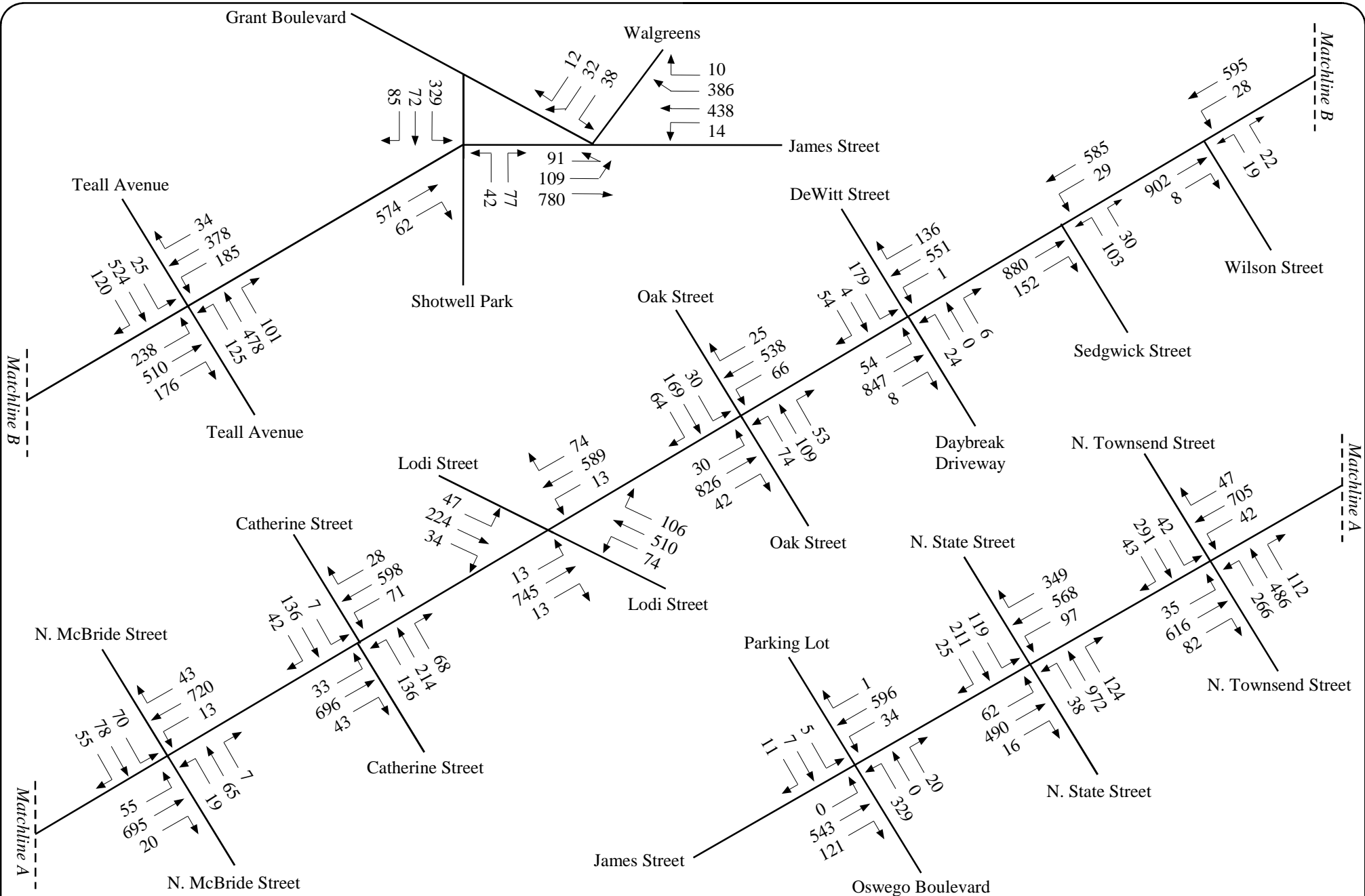
**Figure 4**



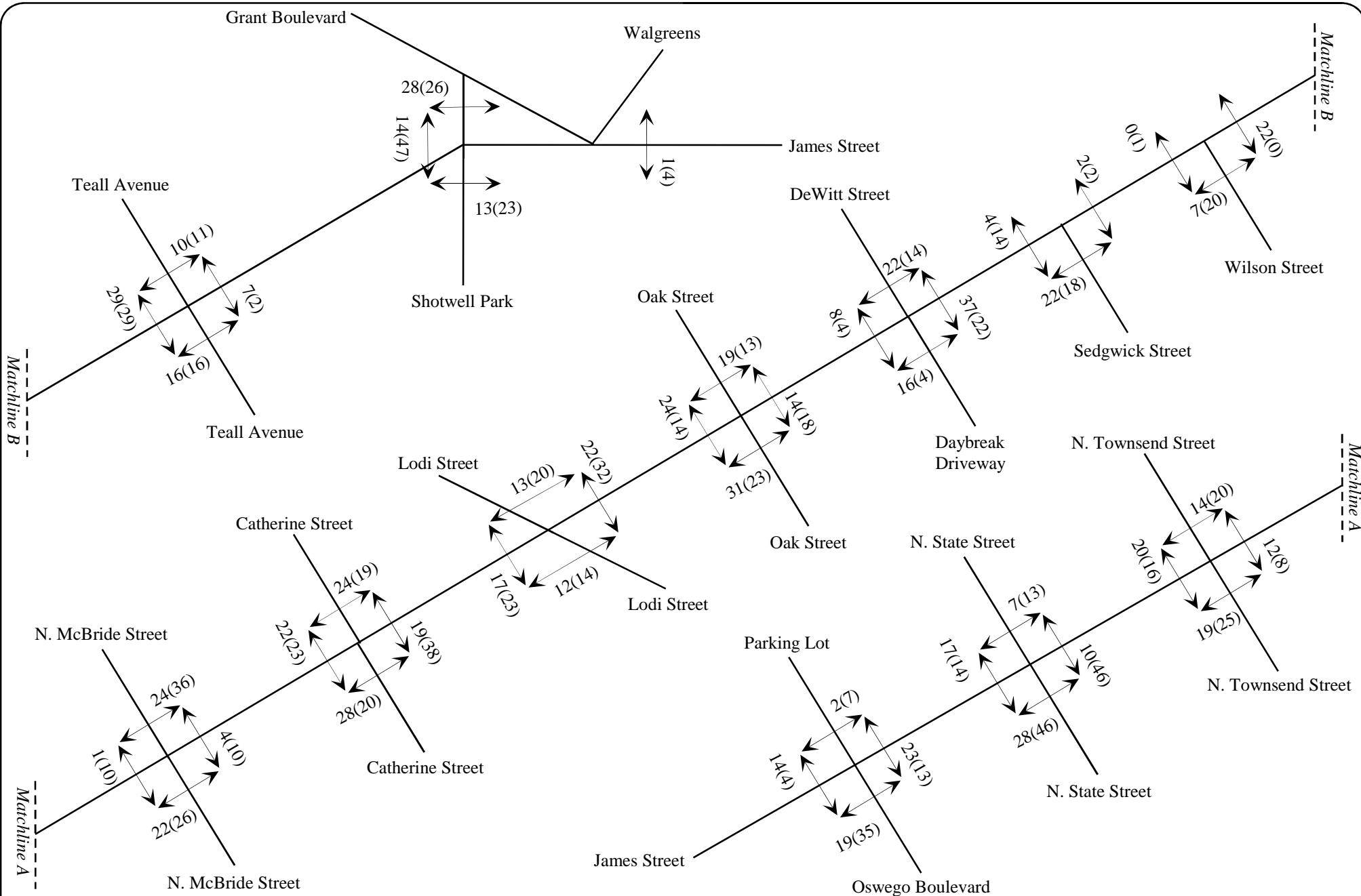
**James Street Diet**  
 2030 Projected Traffic Volumes  
 Morning Peak Hour

**Figure 5**



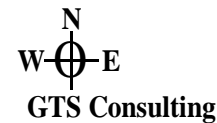


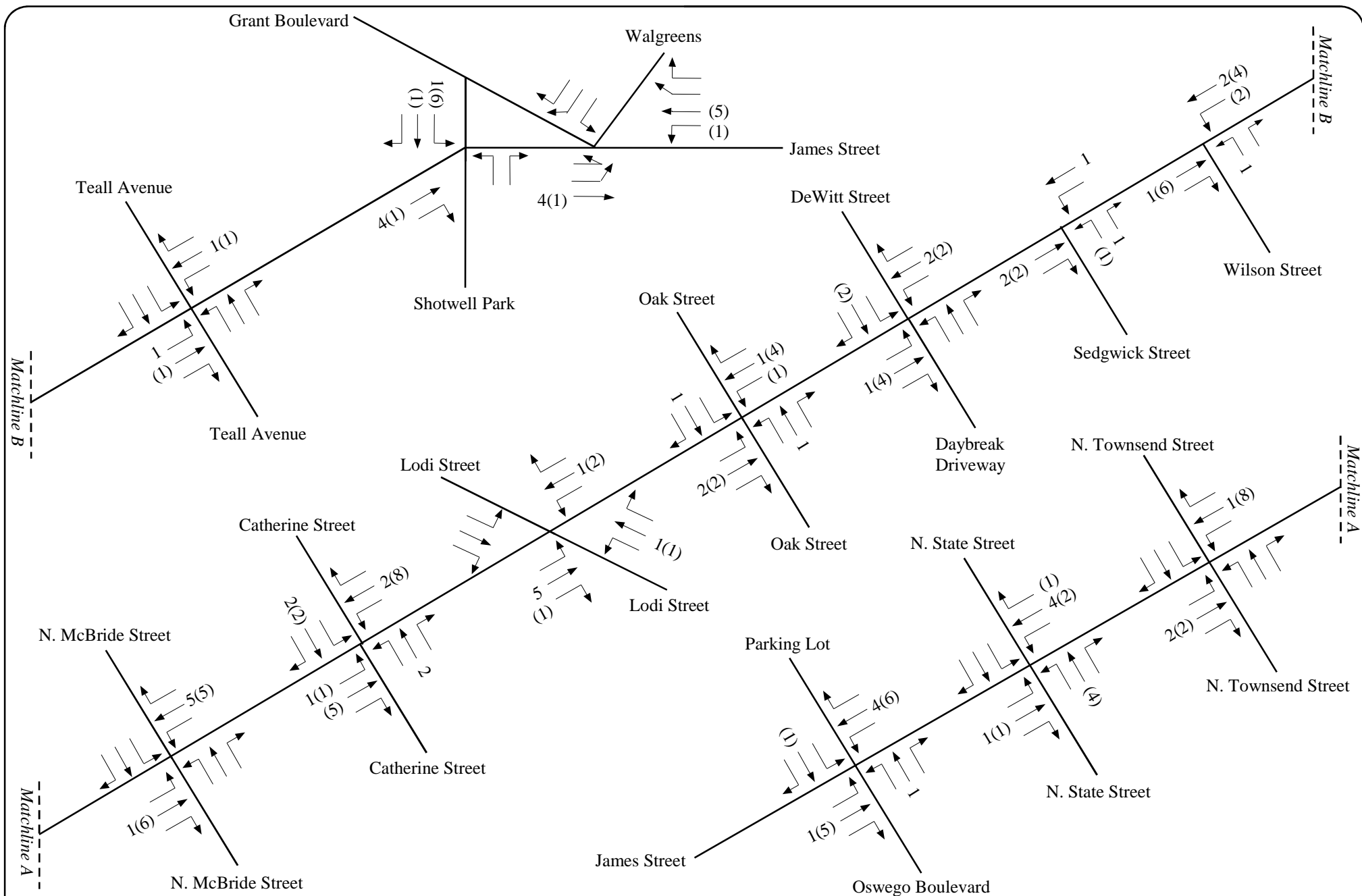




**James Street Diet**  
 2030 Projected Pedestrian Volumes  
 Morning (Evening) Peak Hour

**Figure 7**





**James Street Diet**  
 2030 Projected Bicyclist Volumes  
 Morning (Evening) Peak Hour

**Figure 8**



# Syracuse Metropolitan Transportation Council

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Syracuse, NY 13202  
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File Name : 5\_20\_09\_James\_Oswego\_Both

Site Code : 00000004

Start Date : 5/20/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	Driveway (Parking Lot) Southbound Approach					James St Westbound Approach					Oswego Blvd Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	0	0	2	46	7	0	55	0	0	7	0	7	18	65	1	0	84	146
07:15 AM	0	0	0	0	0	0	58	6	0	64	0	0	12	0	12	34	105	0	2	141	217
07:30 AM	0	0	0	0	0	1	78	9	0	88	0	0	32	0	32	41	130	1	0	172	292
07:45 AM	0	0	0	0	0	0	88	14	0	102	0	0	40	0	40	41	176	2	1	220	362
Total	0	0	0	0	0	3	270	36	0	309	0	0	91	0	91	134	476	4	3	617	1017
08:00 AM	0	0	0	0	0	0	70	11	0	81	0	1	37	0	38	39	145	1	1	186	305
08:15 AM	0	0	0	0	0	2	69	14	0	85	3	0	38	0	41	45	148	3	0	196	322
08:30 AM	0	0	0	0	0	3	83	15	0	101	3	0	23	1	27	47	114	4	1	166	294
08:45 AM	0	0	0	0	0	1	80	10	0	91	4	2	43	3	52	39	146	3	0	188	331
Total	0	0	0	0	0	6	302	50	0	358	10	3	141	4	158	170	553	11	2	736	1252
04:00 PM	4	2	1	2	9	0	112	15	0	127	5	0	60	2	67	14	99	0	1	114	317
04:15 PM	0	0	1	0	1	0	89	3	0	92	6	0	67	0	73	18	98	0	0	116	282
04:30 PM	2	0	0	2	4	0	128	7	0	135	6	0	61	2	69	26	113	0	0	139	347
04:45 PM	2	1	0	1	4	0	99	5	0	104	6	0	66	1	73	26	114	0	0	140	321
Total	8	3	2	5	18	0	428	30	0	458	23	0	254	5	282	84	424	0	1	509	1267
05:00 PM	4	2	3	2	11	0	114	2	0	116	5	0	78	0	83	27	125	0	0	152	362
05:15 PM	1	3	1	1	6	1	107	2	0	110	0	0	69	0	69	22	137	0	1	160	345
05:30 PM	0	1	0	0	1	0	73	5	0	78	3	0	50	0	53	11	66	0	1	78	210
05:45 PM	0	0	0	0	0	0	71	6	0	77	1	0	34	0	35	27	92	0	1	120	232
Total	5	6	4	3	18	1	365	15	0	381	9	0	231	0	240	87	420	0	3	510	1149
Grand Total	13	9	6	8	36	10	1365	131	0	1506	42	3	717	9	771	475	1873	15	9	2372	4685
Apprch %	36.1	25	16.7	22.2		0.7	90.6	8.7	0		5.4	0.4	93	1.2		20	79	0.6	0.4		
Total %	0.3	0.2	0.1	0.2	0.8	0.2	29.1	2.8	0	32.1	0.9	0.1	15.3	0.2	16.5	10.1	40	0.3	0.2	50.6	
Cars	13	9	6	8	36	10	1354	131	0	1495	42	3	708	9	762	472	1840	15	9	2336	4629
% Cars	100	100	100	100	100	100	99.2	100	0	99.3	100	100	98.7	100	98.8	99.4	98.2	100	100	98.5	98.8
Heavy Vehicles and B	0	0	0	0	0	0	11	0	0	11	0	0	9	0	9	3	33	0	0	36	56
% Heavy Vehicles and B	0	0	0	0	0	0	0.8	0	0	0.7	0	0	1.3	0	1.2	0.6	1.8	0	0	1.5	1.2



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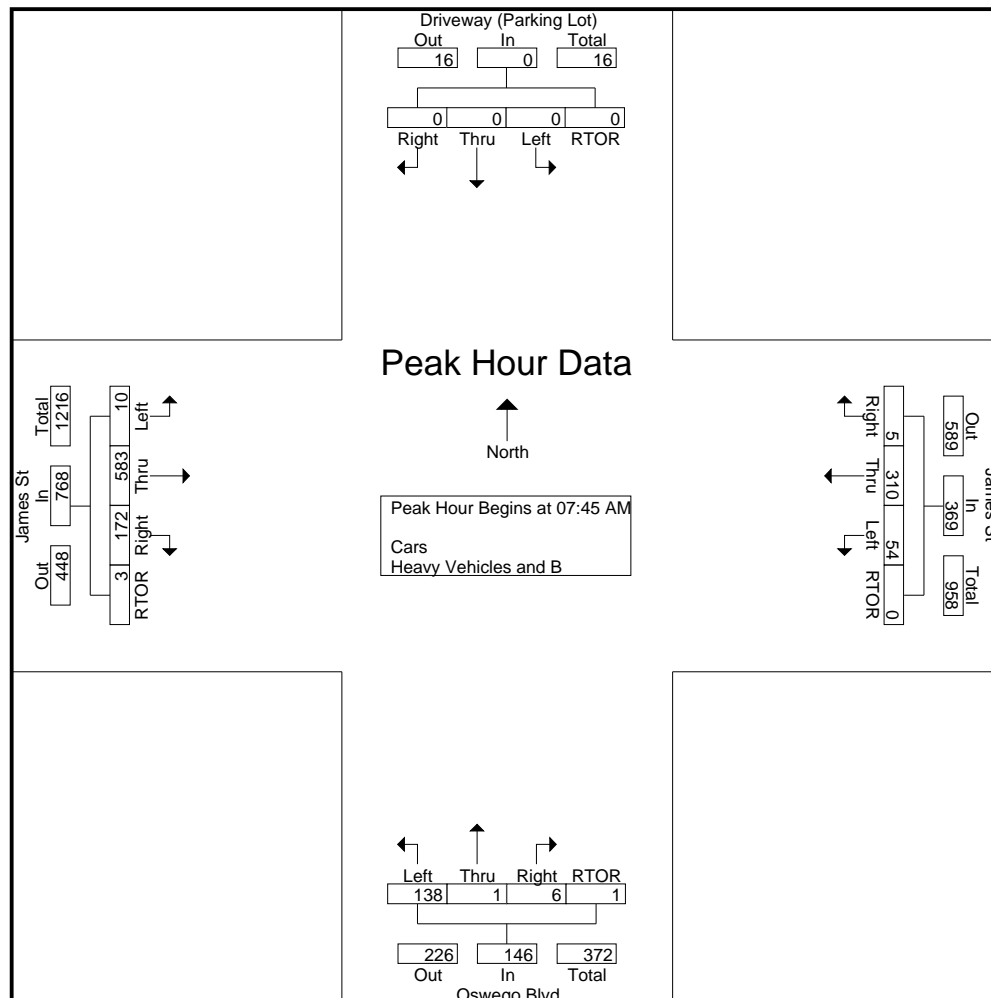
File Name : 5\_20\_09\_James\_Oswego\_Both

Site Code : 00000004

Start Date : 5/20/2009

Page No : 2

	Driveway (Parking Lot) Southbound Approach					James St Westbound Approach					Oswego Blvd Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	88	14	0	102	0	0	40	0	40	41	176	2	1	220	362
08:00 AM	0	0	0	0	0	0	70	11	0	81	0	1	37	0	38	39	145	1	1	186	305
08:15 AM	0	0	0	0	0	2	69	14	0	85	3	0	38	0	41	45	148	3	0	196	322
08:30 AM	0	0	0	0	0	3	83	15	0	101	3	0	23	1	27	47	114	4	1	166	294
Total Volume	0	0	0	0	0	5	310	54	0	369	6	1	138	1	146	172	583	10	3	768	1283
% App. Total	0	0	0	0	0	1.4	84	14.6	0		4.1	0.7	94.5	0.7		22.4	75.9	1.3	0.4		
PHF	.000	.000	.000	.000	.000	.417	.881	.900	.000	.904	.500	.250	.863	.250	.890	.915	.828	.625	.750	.873	.886





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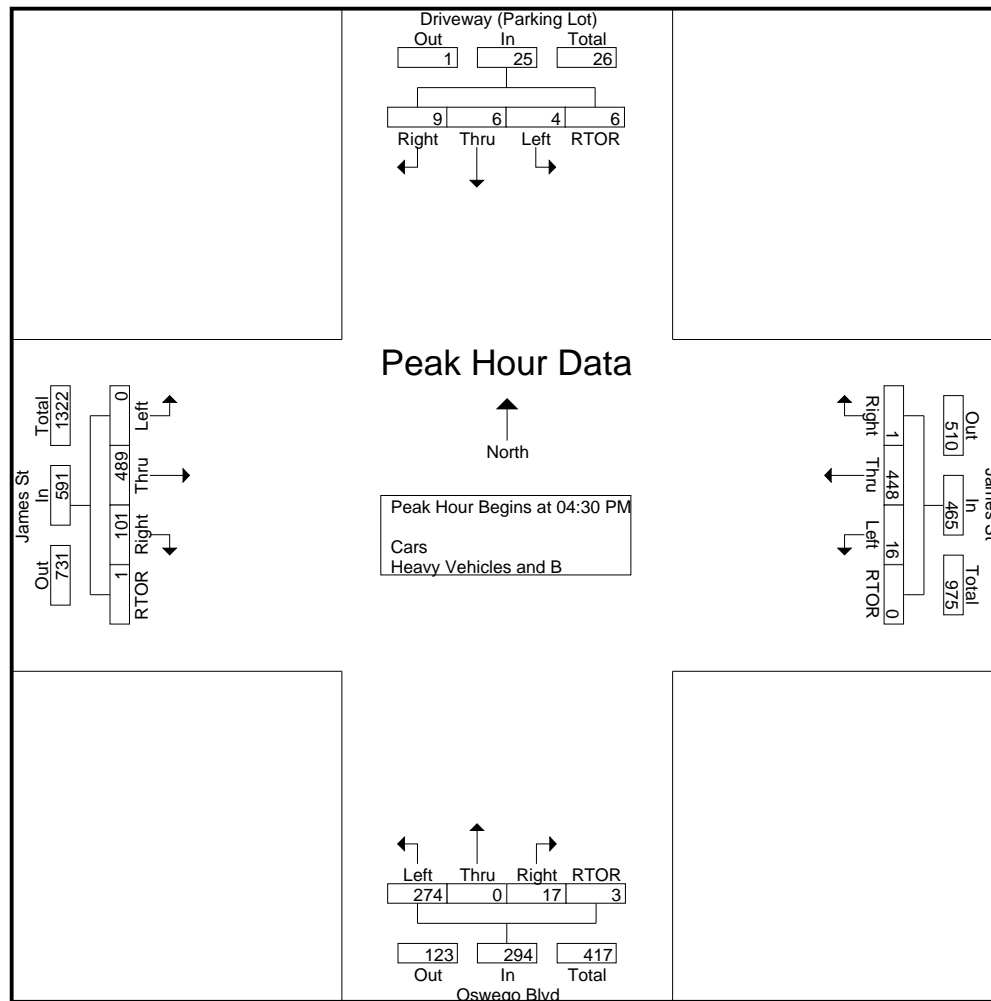
File Name : 5\_20\_09\_James\_Oswego\_Both

Site Code : 00000004

Start Date : 5/20/2009

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	Driveway (Parking Lot) Southbound Approach					James St Westbound Approach					Oswego Blvd Northbound Approach					James St Eastbound Approach					
Start Time	Rig ht	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	2	0	0	2	4	0	128	7	0	135	6	0	61	2	69	26	113	0	0	139	347
04:45 PM	2	1	0	1	4	0	99	5	0	104	6	0	66	1	73	26	114	0	0	140	321
05:00 PM	4	2	3	2	11	0	114	2	0	116	5	0	78	0	83	27	125	0	0	152	362
05:15 PM	1	3	1	1	6	1	107	2	0	110	0	0	69	0	69	22	137	0	1	160	345
Total Volume	9	6	4	6	25	1	448	16	0	465	17	0	274	3	294	101	489	0	1	591	1375
% App. Total	36	24	16	24		0.2	96.3	3.4	0		5.8	0	93.2	1		17.1	82.7	0	0.2		
PHF	.563	.500	.333	.750	.568	.250	.875	.571	.000	.861	.708	.000	.878	.375	.886	.935	.892	.000	.250	.923	.950





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File Name : 5\_20\_09\_James\_Oswego\_Both

Site Code : 00000004

Start Date : 5/20/2009

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## Groups Printed- Bicycles and Pedestr

	Driveway (Parking Lot) Southbound Approach					James St Westbound Approach					Oswego Blvd Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	3	3	0	1	0	0	1	5
07:15 AM	0	0	0	0	0	0	0	0	5	5	0	0	0	5	5	0	1	0	1	2	12
07:30 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	7	7	0	0	0	0	0	10
07:45 AM	0	0	0	2	2	0	1	0	7	8	0	0	0	3	3	0	1	0	2	3	16
Total	0	0	0	2	2	0	1	0	16	17	0	0	0	18	18	0	3	0	3	6	43
08:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	3
08:15 AM	0	0	0	0	0	0	2	0	6	8	0	1	0	5	6	0	0	0	3	3	17
08:30 AM	0	0	0	0	0	0	0	0	5	5	0	0	0	5	5	0	0	0	4	4	14
08:45 AM	0	0	0	0	0	0	0	0	4	4	0	0	0	5	5	0	0	0	3	3	12
Total	0	0	0	0	0	0	2	0	16	18	0	1	0	17	18	0	0	0	10	10	46
BREAK																					
04:00 PM	0	0	0	0	0	0	3	0	4	7	0	0	0	10	10	0	0	0	0	0	17
04:15 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	5	5	0	0	0	0	0	8
04:30 PM	0	0	0	0	0	0	2	0	8	10	0	0	0	5	5	0	1	0	1	2	17
04:45 PM	0	1	0	0	1	0	1	0	2	3	0	0	0	10	10	0	1	0	0	1	15
Total	0	1	0	0	1	0	6	0	17	23	0	0	0	30	30	0	2	0	1	3	57
05:00 PM	0	0	0	0	0	0	1	0	1	2	0	0	0	7	7	0	1	0	0	1	10
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	4	4	0	1	0	1	2	7
05:30 PM	0	0	0	0	0	0	1	0	3	4	0	1	0	6	7	0	2	0	0	2	13
05:45 PM	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	0	0	0	0	0	9
Total	0	0	0	0	0	0	5	0	5	10	0	1	0	23	24	0	4	0	1	5	39
Grand Total	0	1	0	2	3	0	14	0	54	68	0	2	0	88	90	0	9	0	15	24	185
Apprch %	0	33.3	0	66.7		0	20.6	0	79.4		0	2.2	0	97.8		0	37.5	0	62.5		
Total %	0	0.5	0	1.1	1.6	0	7.6	0	29.2	36.8	0	1.1	0	47.6	48.6	0	4.9	0	8.1	13	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

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File Name : 5\_20\_09\_James\_State\_Both

Site Code : 00000222

Start Date : 5/20/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles

	State St Southbound Approach					James St Westbound Approach					State St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	2	37	6	1	46	28	56	11	7	102	5	21	2	3	31	5	36	7	5	53	232
07:15 AM	4	61	15	2	82	25	69	14	8	116	4	17	4	4	29	7	73	17	0	97	324
07:30 AM	2	64	21	3	90	35	78	26	3	142	8	24	4	4	40	6	107	11	1	125	397
07:45 AM	6	87	33	1	127	30	85	33	2	150	9	40	6	2	57	8	123	9	0	140	474
Total	14	249	75	7	345	118	288	84	20	510	26	102	16	13	157	26	339	44	6	415	1427
08:00 AM	8	82	21	1	112	35	67	23	2	127	10	35	7	5	57	3	99	14	3	119	415
08:15 AM	3	71	33	2	109	33	96	37	2	168	13	44	9	11	77	8	91	10	6	115	469
08:30 AM	1	59	25	2	87	23	70	20	2	115	11	45	7	5	68	7	86	17	5	115	385
08:45 AM	4	40	35	5	84	27	85	24	7	143	10	46	3	11	70	2	114	8	1	125	422
Total	16	252	114	10	392	118	318	104	13	553	44	170	26	32	272	20	390	49	15	474	1691
04:00 PM	7	43	19	0	69	58	92	18	6	174	20	168	7	6	201	4	86	5	3	98	542
04:15 PM	7	53	15	0	75	40	72	16	4	132	23	142	6	2	173	4	92	10	1	107	487
04:30 PM	7	33	25	2	67	58	98	14	1	171	34	196	6	6	242	6	113	11	2	132	612
04:45 PM	6	41	20	2	69	41	83	14	2	140	26	202	5	1	234	2	85	12	0	99	542
Total	27	170	79	4	280	197	345	62	13	617	103	708	24	15	850	16	376	38	6	436	2183
05:00 PM	5	42	34	0	81	62	95	10	8	175	24	174	10	4	212	3	105	12	1	121	589
05:15 PM	3	35	20	0	58	50	88	13	4	155	19	122	11	2	154	2	103	17	0	122	489
05:30 PM	6	35	29	0	70	40	58	4	2	104	11	101	4	2	118	3	44	9	1	57	349
05:45 PM	5	32	18	3	58	50	50	11	3	114	17	76	2	0	95	0	78	6	1	85	352
Total	19	144	101	3	267	202	291	38	17	548	71	473	27	8	579	8	330	44	3	385	1779
Grand Total	76	815	369	24	1284	635	1242	288	63	2228	244	1453	93	68	1858	70	1435	175	30	1710	7080
Apprch %	5.9	63.5	28.7	1.9		28.5	55.7	12.9	2.8		13.1	78.2	5	3.7		4.1	83.9	10.2	1.8		
Total %	1.1	11.5	5.2	0.3	18.1	9	17.5	4.1	0.9	31.5	3.4	20.5	1.3	1	26.2	1	20.3	2.5	0.4	24.2	
Cars	76	803	363	24	1266	604	1231	282	61	2178	241	1434	91	68	1834	69	1404	173	30	1676	6954
% Cars	100	98.5	98.4	100	98.6	95.1	99.1	97.9	96.8	97.8	98.8	98.7	97.8	100	98.7	98.6	97.8	98.9	100	98	98.2
Heavy Vehicles	0	12	6	0	18	31	11	6	2	50	3	19	2	0	24	1	31	2	0	34	126
% Heavy Vehicles	0	1.5	1.6	0	1.4	4.9	0.9	2.1	3.2	2.2	1.2	1.3	2.2	0	1.3	1.4	2.2	1.1	0	2	1.8



# Syracuse Metropolitan Transportation Council

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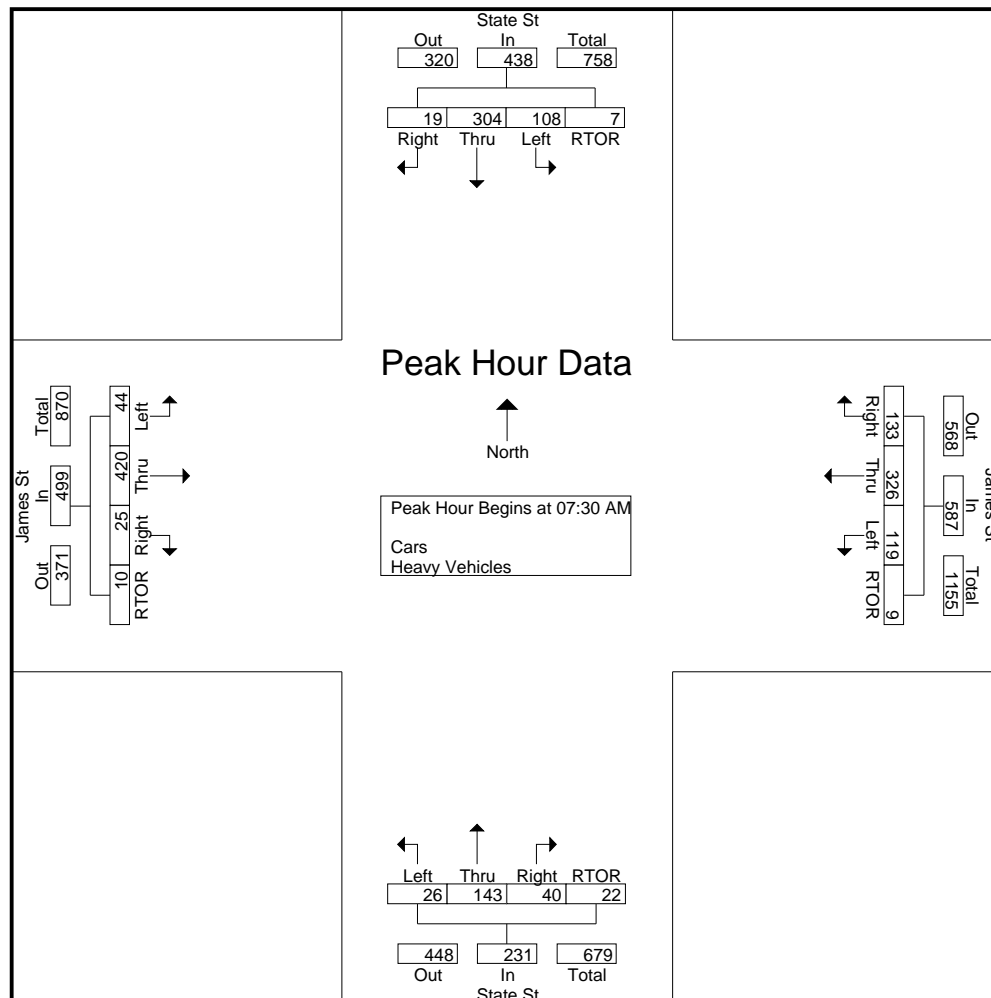
File Name : 5\_20\_09\_James\_State\_Both

Site Code : 00000222

Start Date : 5/20/2009

Page No : 2

	State St Southbound Approach					James St Westbound Approach					State St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	64	21	3	90	35	78	26	3	142	8	24	4	4	40	6	107	11	1	125	397
07:45 AM	6	87	33	1	127	30	85	33	2	150	9	40	6	2	57	8	123	9	0	140	474
08:00 AM	8	82	21	1	112	35	67	23	2	127	10	35	7	5	57	3	99	14	3	119	415
08:15 AM	3	71	33	2	109	33	96	37	2	168	13	44	9	11	77	8	91	10	6	115	469
Total Volume	19	304	108	7	438	133	326	119	9	587	40	143	26	22	231	25	420	44	10	499	1755
% App. Total	4.3	69.4	24.7	1.6		22.7	55.5	20.3	1.5		17.3	61.9	11.3	9.5		5	84.2	8.8	2		
PHF	.594	.874	.818	.583	.862	.950	.849	.804	.750	.874	.769	.813	.722	.500	.750	.781	.854	.786	.417	.891	.926







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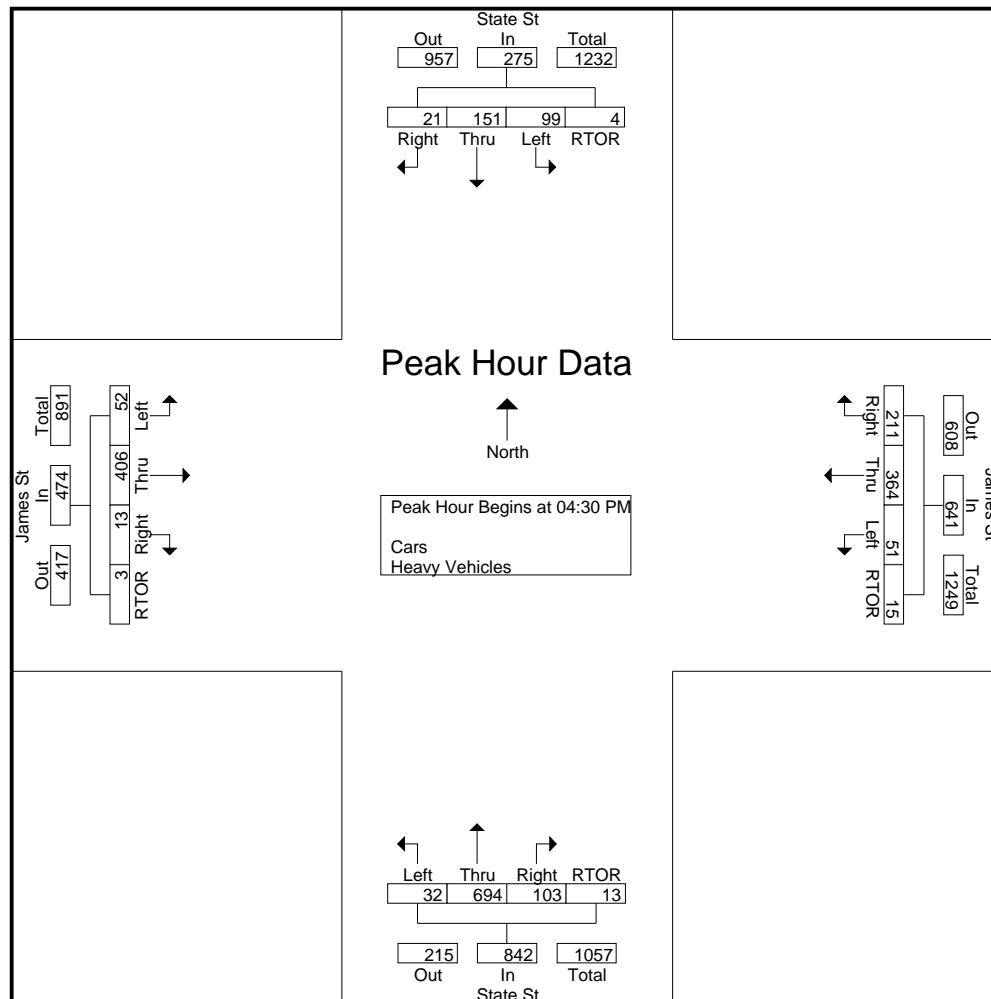
File Name : 5\_20\_09\_James\_State\_Both

Site Code : 00000222

Start Date : 5/20/2009

Page No : 3

	State St Southbound Approach					James St Westbound Approach					State St Northbound Approach					James St Eastbound Approach					
Start Time	Rig ht	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	7	33	25	2	67	58	98	14	1	171	34	196	6	6	242	6	113	11	2	132	612
04:45 PM	6	41	20	2	69	41	83	14	2	140	26	202	5	1	234	2	85	12	0	99	542
05:00 PM	5	42	34	0	81	62	95	10	8	175	24	174	10	4	212	3	105	12	1	121	589
05:15 PM	3	35	20	0	58	50	88	13	4	155	19	122	11	2	154	2	103	17	0	122	489
Total Volume	21	151	99	4	275	211	364	51	15	641	103	694	32	13	842	13	406	52	3	474	2232
% App. Total	7.6	54.9	36	1.5		32.9	56.8	8	2.3		12.2	82.4	3.8	1.5		2.7	85.7	11	0.6		
PHF	.750	.899	.728	.500	.849	.851	.929	.911	.469	.916	.757	.859	.727	.542	.870	.542	.898	.765	.375	.898	.912





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File Name : 5\_20\_09\_James\_State\_Both  
Site Code : 00000222  
Start Date : 5/20/2009  
Page No : 1

## Groups Printed- Bicycles and Pedestr

	State St Southbound Approach					James St Westbound Approach					State St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	5
BREAK																					
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
BREAK																					
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
BREAK																					
04:00 PM	0	0	0	4	4	0	3	0	4	7	0	0	0	3	3	0	0	0	0	0	14
04:15 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	9	9	0	0	0	0	0	12
04:30 PM	0	0	0	1	1	1	1	0	6	8	0	3	0	8	11	0	1	0	3	4	24
04:45 PM	0	0	0	3	3	0	0	0	7	7	0	0	0	4	4	0	0	0	2	2	16
Total	0	0	0	9	9	1	4	0	19	24	0	3	0	24	27	0	1	0	5	6	66
05:00 PM	0	0	0	2	2	0	0	0	7	7	0	0	0	7	7	0	0	0	2	2	18
05:15 PM	0	0	0	1	1	0	1	0	3	4	0	0	0	6	6	0	0	0	2	2	13
05:30 PM	0	0	0	2	2	0	0	0	2	2	1	0	0	3	4	0	2	0	5	7	15
05:45 PM	0	0	0	2	2	0	1	0	5	6	0	0	0	12	12	0	0	0	3	3	23
Total	0	0	0	7	7	0	2	0	17	19	1	0	0	28	29	0	2	0	12	14	69
Grand Total	0	1	0	16	17	1	9	0	36	46	1	3	0	52	56	0	7	0	17	24	143
Apprch %	0	5.9	0	94.1		2.2	19.6	0	78.3		1.8	5.4	0	92.9		0	29.2	0	70.8		
Total %	0	0.7	0	11.2	11.9	0.7	6.3	0	25.2	32.2	0.7	2.1	0	36.4	39.2	0	4.9	0	11.9	16.8	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_28\_09\_james\_ntownsend\_both

Site Code : 00791008

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	N Townsend St Southbound Approach					James St Westbound Approach					N Townsend St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	6	27	4	0	37	2	70	7	0	79	2	41	21	0	64	6	37	3	1	47	227
07:15 AM	4	25	4	0	33	6	71	10	1	88	4	43	16	0	63	7	59	5	1	72	256
07:30 AM	8	43	4	2	57	8	123	12	0	143	10	43	36	0	89	12	76	5	2	95	384
07:45 AM	4	48	7	2	61	8	132	8	0	148	10	58	26	1	95	18	119	3	0	140	444
Total	22	143	19	4	188	24	396	37	1	458	26	185	99	1	311	43	291	16	4	354	1311
08:00 AM	10	39	5	0	54	5	107	13	1	126	15	54	43	0	112	9	113	4	1	127	419
08:15 AM	5	37	6	0	48	15	139	11	1	166	17	62	40	0	119	15	111	1	0	127	460
08:30 AM	6	29	9	1	45	11	128	10	1	150	12	64	42	0	118	16	107	6	1	130	443
08:45 AM	6	21	4	0	31	7	146	20	0	173	15	47	42	2	106	24	106	3	2	135	445
Total	27	126	24	1	178	38	520	54	3	615	59	227	167	2	455	64	437	14	4	519	1767
04:00 PM	13	76	16	0	105	12	157	2	1	172	20	99	47	0	166	21	134	2	0	157	600
04:15 PM	6	53	8	1	68	15	154	9	0	178	30	94	64	2	190	19	129	8	2	158	594
04:30 PM	12	46	8	1	67	5	178	4	0	187	28	88	68	1	185	16	153	5	1	175	614
04:45 PM	8	50	9	0	67	7	166	11	1	185	19	106	56	4	185	18	145	6	0	169	606
Total	39	225	41	2	307	39	655	26	2	722	97	387	235	7	726	74	561	21	3	659	2414
05:00 PM	6	67	8	0	81	13	187	7	0	207	24	82	62	2	170	20	169	6	1	196	654
05:15 PM	10	45	10	0	65	14	150	15	1	180	22	71	56	0	149	14	165	12	0	191	585
05:30 PM	6	51	8	1	66	18	166	6	1	191	11	69	59	2	141	12	136	2	0	150	548
05:45 PM	7	34	14	0	55	11	137	4	0	152	14	52	66	3	135	19	121	3	1	144	486
Total	29	197	40	1	267	56	640	32	2	730	71	274	243	7	595	65	591	23	2	681	2273
Grand Total	117	691	124	8	940	157	2211	149	8	2525	253	1073	744	17	2087	246	1880	74	13	2213	7765
Apprch %	12.4	73.5	13.2	0.9		6.2	87.6	5.9	0.3		12.1	51.4	35.6	0.8		11.1	85	3.3	0.6		
Total %	1.5	8.9	1.6	0.1	12.1	2	28.5	1.9	0.1	32.5	3.3	13.8	9.6	0.2	26.9	3.2	24.2	1	0.2	28.5	
Cars	116	686	124	8	934	156	2167	149	8	2480	251	1060	738	17	2066	245	1840	73	13	2171	7651
% Cars	99.1	99.3	100	100	99.4	99.4	98	100	100	98.2	99.2	98.8	99.2	100	99	99.6	97.9	98.6	100	98.1	98.5
Heavy Vehicles and B	1	5	0	0	6	1	44	0	0	45	2	13	6	0	21	1	40	1	0	42	114
% Heavy Vehicles and B	0.9	0.7	0	0	0.6	0.6	2	0	0	1.8	0.8	1.2	0.8	0	1	0.4	2.1	1.4	0	1.9	1.5



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
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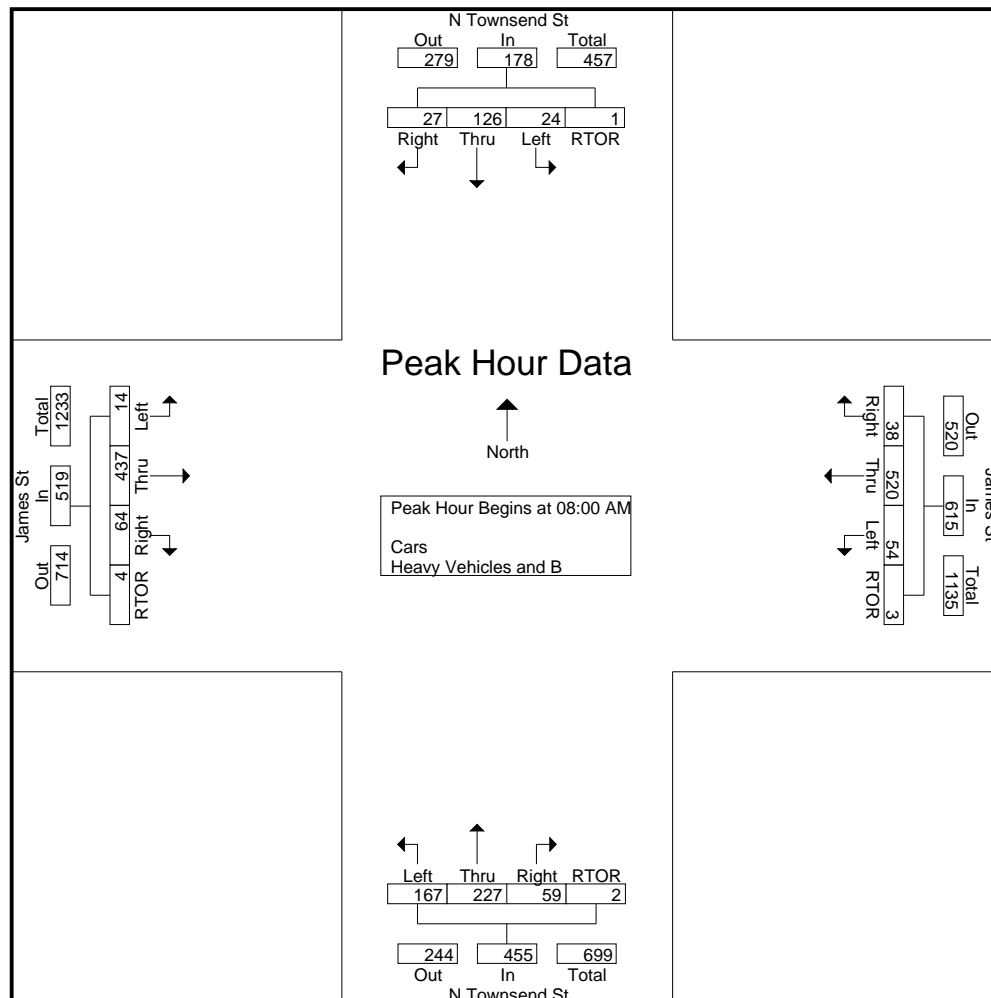
File Name : 5\_28\_09\_james\_ntownsend\_both

Site Code : 00791008

Start Date : 5/28/2009

Page No : 2

	N Townsend St Southbound Approach					James St Westbound Approach					N Townsend St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	10	39	5	0	54	5	107	13	1	126	15	54	43	0	112	9	113	4	1	127	419
08:15 AM	5	37	6	0	48	15	139	11	1	166	17	62	40	0	119	15	111	1	0	127	460
08:30 AM	6	29	9	1	45	11	128	10	1	150	12	64	42	0	118	16	107	6	1	130	443
08:45 AM	6	21	4	0	31	7	146	20	0	173	15	47	42	2	106	24	106	3	2	135	445
Total Volume	27	126	24	1	178	38	520	54	3	615	59	227	167	2	455	64	437	14	4	519	1767
% App. Total	15.2	70.8	13.5	0.6		6.2	84.6	8.8	0.5		13	49.9	36.7	0.4		12.3	84.2	2.7	0.8		
PHF	.675	.808	.667	.250	.824	.633	.890	.675	.750	.889	.868	.887	.971	.250	.956	.667	.967	.583	.500	.961	.960





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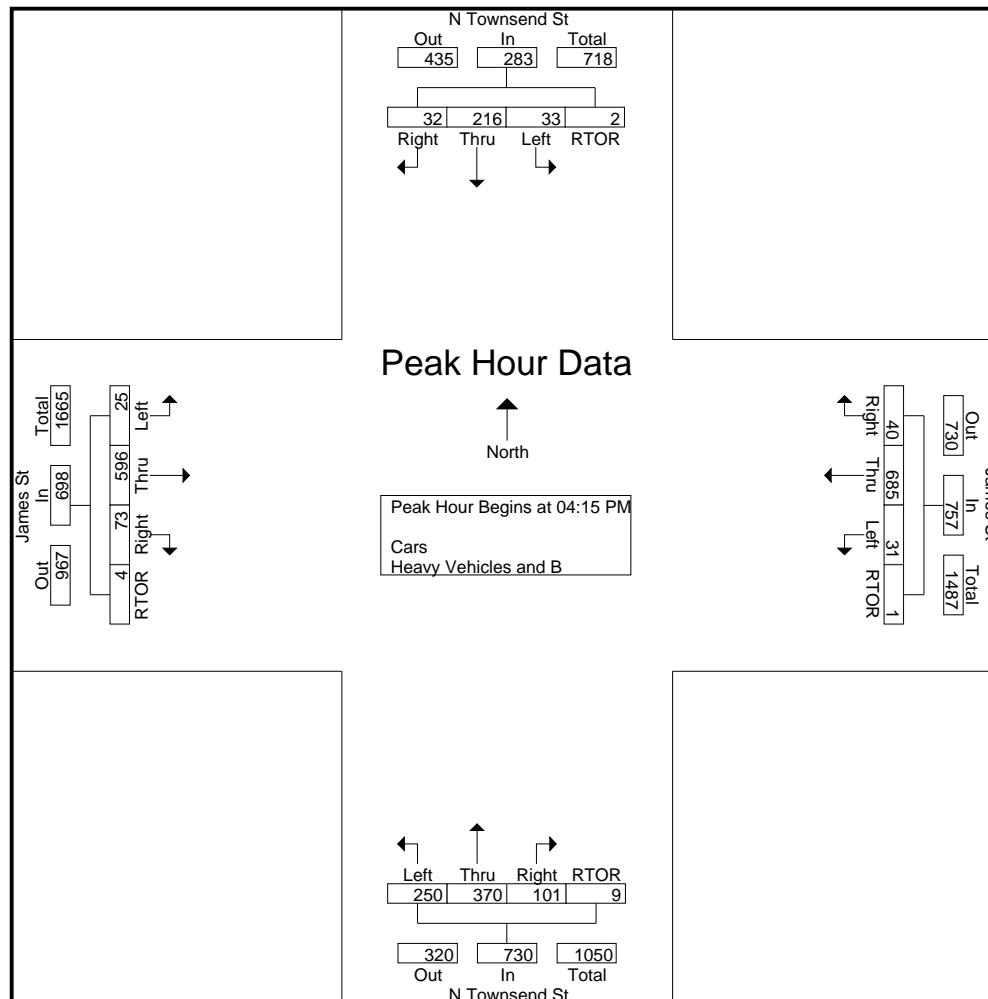
File Name : 5\_28\_09\_james\_ntownsend\_both

Site Code : 00791008

Start Date : 5/28/2009

Page No : 3

	N Townsend St Southbound Approach					James St Westbound Approach					N Townsend St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	6	53	8	1	68	15	154	9	0	178	30	94	64	2	190	19	129	8	2	158	594
04:30 PM	12	46	8	1	67	5	178	4	0	187	28	88	68	1	185	16	153	5	1	175	614
04:45 PM	8	50	9	0	67	7	166	11	1	185	19	106	56	4	185	18	145	6	0	169	606
05:00 PM	6	67	8	0	81	13	187	7	0	207	24	82	62	2	170	20	169	6	1	196	654
Total Volume	32	216	33	2	283	40	685	31	1	757	101	370	250	9	730	73	596	25	4	698	2468
% App. Total	11.3	76.3	11.7	0.7		5.3	90.5	4.1	0.1		13.8	50.7	34.2	1.2		10.5	85.4	3.6	0.6		
PHF	.667	.806	.917	.500	.873	.667	.916	.705	.250	.914	.842	.873	.919	.563	.961	.913	.882	.781	.500	.890	.943





# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_28\_09\_james\_ntownsend\_both

Site Code : 00791008

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Bicyclists and Pedes

	N Townsend St Southbound Approach					James St Westbound Approach					N Townsend St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	3	3	0	0	0	1	1	7
07:15 AM	0	0	0	6	6	0	0	0	0	0	0	0	0	7	7	0	2	0	0	2	15
07:30 AM	0	0	0	3	3	0	1	0	0	1	0	0	0	4	4	0	0	0	1	1	9
07:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	4	4	0	1	0	1	2	7
Total	0	0	0	12	12	0	1	0	1	2	0	0	0	18	18	0	3	0	3	6	38
08:00 AM	0	0	0	2	2	0	0	0	2	2	0	0	0	3	3	0	1	0	4	5	12
08:15 AM	0	0	0	3	3	0	0	0	3	3	0	0	0	4	4	0	0	0	3	3	13
08:30 AM	0	0	0	3	3	0	1	0	2	3	0	0	0	4	4	0	0	0	7	7	17
08:45 AM	0	0	0	5	5	0	0	0	2	2	0	0	0	4	4	0	0	0	8	8	19
Total	0	0	0	13	13	0	1	0	9	10	0	0	0	15	15	0	1	0	22	23	61
04:00 PM	0	0	0	6	6	0	1	0	3	4	0	0	0	4	4	0	2	0	1	3	17
04:15 PM	0	0	0	9	9	0	0	0	4	4	0	0	0	8	8	0	0	0	1	1	22
04:30 PM	0	0	0	3	3	0	3	0	0	3	0	0	0	5	5	0	1	0	2	3	14
04:45 PM	0	0	0	4	4	0	2	0	2	4	0	0	0	5	5	0	0	0	3	3	16
Total	0	0	0	22	22	0	6	0	9	15	0	0	0	22	22	0	3	0	7	10	69
05:00 PM	0	0	0	4	4	0	2	0	2	4	0	0	0	3	3	0	0	0	2	2	13
05:15 PM	0	0	0	5	5	0	0	0	1	1	0	0	0	1	1	0	1	0	4	5	12
05:30 PM	0	0	0	0	0	0	0	0	2	2	0	2	0	8	10	0	2	0	5	7	19
05:45 PM	0	0	0	9	9	0	1	0	1	2	0	1	0	5	6	0	0	0	2	2	19
Total	0	0	0	18	18	0	3	0	6	9	0	3	0	17	20	0	3	0	13	16	63
Grand Total	0	0	0	65	65	0	11	0	25	36	0	3	0	72	75	0	10	0	45	55	231
Apprch %	0	0	0	100		0	30.6	0	69.4		0	4	0	96		0	18.2	0	81.8		
Total %	0	0	0	28.1	28.1	0	4.8	0	10.8	15.6	0	1.3	0	31.2	32.5	0	4.3	0	19.5	23.8	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_28\_09\_James\_NMcBride\_Both

Site Code : 00791007

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	N McBride St Southbound Approach					James St Westbound Approach					N McBride St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	1	0	1	0	2	4	41	1	0	46	1	6	0	1	8	0	85	5	0	90	146
07:15 AM	1	2	1	1	5	1	66	0	0	67	0	3	2	0	5	3	84	0	1	88	165
07:30 AM	3	6	2	0	11	1	90	0	0	91	1	17	1	0	19	3	152	9	0	164	285
07:45 AM	4	6	3	0	13	3	124	1	0	128	4	7	3	2	16	5	126	9	1	141	298
Total	9	14	7	1	31	9	321	2	0	332	6	33	6	3	48	11	447	23	2	483	894
08:00 AM	1	5	1	1	8	5	131	1	1	138	2	16	1	1	20	2	134	19	0	155	321
08:15 AM	4	5	5	2	16	6	123	0	0	129	0	9	5	0	14	1	172	11	0	184	343
08:30 AM	2	1	4	0	7	5	113	2	0	120	4	3	4	1	12	2	140	9	0	151	290
08:45 AM	2	3	4	1	10	5	121	2	0	128	1	11	4	1	17	3	169	10	0	182	337
Total	9	14	14	4	41	21	488	5	1	515	7	39	14	3	63	8	615	49	0	672	1291
**BREAK**																					
03:45 PM	14	24	15	6	59	8	157	4	1	170	0	22	1	0	23	4	166	11	1	182	434
Total	14	24	15	6	59	8	157	4	1	170	0	22	1	0	23	4	166	11	1	182	434
04:00 PM	13	15	12	5	45	8	150	1	1	160	1	16	4	0	21	3	145	9	1	158	384
04:15 PM	9	20	12	1	42	14	175	3	2	194	1	12	3	1	17	2	171	9	0	182	435
04:30 PM	5	19	21	1	46	7	165	2	0	174	0	11	1	0	12	3	158	11	0	172	404
04:45 PM	16	19	15	2	52	10	193	3	3	209	1	16	0	0	17	6	173	23	1	203	481
Total	43	73	60	9	185	39	683	9	6	737	3	55	8	1	67	14	647	52	2	715	1704
05:00 PM	9	20	14	4	47	11	186	2	1	200	3	15	3	1	22	4	154	7	0	165	434
05:15 PM	6	7	8	4	25	8	142	4	2	156	2	12	2	2	18	4	180	5	0	189	388
05:30 PM	11	4	4	5	24	4	140	2	1	147	2	17	1	2	22	2	149	10	1	162	355
Grand Total	101	156	122	33	412	100	2117	28	12	2257	23	193	35	12	263	47	2358	157	6	2568	5500
Apprch %	24.5	37.9	29.6	8		4.4	93.8	1.2	0.5		8.7	73.4	13.3	4.6		1.8	91.8	6.1	0.2		
Total %	1.8	2.8	2.2	0.6	7.5	1.8	38.5	0.5	0.2	41	0.4	3.5	0.6	0.2	4.8	0.9	42.9	2.9	0.1	46.7	
Cars	101	152	121	33	407	99	2070	28	11	2208	22	188	34	12	256	46	2300	155	6	2507	5378
% Cars	100	97.4	99.2	100	98.8	99	97.8	100	91.7	97.8	95.7	97.4	97.1	100	97.3	97.9	97.5	98.7	100	97.6	97.8
Heavy Vehicles and B	0	4	1	0	5	1	47	0	1	49	1	5	1	0	7	1	58	2	0	61	122
% Heavy Vehicles and B	0	2.6	0.8	0	1.2	1	2.2	0	8.3	2.2	4.3	2.6	2.9	0	2.7	2.1	2.5	1.3	0	2.4	2.2



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

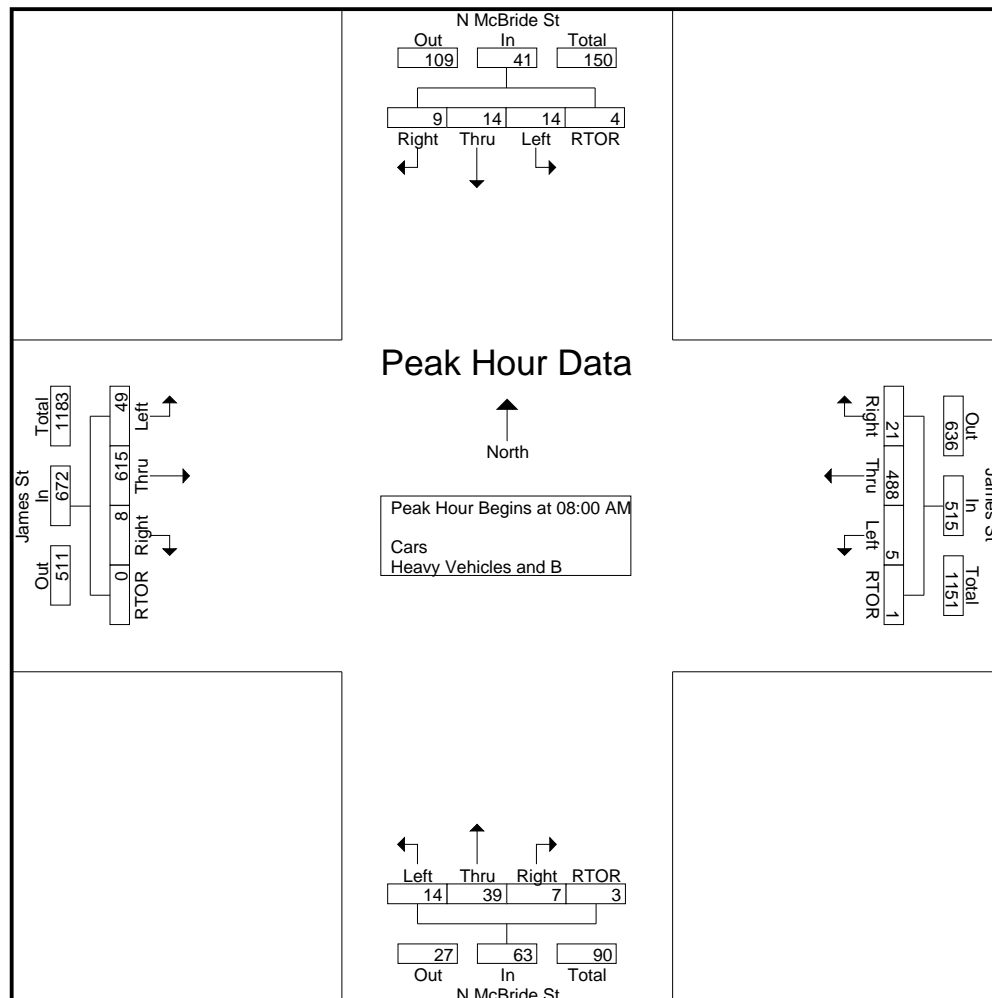
File Name : 5\_28\_09\_James\_NMcBride\_Both

Site Code : 00791007

Start Date : 5/28/2009

Page No : 2

	N McBride St Southbound Approach					James St Westbound Approach					N McBride St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	5	1	1	8	5	131	1	1	138	2	16	1	1	20	2	134	19	0	155	321
08:15 AM	4	5	5	2	16	6	123	0	0	129	0	9	5	0	14	1	172	11	0	184	343
08:30 AM	2	1	4	0	7	5	113	2	0	120	4	3	4	1	12	2	140	9	0	151	290
08:45 AM	2	3	4	1	10	5	121	2	0	128	1	11	4	1	17	3	169	10	0	182	337
Total Volume	9	14	14	4	41	21	488	5	1	515	7	39	14	3	63	8	615	49	0	672	1291
% App. Total	22	34.1	34.1	9.8		4.1	94.8	1	0.2		11.1	61.9	22.2	4.8		1.2	91.5	7.3	0		
PHF	.563	.700	.700	.500	.641	.875	.931	.625	.250	.933	.438	.609	.700	.750	.788	.667	.894	.645	.000	.913	.941







# Syracuse Metropolitan Transportation Council

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Syracuse, NY 13202  
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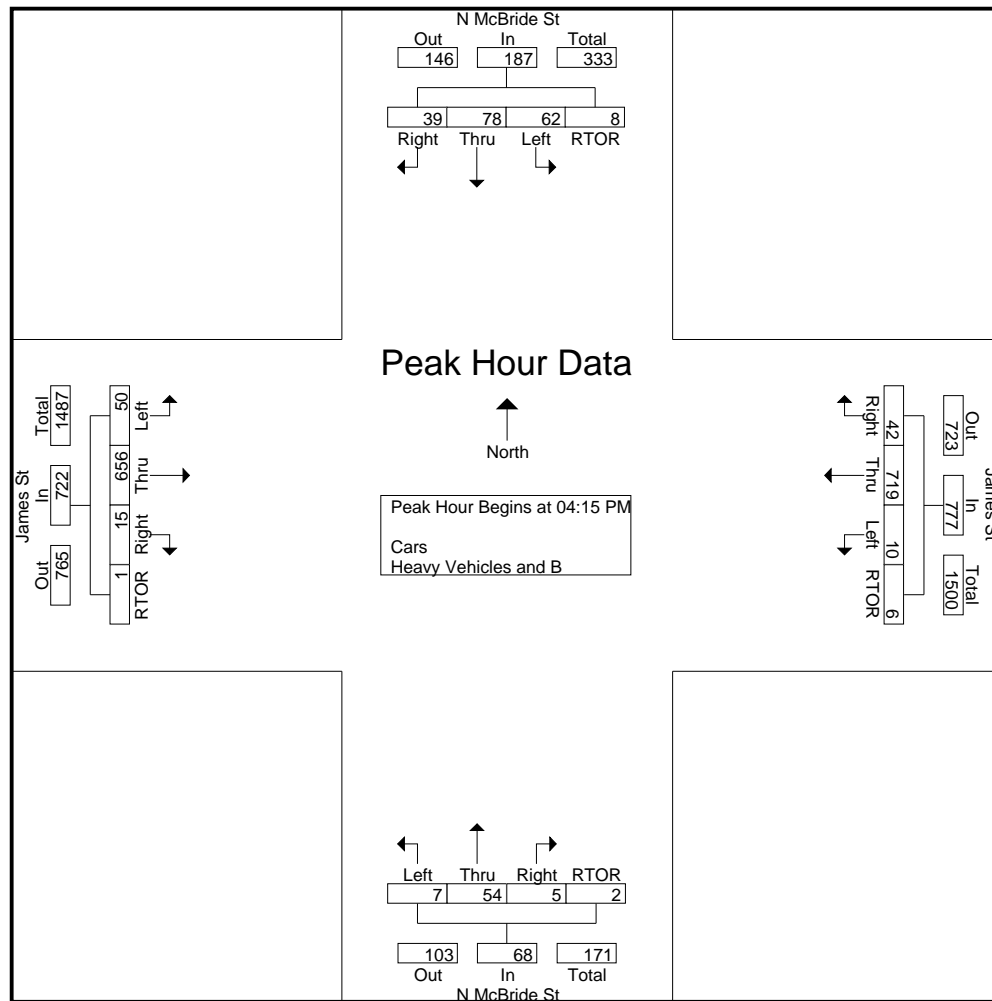
File Name : 5\_28\_09\_James\_NMcBride\_Both

Site Code : 00791007

Start Date : 5/28/2009

Page No : 3

	N McBride St Southbound Approach					James St Westbound Approach					N McBride St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	9	20	12	1	42	14	175	3	2	194	1	12	3	1	17	2	171	9	0	182	435
04:30 PM	5	19	21	1	46	7	165	2	0	174	0	11	1	0	12	3	158	11	0	172	404
04:45 PM	16	19	15	2	52	10	193	3	3	209	1	16	0	0	17	6	173	23	1	203	481
05:00 PM	9	20	14	4	47	11	186	2	1	200	3	15	3	1	22	4	154	7	0	165	434
Total Volume	39	78	62	8	187	42	719	10	6	777	5	54	7	2	68	15	656	50	1	722	1754
% App. Total	20.9	41.7	33.2	4.3		5.4	92.5	1.3	0.8		7.4	79.4	10.3	2.9		2.1	90.9	6.9	0.1		
PHF	.609	.975	.738	.500	.899	.750	.931	.833	.500	.929	.417	.844	.583	.500	.773	.625	.948	.543	.250	.889	.912





# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_28\_09\_James\_NMcBride\_Both

Site Code : 00791007

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Bicyclists and Pedes

	N McBride St Southbound Approach					James St Westbound Approach					N McBride St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	4	4	0	0	0	1	1	10
07:15 AM	0	0	0	4	4	0	2	0	1	3	0	0	0	6	6	0	0	0	1	1	14
07:30 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	5	5	0	1	0	1	2	9
07:45 AM	0	0	0	3	3	0	1	0	1	2	0	0	0	1	1	0	0	0	0	0	6
Total	0	0	0	14	14	0	3	0	2	5	0	0	0	16	16	0	1	0	3	4	39
08:00 AM	0	0	0	1	1	0	1	0	1	2	0	0	0	4	4	0	0	0	0	0	7
08:15 AM	0	0	0	4	4	0	1	0	0	1	0	0	0	8	8	0	0	0	0	0	13
08:30 AM	0	0	0	9	9	0	1	0	0	1	0	0	0	1	1	0	1	0	0	1	12
08:45 AM	0	0	0	7	7	0	0	0	1	1	0	0	0	8	8	0	0	0	1	1	17
Total	0	0	0	21	21	0	3	0	2	5	0	0	0	21	21	0	1	0	1	2	49
03:45 PM	0	0	1	4	5	0	2	0	1	3	0	0	0	6	6	0	0	0	1	1	15
Total	0	0	1	4	5	0	2	0	1	3	0	0	0	6	6	0	0	0	1	1	15
04:00 PM	0	0	0	8	8	0	0	0	1	1	0	0	0	8	8	0	0	0	1	1	18
04:15 PM	0	0	0	10	10	0	1	0	0	1	0	0	0	3	3	0	3	0	0	3	17
04:30 PM	0	0	0	8	8	0	1	0	0	1	0	0	0	3	3	0	3	0	2	5	17
04:45 PM	0	0	0	5	5	0	1	0	1	2	0	0	0	8	8	0	2	0	1	3	18
Total	0	0	0	31	31	0	3	0	2	5	0	0	0	22	22	0	8	0	4	12	70
05:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	8	8	0	0	0	0	0	9
05:15 PM	0	0	0	6	6	0	2	0	0	2	0	0	0	0	0	0	0	0	4	4	12
05:30 PM	0	0	0	4	4	0	0	0	1	1	0	0	0	8	8	0	1	0	1	2	15
Grand Total	0	0	1	80	81	0	13	0	9	22	0	0	0	81	81	0	11	0	14	25	209
Apprch %	0	0	1.2	98.8		0	59.1	0	40.9		0	0	0	100		0	44	0	56		
Total %	0	0	0.5	38.3	38.8	0	6.2	0	4.3	10.5	0	0	0	38.8	38.8	0	5.3	0	6.7	12	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_28\_09\_James\_Catherine\_BOTH

Site Code : 00003434

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	Catherine St Southbound Approach					James St Westbound Approach					Catherine St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	4	11	1	3	19	1	79	8	1	89	3	12	0	0	15	3	36	1	0	40	163
07:15 AM	4	18	2	1	25	2	86	14	2	104	8	12	1	3	24	5	55	4	0	64	217
07:30 AM	10	24	2	2	38	2	129	16	2	149	15	13	5	8	41	3	88	1	0	92	320
07:45 AM	7	27	1	3	38	2	148	27	1	178	8	18	7	3	36	6	109	3	0	118	370
Total	25	80	6	9	120	7	442	65	6	520	34	55	13	14	116	17	288	9	0	314	1070
08:00 AM	5	27	0	0	32	1	128	23	1	153	13	14	11	3	41	8	111	7	1	127	353
08:15 AM	9	26	0	1	36	3	163	27	3	196	14	15	12	2	43	9	106	1	0	116	391
08:30 AM	9	26	1	4	40	2	139	18	0	159	12	19	9	3	43	13	106	1	1	121	363
08:45 AM	7	31	0	1	39	2	166	15	0	183	13	20	11	2	46	12	104	2	1	119	387
Total	30	110	1	6	147	8	596	83	4	691	52	68	43	10	173	42	427	11	3	483	1494
**BREAK**																					
04:00 PM	8	26	6	3	43	2	139	13	5	159	18	36	21	1	76	12	147	6	0	165	443
04:15 PM	13	19	1	3	36	3	132	15	5	155	15	41	20	3	79	14	151	10	4	179	449
04:30 PM	5	23	3	1	32	5	146	16	10	177	15	43	22	0	80	10	166	9	1	186	475
04:45 PM	5	29	0	0	34	4	135	17	4	160	12	49	21	0	82	10	167	3	1	181	457
Total	31	97	10	7	145	14	552	61	24	651	60	169	84	4	317	46	631	28	6	711	1824
05:00 PM	6	29	1	1	37	10	148	19	2	179	16	44	27	4	91	7	173	9	0	189	496
05:15 PM	9	32	2	2	45	4	138	27	0	169	14	42	23	2	81	8	184	6	0	198	493
05:30 PM	8	33	1	0	42	4	149	19	0	172	18	38	21	1	78	8	151	4	0	163	455
05:45 PM	5	29	3	0	37	6	133	8	0	147	19	37	17	3	76	9	140	5	0	154	414
Total	28	123	7	3	161	24	568	73	2	667	67	161	88	10	326	32	648	24	0	704	1858
Grand Total	114	410	24	25	573	53	2158	282	36	2529	213	453	228	38	932	137	1994	72	9	2212	6246
Apprch %	19.9	71.6	4.2	4.4		2.1	85.3	11.2	1.4		22.9	48.6	24.5	4.1		6.2	90.1	3.3	0.4		
Total %	1.8	6.6	0.4	0.4	9.2	0.8	34.6	4.5	0.6	40.5	3.4	7.3	3.7	0.6	14.9	2.2	31.9	1.2	0.1	35.4	
Cars	113	394	23	24	554	51	2110	279	6	2446	208	442	224	37	911	135	1955	72	9	2171	6082
% Cars	99.1	96.1	95.8	96	96.7	96.2	97.8	98.9	16.7	96.7	97.7	97.6	98.2	97.4	97.7	98.5	98	100	100	98.1	97.4
Heavy Vehicles and B	1	16	1	1	19	2	48	3	30	83	5	11	4	1	21	2	39	0	0	41	164
% Heavy Vehicles and B	0.9	3.9	4.2	4	3.3	3.8	2.2	1.1	83.3	3.3	2.3	2.4	1.8	2.6	2.3	1.5	2	0	0	1.9	2.6



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

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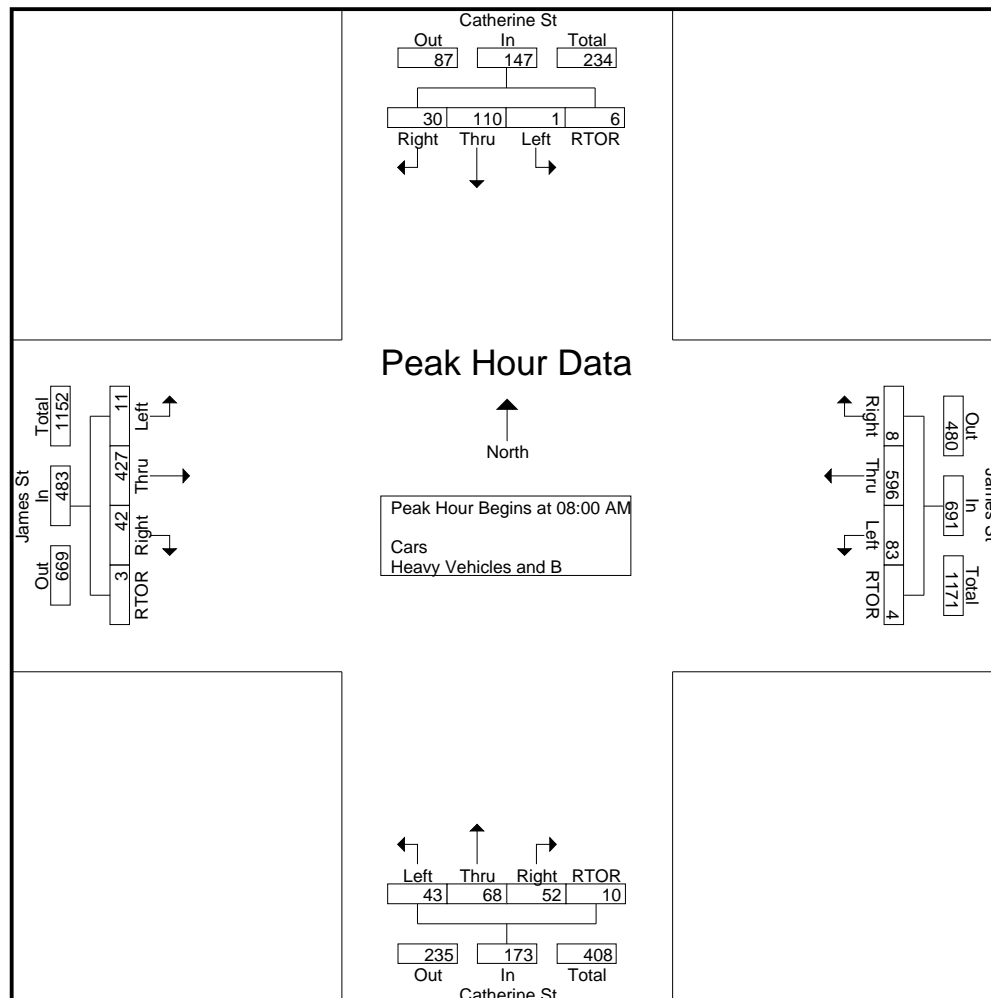
File Name : 5\_28\_09\_James\_Catherine\_BOTH

Site Code : 00003434

Start Date : 5/28/2009

Page No : 2

	Catherine St Southbound Approach					James St Westbound Approach					Catherine St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	5	27	0	0	32	1	128	23	1	153	13	14	11	3	41	8	111	7	1	127	353
08:15 AM	9	26	0	1	36	3	163	27	3	196	14	15	12	2	43	9	106	1	0	116	391
08:30 AM	9	26	1	4	40	2	139	18	0	159	12	19	9	3	43	13	106	1	1	121	363
08:45 AM	7	31	0	1	39	2	166	15	0	183	13	20	11	2	46	12	104	2	1	119	387
Total Volume	30	110	1	6	147	8	596	83	4	691	52	68	43	10	173	42	427	11	3	483	1494
% App. Total	20.4	74.8	0.7	4.1		1.2	86.3	12	0.6		30.1	39.3	24.9	5.8		8.7	88.4	2.3	0.6		
PHF	.833	.887	.250	.375	.919	.667	.898	.769	.333	.881	.929	.850	.896	.833	.940	.808	.962	.393	.750	.951	.955





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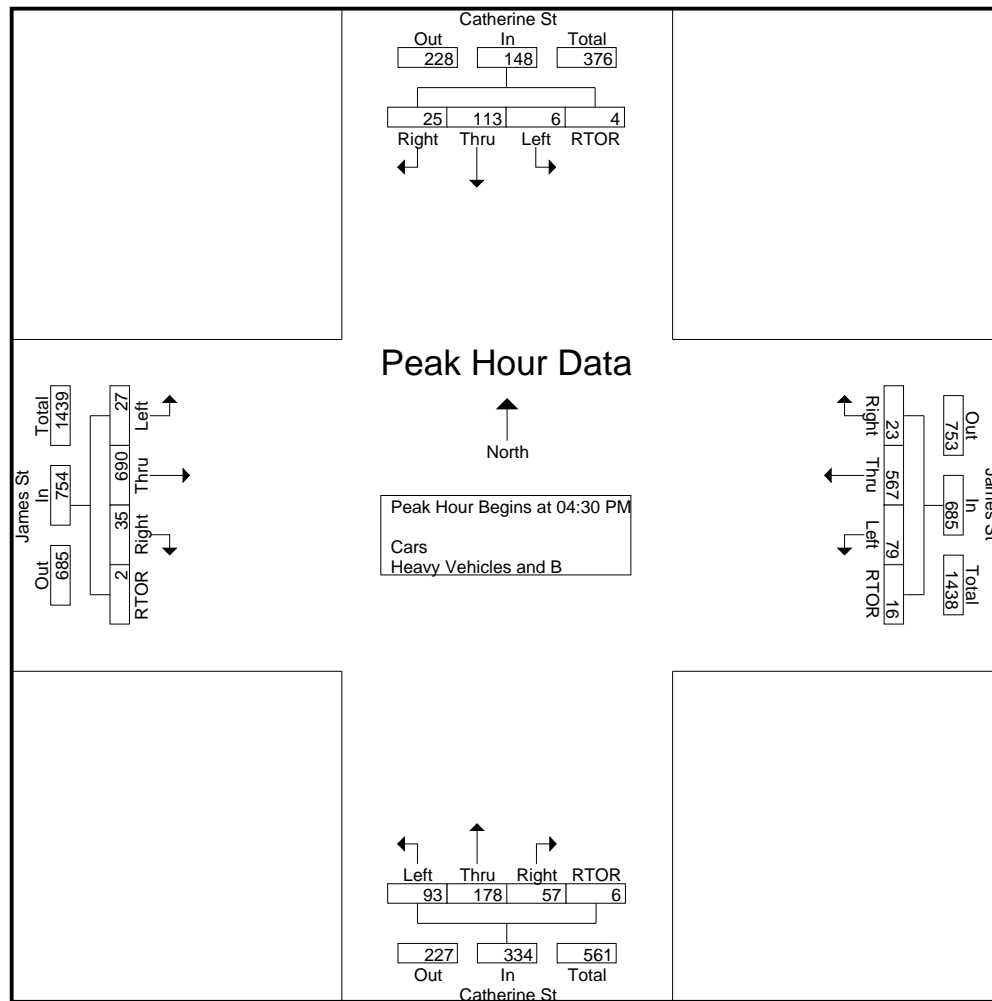
File Name : 5\_28\_09\_James\_Catherine\_BOTH

Site Code : 00003434

Start Date : 5/28/2009

Page No : 3

	Catherine St Southbound Approach					James St Westbound Approach					Catherine St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	23	3	1	32	5	146	16	10	177	15	43	22	0	80	10	166	9	1	186	475
04:45 PM	5	29	0	0	34	4	135	17	4	160	12	49	21	0	82	10	167	3	1	181	457
05:00 PM	6	29	1	1	37	10	148	19	2	179	16	44	27	4	91	7	173	9	0	189	496
05:15 PM	9	32	2	2	45	4	138	27	0	169	14	42	23	2	81	8	184	6	0	198	493
Total Volume	25	113	6	4	148	23	567	79	16	685	57	178	93	6	334	35	690	27	2	754	1921
% App. Total	16.9	76.4	4.1	2.7		3.4	82.8	11.5	2.3		17.1	53.3	27.8	1.8		4.6	91.5	3.6	0.3		
PHF	.694	.883	.500	.500	.822	.575	.958	.731	.400	.957	.891	.908	.861	.375	.918	.875	.938	.750	.500	.952	.968





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File Name : 5\_28\_09\_James\_Catherine\_BOTH

Site Code : 00003434

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Bicyclists and Pedes

	Catherine St Southbound Approach					James St Westbound Approach					Catherine St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	2	2	0	0	0	3	3	0	0	0	4	4	0	0	0	2	2	11
07:15 AM	0	0	0	6	6	0	0	0	3	3	0	0	0	5	5	0	1	0	1	2	16
07:30 AM	0	1	0	4	5	0	1	0	0	1	0	0	0	4	4	0	0	1	4	5	15
07:45 AM	0	0	0	1	1	0	1	0	2	3	0	1	0	0	1	0	0	0	3	3	8
Total	0	1	0	13	14	0	2	0	8	10	0	1	0	13	14	0	1	1	10	12	50
08:00 AM	0	1	0	5	6	0	0	0	4	4	0	0	0	2	2	0	0	1	6	7	19
08:15 AM	0	0	0	5	5	0	0	0	3	3	0	0	0	3	3	0	0	0	5	5	16
08:30 AM	0	1	0	1	2	0	1	0	2	3	0	1	0	7	8	0	0	0	2	2	15
08:45 AM	0	1	0	7	8	0	0	0	6	6	0	1	0	7	8	0	1	0	3	4	26
Total	0	3	0	18	21	0	1	0	15	16	0	2	0	19	21	0	1	1	16	18	76
04:00 PM	0	0	0	3	3	0	0	0	7	7	0	1	0	3	4	0	2	0	3	5	19
04:15 PM	0	0	0	2	2	0	0	0	3	3	0	0	0	5	5	0	0	0	8	8	18
04:30 PM	0	0	0	1	1	0	4	0	8	12	0	0	0	4	4	0	1	0	6	7	24
04:45 PM	0	0	0	2	2	0	2	0	2	4	0	0	0	2	2	0	2	0	1	3	11
Total	0	0	0	8	8	0	6	0	20	26	0	1	0	14	15	0	5	0	18	23	72
05:00 PM	0	1	0	5	6	0	1	0	6	7	0	0	0	5	5	0	1	0	4	5	23
05:15 PM	0	1	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	1	6	7	12
05:30 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	1	1	0	1	0	2	3	7
05:45 PM	0	1	0	2	3	0	0	0	8	8	0	0	0	2	2	0	0	0	3	3	16
Total	0	3	0	11	14	0	1	0	17	18	0	0	0	8	8	0	2	1	15	18	58
Grand Total	0	7	0	50	57	0	10	0	60	70	0	4	0	54	58	0	9	3	59	71	256
Apprch %	0	12.3	0	87.7		0	14.3	0	85.7		0	6.9	0	93.1		0	12.7	4.2	83.1		
Total %	0	2.7	0	19.5	22.3	0	3.9	0	23.4	27.3	0	1.6	0	21.1	22.7	0	3.5	1.2	23	27.7	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

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File Name : 5\_28\_09\_James\_Lodi\_Both

Site Code : 00007777

Start Date : 5/28/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	Lodi St Southbound Approach					James St Westbound Approach					Lodi St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	2	34	5	1	42	10	84	0	1	95	2	22	3	0	27	5	40	0	0	45	209
07:15 AM	5	42	1	1	49	2	91	4	0	97	6	27	1	4	38	0	64	0	0	64	248
07:30 AM	0	60	4	0	64	13	133	6	0	152	10	42	8	0	60	3	83	0	0	86	362
07:45 AM	3	59	12	1	75	12	169	3	0	184	12	54	7	1	74	5	110	0	1	116	449
Total	10	195	22	3	230	37	477	13	1	528	30	145	19	5	199	13	297	0	1	311	1268
08:00 AM	6	50	10	1	67	8	150	8	1	167	13	47	7	1	68	4	113	1	2	120	422
08:15 AM	3	58	6	0	67	8	183	2	1	194	8	58	5	0	71	7	103	0	0	110	442
08:30 AM	3	43	9	0	55	15	146	6	0	167	16	64	9	3	92	8	81	4	2	95	409
08:45 AM	9	56	8	1	74	13	167	11	0	191	11	54	7	1	73	8	109	5	0	122	460
Total	21	207	33	2	263	44	646	27	2	719	48	223	28	5	304	27	406	10	4	447	1733
**BREAK**																					
04:00 PM	6	64	15	2	87	16	129	6	1	152	23	125	11	0	159	17	143	4	1	165	563
04:15 PM	4	44	11	0	59	18	123	6	0	147	24	131	12	0	167	9	145	3	3	160	533
04:30 PM	2	50	9	0	61	15	105	3	1	124	16	107	9	2	134	12	133	4	0	149	468
04:45 PM	2	46	9	1	58	16	120	3	0	139	25	106	5	1	137	6	135	2	0	143	477
Total	14	204	44	3	265	65	477	18	2	562	88	469	37	3	597	44	556	13	4	617	2041
05:00 PM	7	36	10	0	53	17	139	0	0	156	24	90	20	1	135	10	169	2	2	183	527
05:15 PM	7	55	11	1	74	24	147	5	1	177	23	122	13	0	158	14	184	3	2	203	612
05:30 PM	10	57	10	0	77	14	140	6	0	160	23	85	10	0	118	3	137	4	0	144	499
05:45 PM	1	47	13	0	61	16	116	8	1	141	15	87	8	3	113	7	133	2	1	143	458
Total	25	195	44	1	265	71	542	19	2	634	85	384	51	4	524	34	623	11	5	673	2096
Grand Total	70	801	143	9	1023	217	2142	77	7	2443	251	1221	135	17	1624	118	1882	34	14	2048	7138
Apprch %	6.8	78.3	14	0.9		8.9	87.7	3.2	0.3		15.5	75.2	8.3	1		5.8	91.9	1.7	0.7		
Total %	1	11.2	2	0.1	14.3	3	30	1.1	0.1	34.2	3.5	17.1	1.9	0.2	22.8	1.7	26.4	0.5	0.2	28.7	
Cars	69	771	141	9	990	211	2093	75	7	2386	244	1181	128	16	1569	117	1835	34	14	2000	6945
% Cars	98.6	96.3	98.6	100	96.8	97.2	97.7	97.4	100	97.7	97.2	96.7	94.8	94.1	96.6	99.2	97.5	100	100	97.7	97.3
Heavy Vehicles and B	1	30	2	0	33	6	49	2	0	57	7	40	7	1	55	1	47	0	0	48	193
% Heavy Vehicles and B	1.4	3.7	1.4	0	3.2	2.8	2.3	2.6	0	2.3	2.8	3.3	5.2	5.9	3.4	0.8	2.5	0	0	2.3	2.7

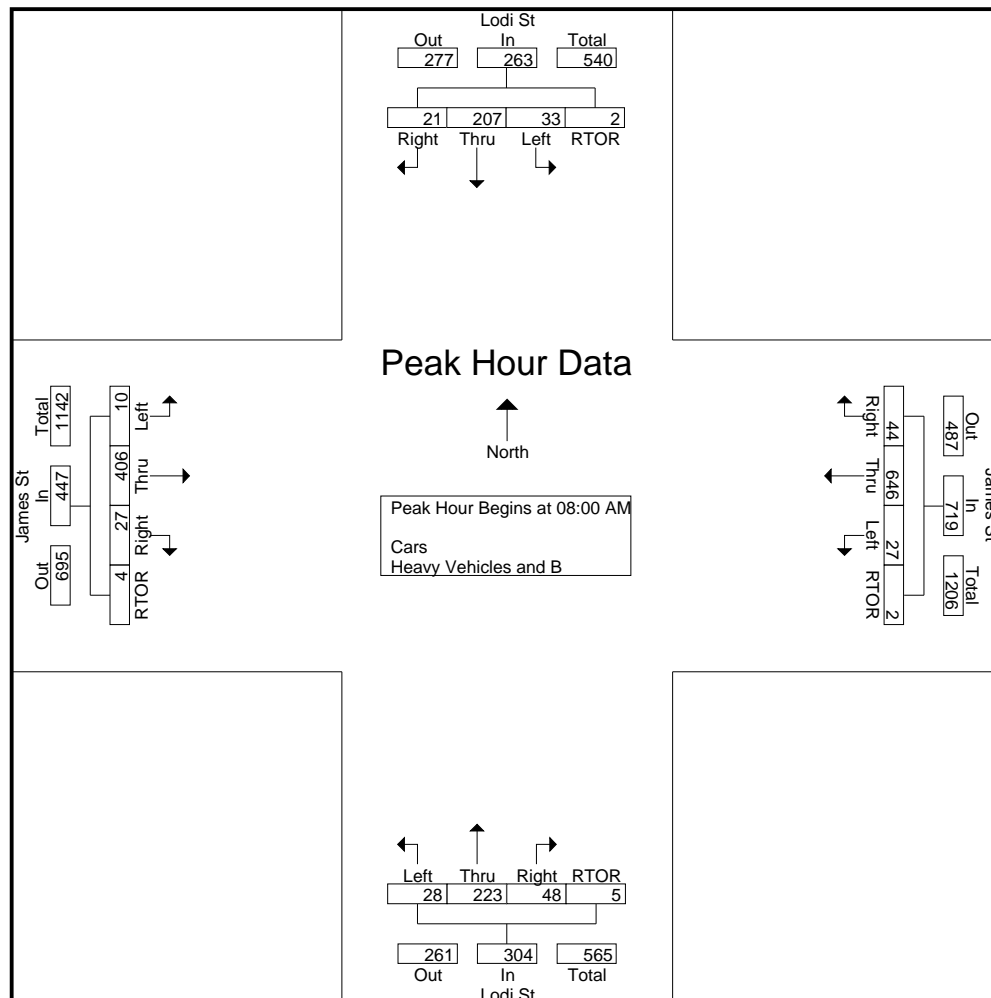


# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
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File Name : 5\_28\_09\_James\_Lodi\_Both  
Site Code : 00007777  
Start Date : 5/28/2009  
Page No : 2

	Lodi St Southbound Approach					James St Westbound Approach					Lodi St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	6	50	10	1	67	8	150	8	1	167	13	47	7	1	68	4	113	1	2	120	422
08:15 AM	3	58	6	0	67	8	183	2	1	194	8	58	5	0	71	7	103	0	0	110	442
08:30 AM	3	43	9	0	55	15	146	6	0	167	16	64	9	3	92	8	81	4	2	95	409
08:45 AM	9	56	8	1	74	13	167	11	0	191	11	54	7	1	73	8	109	5	0	122	460
Total Volume	21	207	33	2	263	44	646	27	2	719	48	223	28	5	304	27	406	10	4	447	1733
% App. Total	8	78.7	12.5	0.8		6.1	89.8	3.8	0.3		15.8	73.4	9.2	1.6		6	90.8	2.2	0.9		
PHF	.583	.892	.825	.500	.889	.733	.883	.614	.500	.927	.750	.871	.778	.417	.826	.844	.898	.500	.500	.916	.942







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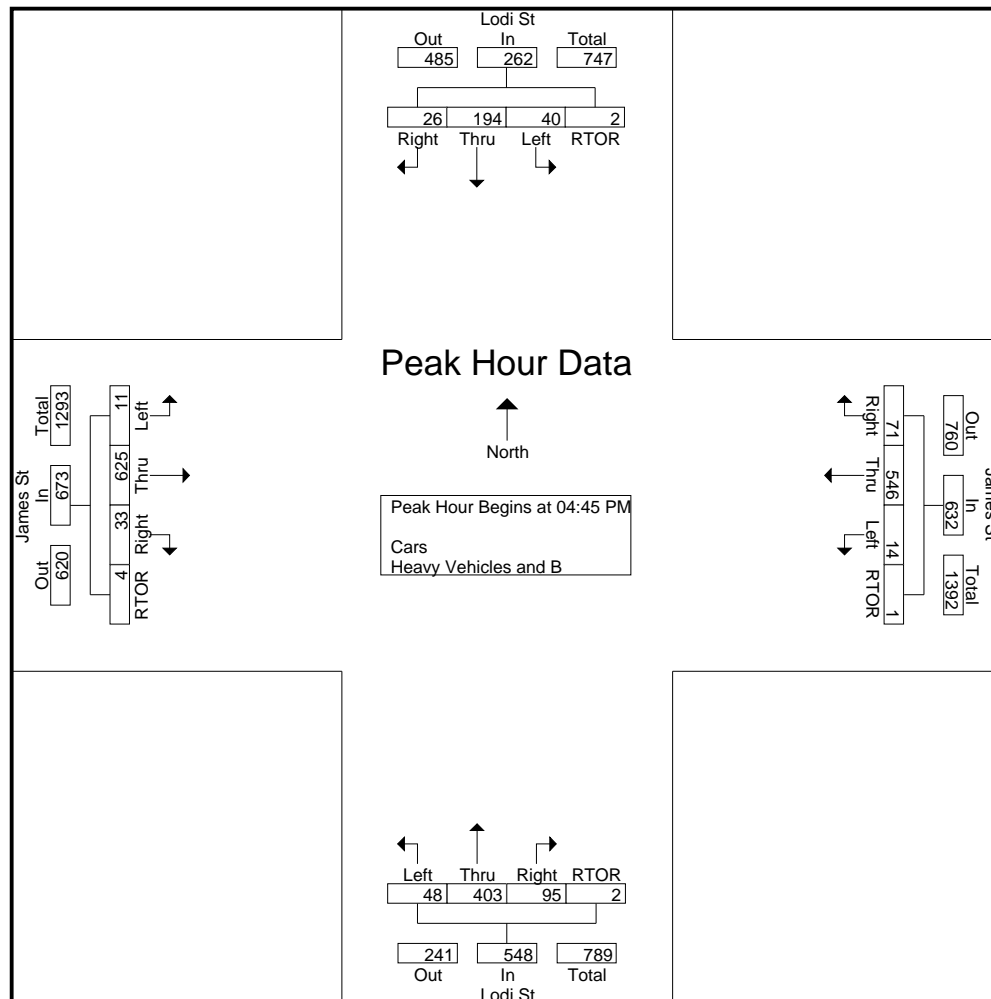
File Name : 5\_28\_09\_James\_Lodi\_Both

Site Code : 00007777

Start Date : 5/28/2009

Page No : 3

	Lodi St Southbound Approach					James St Westbound Approach					Lodi St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	2	46	9	1	58	16	120	3	0	139	25	106	5	1	137	6	135	2	0	143	477
05:00 PM	7	36	10	0	53	17	139	0	0	156	24	90	20	1	135	10	169	2	2	183	527
05:15 PM	7	55	11	1	74	24	147	5	1	177	23	122	13	0	158	14	184	3	2	203	612
05:30 PM	10	57	10	0	77	14	140	6	0	160	23	85	10	0	118	3	137	4	0	144	499
Total Volume	26	194	40	2	262	71	546	14	1	632	95	403	48	2	548	33	625	11	4	673	2115
% App. Total	9.9	74	15.3	0.8		11.2	86.4	2.2	0.2		17.3	73.5	8.8	0.4		4.9	92.9	1.6	0.6		
PHF	.650	.851	.909	.500	.851	.740	.929	.583	.250	.893	.950	.826	.600	.500	.867	.589	.849	.688	.500	.829	.864





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File Name : 5\_28\_09\_James\_Lodi\_Both  
Site Code : 00007777  
Start Date : 5/28/2009  
Page No : 1

## Groups Printed- Bicyclists and Pedes

	Lodi St Southbound Approach					James St Westbound Approach					Lodi St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	1	0	1	2	0	0	0	2	2	0	0	0	3	3	0	0	0	4	4	11
07:15 AM	0	1	0	6	7	0	0	0	3	3	0	0	0	1	1	0	1	0	0	1	12
07:30 AM	0	1	0	1	2	0	0	0	1	1	0	0	0	1	1	0	1	0	1	2	6
07:45 AM	0	0	0	1	1	0	1	0	8	9	0	0	0	1	1	0	0	0	0	0	11
Total	0	3	0	9	12	0	1	0	14	15	0	0	0	6	6	0	2	0	5	7	40
08:00 AM	0	3	0	1	4	0	0	0	2	2	0	0	0	2	2	0	0	0	3	3	11
08:15 AM	0	1	0	6	7	0	0	0	6	6	0	0	0	1	1	0	0	0	4	4	18
08:30 AM	0	1	0	1	2	0	0	0	0	0	0	1	0	1	2	0	0	0	2	2	6
08:45 AM	0	1	0	4	5	0	0	0	3	3	0	0	0	0	0	0	0	0	1	1	9
Total	0	6	0	12	18	0	0	0	11	11	0	1	0	4	5	0	0	0	10	10	44
04:00 PM	0	0	0	3	3	0	0	0	2	2	0	0	0	4	4	0	2	0	3	5	14
04:15 PM	0	1	0	4	5	0	0	0	3	3	0	1	0	1	2	0	0	0	1	1	11
04:30 PM	0	0	0	3	3	0	0	0	5	5	0	1	0	5	6	0	0	0	4	4	18
04:45 PM	0	0	0	0	0	0	1	0	5	6	0	0	0	3	3	0	0	0	2	2	11
Total	0	1	0	10	11	0	1	0	15	16	0	2	0	13	15	0	2	0	10	12	54
05:00 PM	0	0	1	5	6	0	1	0	11	12	0	0	0	0	0	1	0	0	6	7	25
05:15 PM	0	0	0	7	7	0	0	0	4	4	0	0	0	0	0	0	0	0	3	3	14
05:30 PM	0	0	0	1	1	0	1	0	0	1	0	1	0	0	1	0	1	0	11	12	15
05:45 PM	0	0	0	4	4	0	0	0	4	4	0	0	0	3	3	0	0	0	3	3	14
Total	0	0	1	17	18	0	2	0	19	21	0	1	0	3	4	1	1	0	23	25	68
Grand Total	0	10	1	48	59	0	4	0	59	63	0	4	0	26	30	1	5	0	48	54	206
Apprch %	0	16.9	1.7	81.4		0	6.3	0	93.7		0	13.3	0	86.7		1.9	9.3	0	88.9		
Total %	0	4.9	0.5	23.3	28.6	0	1.9	0	28.6	30.6	0	1.9	0	12.6	14.6	0.5	2.4	0	23.3	26.2	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_27\_09\_James\_Oak\_Both

Site Code : 12345678

Start Date : 5/27/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	Oak St Southbound Approach					James St Westbound Approach					Oak St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	2	5	5	0	12	5	49	5	0	59	9	11	3	6	29	2	60	5	1	68	168
07:15 AM	4	5	1	1	11	3	51	7	0	61	22	33	5	7	67	10	63	10	2	85	224
07:30 AM	4	14	8	1	27	9	60	5	1	75	18	44	13	1	76	2	90	8	0	100	278
07:45 AM	14	21	4	5	44	8	80	9	1	98	26	55	12	4	97	10	131	15	0	156	395
Total	24	45	18	7	94	25	240	26	2	293	75	143	33	18	269	24	344	38	3	409	1065
08:00 AM	7	21	5	1	34	10	74	10	0	94	24	33	16	2	75	14	150	15	0	179	382
08:15 AM	8	21	8	0	37	4	90	4	3	101	29	29	11	0	69	11	144	13	1	169	376
08:30 AM	4	10	6	1	21	4	89	16	3	112	13	27	10	5	55	11	125	12	2	150	338
08:45 AM	8	20	8	0	36	5	83	10	0	98	23	29	12	5	69	6	124	9	1	140	343
Total	27	72	27	2	128	23	336	40	6	405	89	118	49	12	268	42	543	49	4	638	1439

## BREAK

03:45 PM	13	38	5	0	56	7	138	20	1	166	12	36	11	2	61	11	108	6	1	126	409
Total	13	38	5	0	56	7	138	20	1	166	12	36	11	2	61	11	108	6	1	126	409
04:00 PM	11	27	12	1	51	4	143	30	1	178	13	25	19	1	58	5	110	8	0	123	410
04:15 PM	12	46	10	2	70	14	151	25	1	191	10	32	13	2	57	9	100	5	0	114	432
04:30 PM	8	46	9	1	64	5	134	24	0	163	19	34	9	5	67	13	101	9	1	124	418
04:45 PM	19	64	16	1	100	5	164	29	1	199	16	33	22	4	75	14	108	8	1	131	505
Total	50	183	47	5	285	28	592	108	3	731	58	124	63	12	257	41	419	30	2	492	1765

## BREAK

05:15 PM	7	31	10	1	49	11	112	12	2	137	20	24	11	2	57	8	92	8	0	108	351
05:30 PM	3	31	4	0	38	8	99	17	0	124	9	17	8	1	35	9	84	5	0	98	295
05:45 PM	8	35	10	2	55	4	71	17	1	93	12	19	10	3	44	12	83	8	2	105	297
Total	18	97	24	3	142	23	282	46	3	354	41	60	29	6	136	29	259	21	2	311	943

Grand Total	132	435	121	17	705	106	1588	240	15	1949	275	481	185	50	991	147	1673	144	12	1976	5621
Apprch %	18.7	61.7	17.2	2.4		5.4	81.5	12.3	0.8		27.7	48.5	18.7	5		7.4	84.7	7.3	0.6		
Total %	2.3	7.7	2.2	0.3	12.5	1.9	28.3	4.3	0.3	34.7	4.9	8.6	3.3	0.9	17.6	2.6	29.8	2.6	0.2	35.2	
Cars	127	424	118	17	686	105	1545	236	15	1901	273	465	180	50	968	143	1625	139	12	1919	5474
% Cars	96.2	97.5	97.5	100	97.3	99.1	97.3	98.3	100	97.5	99.3	96.7	97.3	100	97.7	97.3	97.1	96.5	100	97.1	97.4
Heavy Vehicles and B	5	11	3	0	19	1	43	4	0	48	2	16	5	0	23	4	48	5	0	57	147
% Heavy Vehicles and B	3.8	2.5	2.5	0	2.7	0.9	2.7	1.7	0	2.5	0.7	3.3	2.7	0	2.3	2.7	2.9	3.5	0	2.9	2.6



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
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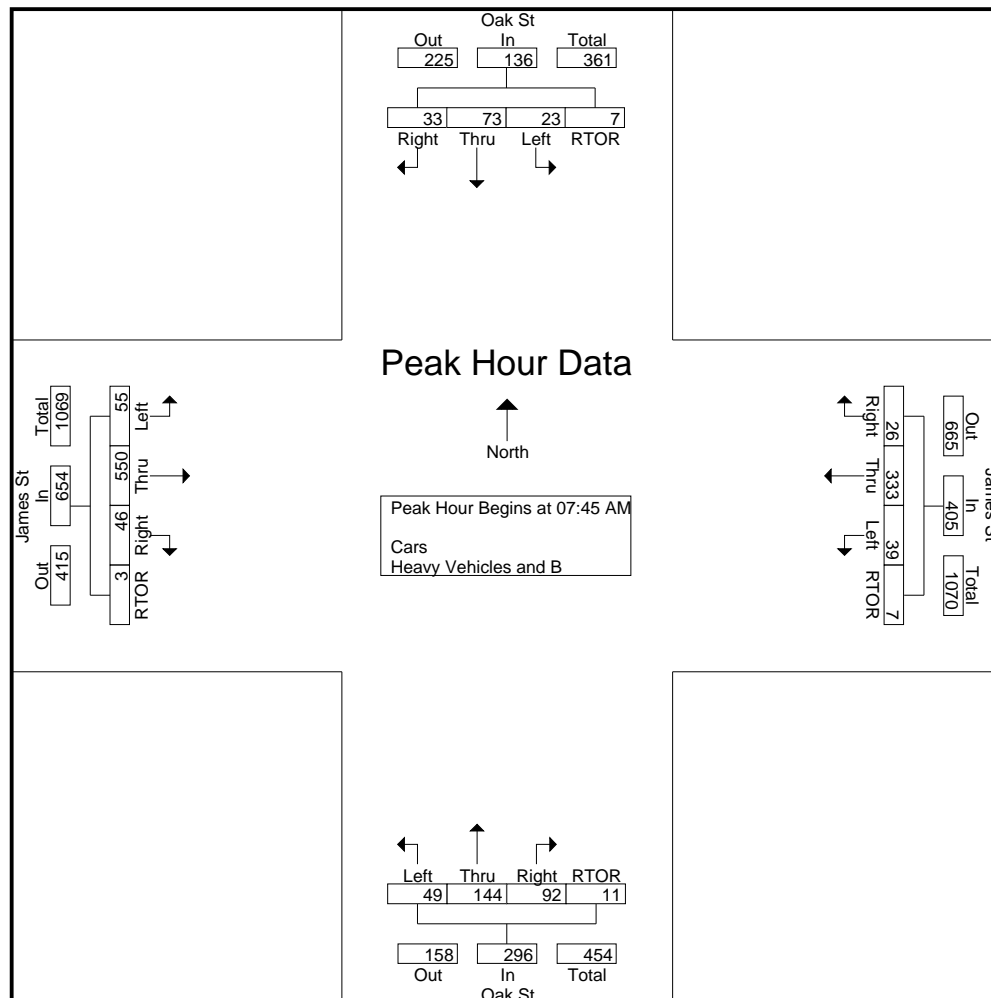
File Name : 5\_27\_09\_James\_Oak\_Both

Site Code : 12345678

Start Date : 5/27/2009

Page No : 2

	Oak St Southbound Approach					James St Westbound Approach					Oak St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	14	21	4	5	44	8	80	9	1	98	26	55	12	4	97	10	131	15	0	156	395
08:00 AM	7	21	5	1	34	10	74	10	0	94	24	33	16	2	75	14	150	15	0	179	382
08:15 AM	8	21	8	0	37	4	90	4	3	101	29	29	11	0	69	11	144	13	1	169	376
08:30 AM	4	10	6	1	21	4	89	16	3	112	13	27	10	5	55	11	125	12	2	150	338
Total Volume	33	73	23	7	136	26	333	39	7	405	92	144	49	11	296	46	550	55	3	654	1491
% App. Total	24.3	53.7	16.9	5.1		6.4	82.2	9.6	1.7		31.1	48.6	16.6	3.7		7	84.1	8.4	0.5		
PHF	.589	.869	.719	.350	.773	.650	.925	.609	.583	.904	.793	.655	.766	.550	.763	.821	.917	.917	.375	.913	.944





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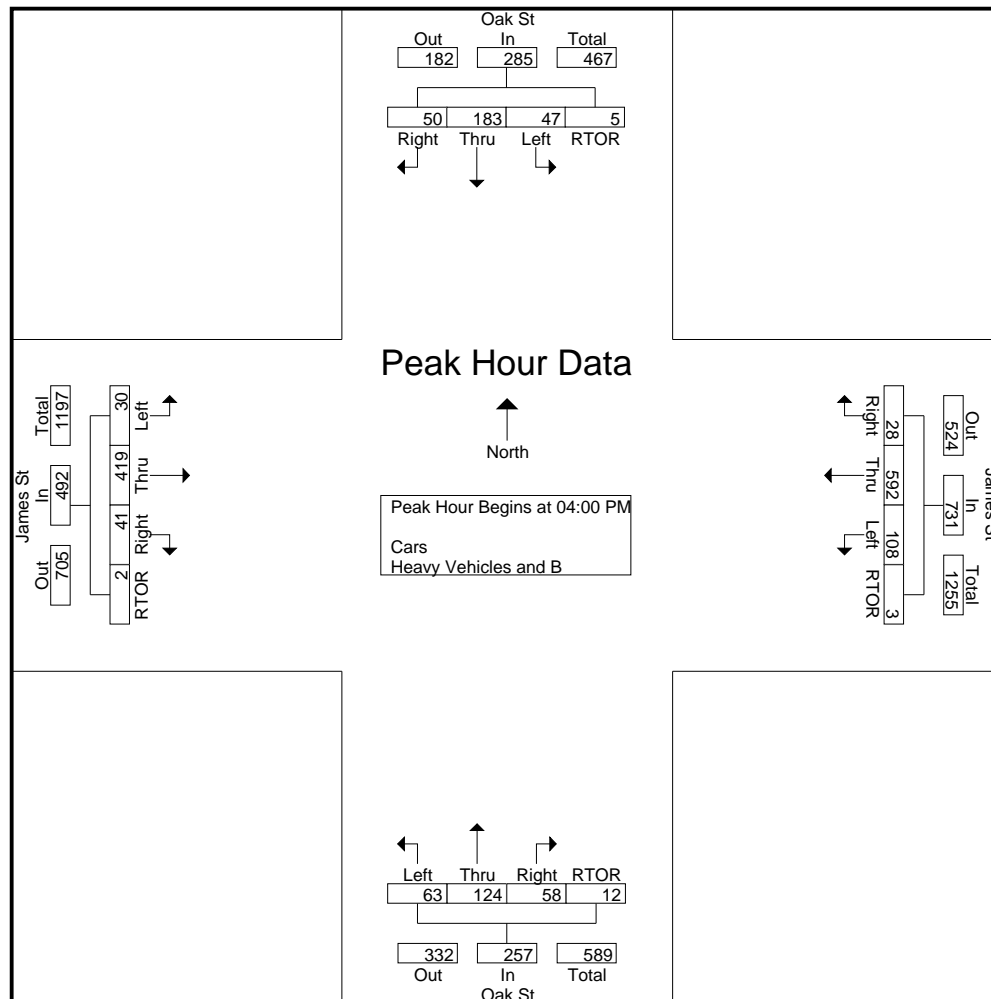
File Name : 5\_27\_09\_James\_Oak\_Both

Site Code : 12345678

Start Date : 5/27/2009

Page No : 3

	Oak St Southbound Approach					James St Westbound Approach					Oak St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	11	27	12	1	51	4	143	30	1	178	13	25	19	1	58	5	110	8	0	123	410
04:15 PM	12	46	10	2	70	14	151	25	1	191	10	32	13	2	57	9	100	5	0	114	432
04:30 PM	8	46	9	1	64	5	134	24	0	163	19	34	9	5	67	13	101	9	1	124	418
04:45 PM	19	64	16	1	100	5	164	29	1	199	16	33	22	4	75	14	108	8	1	131	505
Total Volume	50	183	47	5	285	28	592	108	3	731	58	124	63	12	257	41	419	30	2	492	1765
% App. Total	17.5	64.2	16.5	1.8		3.8	81	14.8	0.4		22.6	48.2	24.5	4.7		8.3	85.2	6.1	0.4		
PHF	.658	.715	.734	.625	.713	.500	.902	.900	.750	.918	.763	.912	.716	.600	.857	.732	.952	.833	.500	.939	.874





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File Name : 5\_27\_09\_James\_Oak\_Both

Site Code : 12345678

Start Date : 5/27/2009

Page No : 1

## Groups Printed- Bicycles and Pedestr

	Oak St Southbound Approach					James St Westbound Approach					Oak St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	5
07:15 AM	0	0	0	0	0	0	0	0	4	4	1	0	0	2	3	0	0	0	1	1	8
07:30 AM	0	0	0	1	1	0	0	0	8	8	0	0	0	1	1	0	0	0	1	1	11
07:45 AM	0	1	0	2	3	0	0	0	3	3	0	1	0	5	6	0	0	0	5	5	17
Total	0	1	0	3	4	0	0	0	15	15	1	1	0	13	15	0	0	0	7	7	41
08:00 AM	0	0	0	1	1	0	1	0	1	2	0	0	0	4	4	0	0	0	8	8	15
08:15 AM	0	0	0	4	4	0	0	0	0	0	0	0	0	1	1	0	1	0	2	3	8
08:30 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	5	5	0	1	0	2	3	11
08:45 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	5	5	0	0	0	3	3	11
Total	0	0	0	9	9	0	1	0	3	4	0	0	0	15	15	0	2	0	15	17	45
03:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	5	5	0	1	0	1	2	8
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	5	5	0	1	0	1	2	8
04:00 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	3	3	0	0	0	5	5	10
04:15 PM	0	1	0	1	2	0	1	1	3	5	0	0	0	2	2	0	1	0	1	2	11
04:30 PM	0	0	0	0	0	0	2	0	1	3	0	0	0	2	2	0	1	0	5	6	11
04:45 PM	0	0	0	0	0	0	1	1	4	6	0	0	0	2	2	0	1	0	2	3	11
Total	0	1	0	1	2	0	4	2	10	16	0	0	0	9	9	0	3	0	13	16	43
05:15 PM	0	0	0	8	8	0	0	0	7	7	0	0	0	4	4	0	0	0	3	3	22
05:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	7	7	0	0	0	1	1	9
05:45 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	2	2	0	1	0	3	4	9
Total	0	0	0	9	9	0	0	0	10	10	0	0	0	13	13	0	1	0	7	8	40
Grand Total	0	2	0	23	25	0	5	2	38	45	1	1	0	55	57	0	7	0	43	50	177
Apprch %	0	8	0	92		0	11.1	4.4	84.4		1.8	1.8	0	96.5		0	14	0	86		
Total %	0	1.1	0	13	14.1	0	2.8	1.1	21.5	25.4	0.6	0.6	0	31.1	32.2	0	4	0	24.3	28.2	



# Syracuse Metropolitan Transportation Council

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[www.smctmpo.org](http://www.smctmpo.org)

File Name : 5\_27\_09\_James\_Dewitt\_Both

Site Code : 00000009

Start Date : 5/27/2009

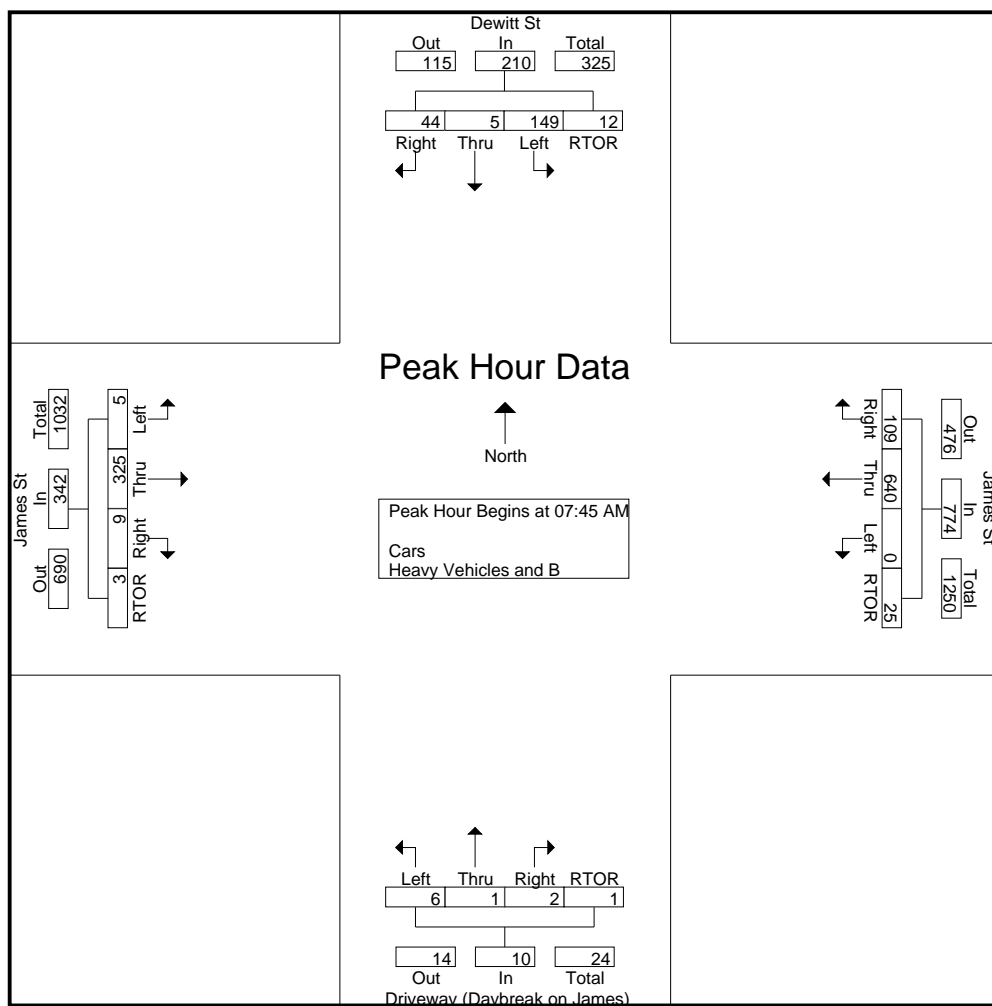
Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	Dewitt St Southbound Approach					James St Westbound Approach					Driveway (Daybreak on James) Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	2	0	14	1	17	4	67	0	1	72	4	1	0	2	7	1	49	0	0	50	146
07:15 AM	6	0	15	4	25	7	78	2	3	90	0	1	2	0	3	2	58	1	1	62	180
07:30 AM	11	0	34	4	49	23	108	0	4	135	0	0	0	0	0	0	62	2	0	64	248
07:45 AM	6	2	59	3	70	32	155	0	12	199	1	0	2	1	4	2	95	2	1	100	373
Total	25	2	122	12	161	66	408	2	20	496	5	2	4	3	14	5	264	5	2	276	947
08:00 AM	13	2	32	4	51	38	183	0	6	227	0	0	2	0	2	4	71	0	1	76	356
08:15 AM	13	0	25	2	40	24	161	0	3	188	1	1	0	0	2	0	84	3	0	87	317
08:30 AM	12	1	33	3	49	15	141	0	4	160	0	0	2	0	2	3	75	0	1	79	290
08:45 AM	10	0	27	1	38	18	130	1	4	153	1	4	3	1	9	2	78	6	0	86	286
Total	48	3	117	10	178	95	615	1	17	728	2	5	7	1	15	9	308	9	2	328	1249

## BREAK

04:00 PM	11	2	53	3	69	24	96	0	4	124	0	0	3	0	3	1	149	13	0	163	359
04:15 PM	6	0	23	1	30	33	99	1	4	137	0	0	1	0	1	1	157	7	0	165	333
04:30 PM	4	1	39	1	45	36	91	0	2	129	2	0	3	1	6	3	170	8	0	181	361
04:45 PM	4	0	41	0	45	23	103	0	1	127	0	0	1	0	1	2	151	9	0	162	335
Total	25	3	156	5	189	116	389	1	11	517	2	0	8	1	11	7	627	37	0	671	1388
05:00 PM	8	2	45	1	56	30	94	0	6	130	0	0	4	0	4	1	194	19	0	214	404
05:15 PM	8	0	44	4	56	37	87	1	4	129	3	0	2	0	5	1	181	11	0	193	383
05:30 PM	5	0	42	2	49	43	84	0	7	134	0	0	1	0	1	0	129	7	1	137	321
05:45 PM	4	1	37	0	42	39	79	0	4	122	3	2	1	1	7	0	95	6	0	101	272
Total	25	3	168	7	203	149	344	1	21	515	6	2	8	1	17	2	599	43	1	645	1380
Grand Total	123	11	563	34	731	426	1756	5	69	2256	15	9	27	6	57	23	1798	94	5	1920	4964
Apprch %	16.8	1.5	77	4.7		18.9	77.8	0.2	3.1		26.3	15.8	47.4	10.5		1.2	93.6	4.9	0.3		
Total %	2.5	0.2	11.3	0.7	14.7	8.6	35.4	0.1	1.4	45.4	0.3	0.2	0.5	0.1	1.1	0.5	36.2	1.9	0.1	38.7	
Cars	121	11	558	33	723	424	1709	5	69	2207	15	9	26	6	56	23	1750	94	4	1871	4857
% Cars	98.4	100	99.1	97.1	98.9	99.5	97.3	100	100	97.8	100	100	96.3	100	98.2	100	97.3	100	80	97.4	97.8
Heavy Vehicles and B	2	0	5	1	8	2	47	0	0	49	0	0	1	0	1	0	48	0	1	49	107
% Heavy Vehicles and B	1.6	0	0.9	2.9	1.1	0.5	2.7	0	0	2.2	0	0	3.7	0	1.8	0	2.7	0	20	2.6	2.2







# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
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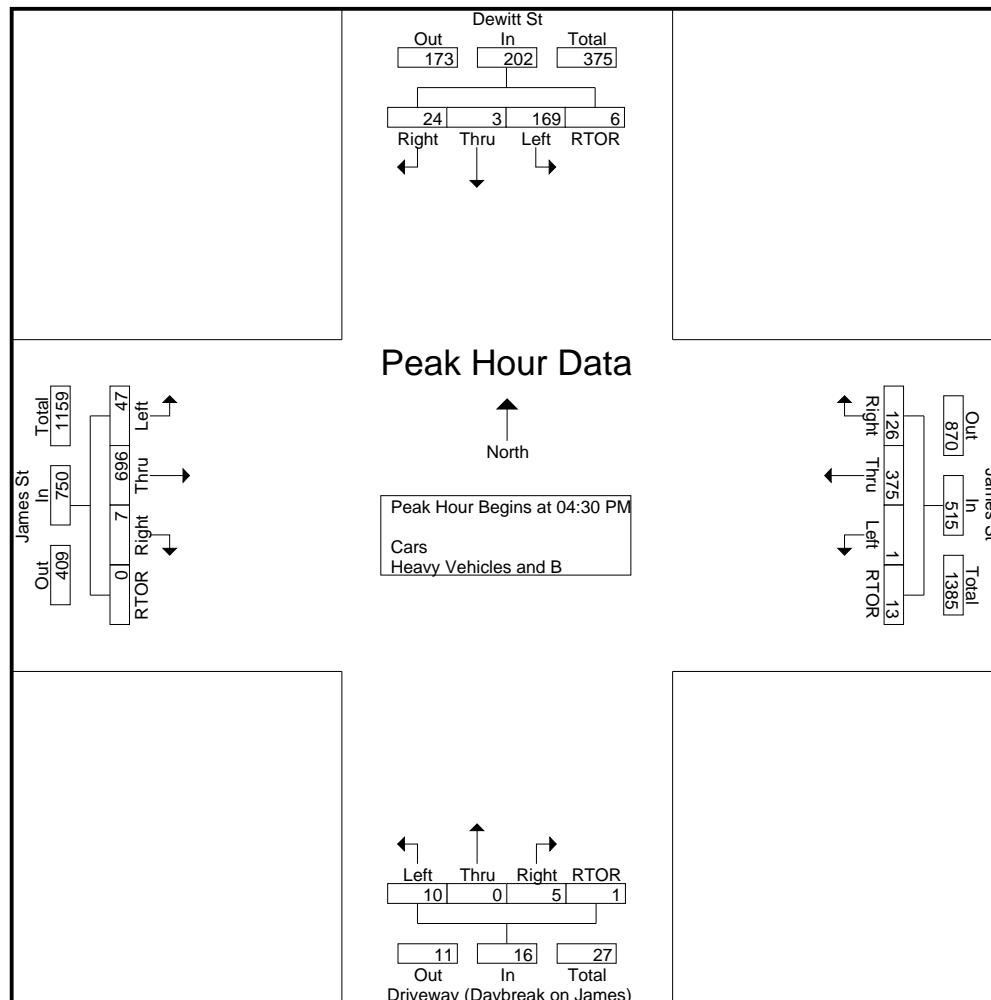
File Name : 5\_27\_09\_James\_Dewitt\_Both

Site Code : 00000009

Start Date : 5/27/2009

Page No : 3

	Dewitt St Southbound Approach					James St Westbound Approach					Driveway (Daybreak on James) Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	1	39	1	45	36	91	0	2	129	2	0	3	1	6	3	170	8	0	181	361
04:45 PM	4	0	41	0	45	23	103	0	1	127	0	0	1	0	1	2	151	9	0	162	335
05:00 PM	8	2	45	1	56	30	94	0	6	130	0	0	4	0	4	1	194	19	0	214	404
05:15 PM	8	0	44	4	56	37	87	1	4	129	3	0	2	0	5	1	181	11	0	193	383
Total Volume	24	3	169	6	202	126	375	1	13	515	5	0	10	1	16	7	696	47	0	750	1483
% App. Total	11.9	1.5	83.7	3		24.5	72.8	0.2	2.5		31.2	0	62.5	6.2		0.9	92.8	6.3	0		
PHF	.750	.375	.939	.375	.902	.851	.910	.250	.542	.990	.417	.000	.625	.250	.667	.583	.897	.618	.000	.876	.918





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File Name : 5\_27\_09\_James\_Dewitt\_Both

Site Code : 00000009

Start Date : 5/27/2009

Page No : 1

## Groups Printed- Bicyclists and Pedes

	Dewitt St Southbound Approach					James St Westbound Approach					Driveway (Daybreak on James) Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	1	1	0	1	0	1	2	0	0	0	8	8	0	0	0	0	0	11
07:15 AM	0	0	0	1	1	1	0	0	5	6	0	0	0	2	2	0	0	0	0	0	9
07:30 AM	0	0	0	2	2	0	0	0	3	3	0	0	0	1	1	0	0	0	0	0	6
07:45 AM	0	0	0	1	1	0	0	0	3	3	0	0	0	4	4	0	0	0	2	2	10
Total	0	0	0	5	5	1	1	0	12	14	0	0	0	15	15	0	0	0	2	2	36
08:00 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	5	5	0	1	0	0	1	8
08:15 AM	0	0	0	4	4	0	1	0	2	3	0	0	0	1	1	0	0	0	1	1	9
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	1	1	4
08:45 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	7	7	0	2	0	4	6	0	0	0	8	8	0	1	0	2	3	24
BREAK																					
04:00 PM	0	0	0	1	1	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	3
04:15 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0	5
04:30 PM	0	0	0	0	0	0	1	0	2	3	0	0	0	0	0	0	1	0	0	1	4
04:45 PM	0	0	2	1	3	0	1	0	3	4	0	0	0	1	1	0	0	0	0	0	8
Total	0	0	2	3	5	0	3	0	7	10	0	0	0	4	4	0	1	0	0	1	20
05:00 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4	8
05:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	3
05:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	4	4	0	1	0	2	3	8
05:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
Total	0	0	0	5	5	1	0	0	1	2	0	0	0	5	5	0	3	0	6	9	21
Grand Total	0	0	2	20	22	2	6	0	24	32	0	0	0	32	32	0	5	0	10	15	101
Apprch %	0	0	9.1	90.9		6.2	18.8	0	75		0	0	0	100		0	33.3	0	66.7		
Total %	0	0	2	19.8	21.8	2	5.9	0	23.8	31.7	0	0	0	31.7	31.7	0	5	0	9.9	14.9	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716  
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File Name : 6\_2\_09\_James\_Sedgwick\_Both  
Site Code : 00791011  
Start Date : 6/2/2009  
Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	James St Westbound Approach				Sedgwick St Northbound Approach				James St Eastbound Approach				
Start Time	Thru	Left	RTOR	App. Total	Right	Left	RTOR	App. Total	Right	Thru	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	60	2	0	62	2	7	0	9	10	55	2	67	138
07:15 AM	95	8	0	103	3	13	2	18	22	54	3	79	200
07:30 AM	137	13	0	150	7	30	3	40	37	53	5	95	285
07:45 AM	208	20	0	228	6	30	2	38	32	78	0	110	376
Total	500	43	0	543	18	80	7	105	101	240	10	351	999
08:00 AM	200	13	0	213	9	21	7	37	25	78	0	103	353
08:15 AM	202	5	0	207	8	16	3	27	20	75	2	97	331
08:30 AM	166	7	0	173	5	26	2	33	20	85	0	105	311
08:45 AM	147	2	0	149	0	22	0	22	16	90	3	109	280
Total	715	27	0	742	22	85	12	119	81	328	5	414	1275
04:00 PM	110	9	0	119	4	18	2	24	35	179	3	217	360
04:15 PM	105	1	0	106	3	24	1	28	21	143	0	164	298
04:30 PM	118	4	0	122	9	19	2	30	36	171	3	210	362
04:45 PM	121	8	0	129	4	25	2	31	26	193	2	221	381
Total	454	22	0	476	20	86	7	113	118	686	8	812	1401
05:00 PM	118	9	0	127	6	22	2	30	28	197	5	230	387
05:15 PM	131	3	0	134	7	20	2	29	30	192	2	224	387
05:30 PM	108	2	0	110	6	24	3	33	24	142	3	169	312
05:45 PM	105	6	0	111	6	22	2	30	30	127	2	159	300
Total	462	20	0	482	25	88	9	122	112	658	12	782	1386
Grand Total	2131	112	0	2243	85	339	35	459	412	1912	35	2359	5061
Apprch %	95	5	0		18.5	73.9	7.6		17.5	81.1	1.5		
Total %	42.1	2.2	0	44.3	1.7	6.7	0.7	9.1	8.1	37.8	0.7	46.6	
Cars	2091	110	0	2201	77	326	34	437	400	1869	31	2300	4938
% Cars	98.1	98.2	0	98.1	90.6	96.2	97.1	95.2	97.1	97.8	88.6	97.5	97.6
Heavy Vehicles and B	40	2	0	42	8	13	1	22	12	43	4	59	123
% Heavy Vehicles and B	1.9	1.8	0	1.9	9.4	3.8	2.9	4.8	2.9	2.2	11.4	2.5	2.4



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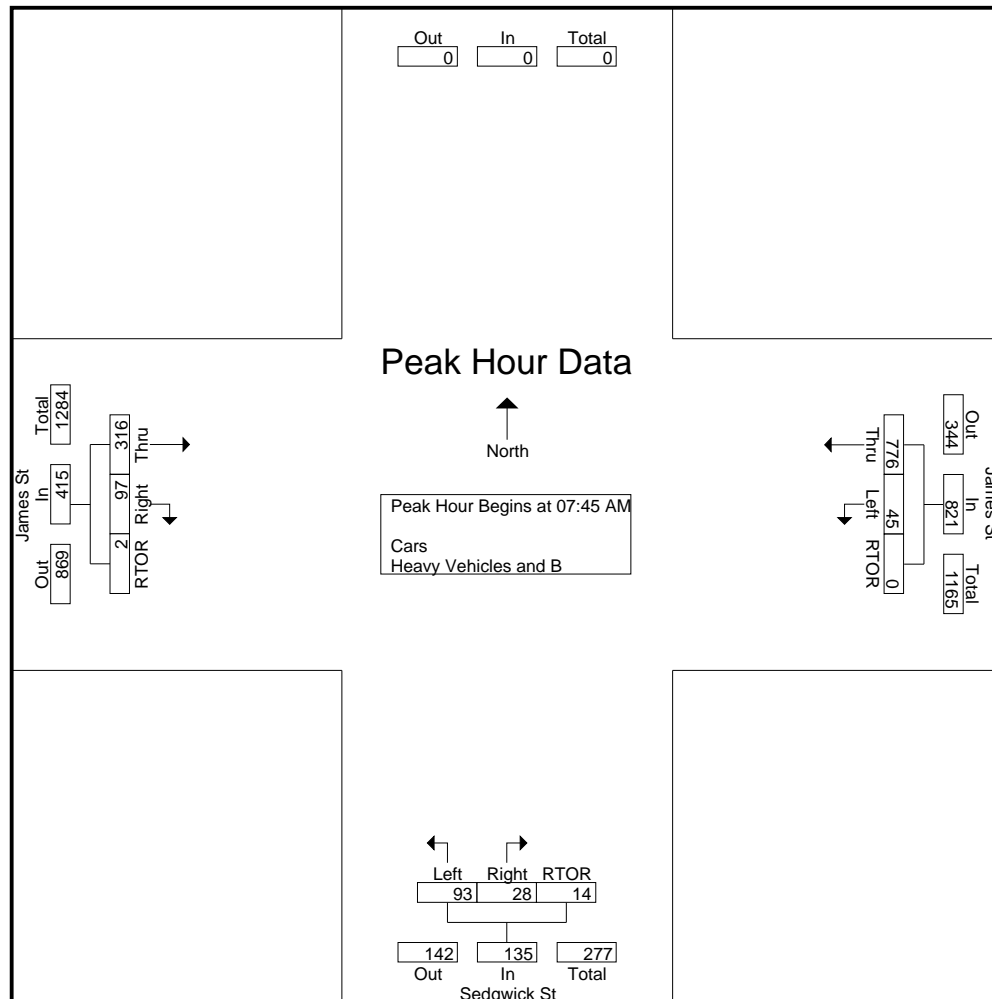
File Name : 6\_2\_09\_James\_Sedgwick\_Both

Site Code : 00791011

Start Date : 6/2/2009

Page No : 2

	James St Westbound Approach				Sedgwick St Northbound Approach				James St Eastbound Approach				
Start Time	Thru	Left	RTOR	App. Total	Right	Left	RTOR	App. Total	Right	Thru	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	208	20	0	228	6	30	2	38	32	78	0	110	376
08:00 AM	200	13	0	213	9	21	7	37	25	78	0	103	353
08:15 AM	202	5	0	207	8	16	3	27	20	75	2	97	331
08:30 AM	166	7	0	173	5	26	2	33	20	85	0	105	311
Total Volume	776	45	0	821	28	93	14	135	97	316	2	415	1371
% App. Total	94.5	5.5	0		20.7	68.9	10.4		23.4	76.1	0.5		
PHF	.933	.563	.000	.900	.778	.775	.500	.888	.758	.929	.250	.943	.912





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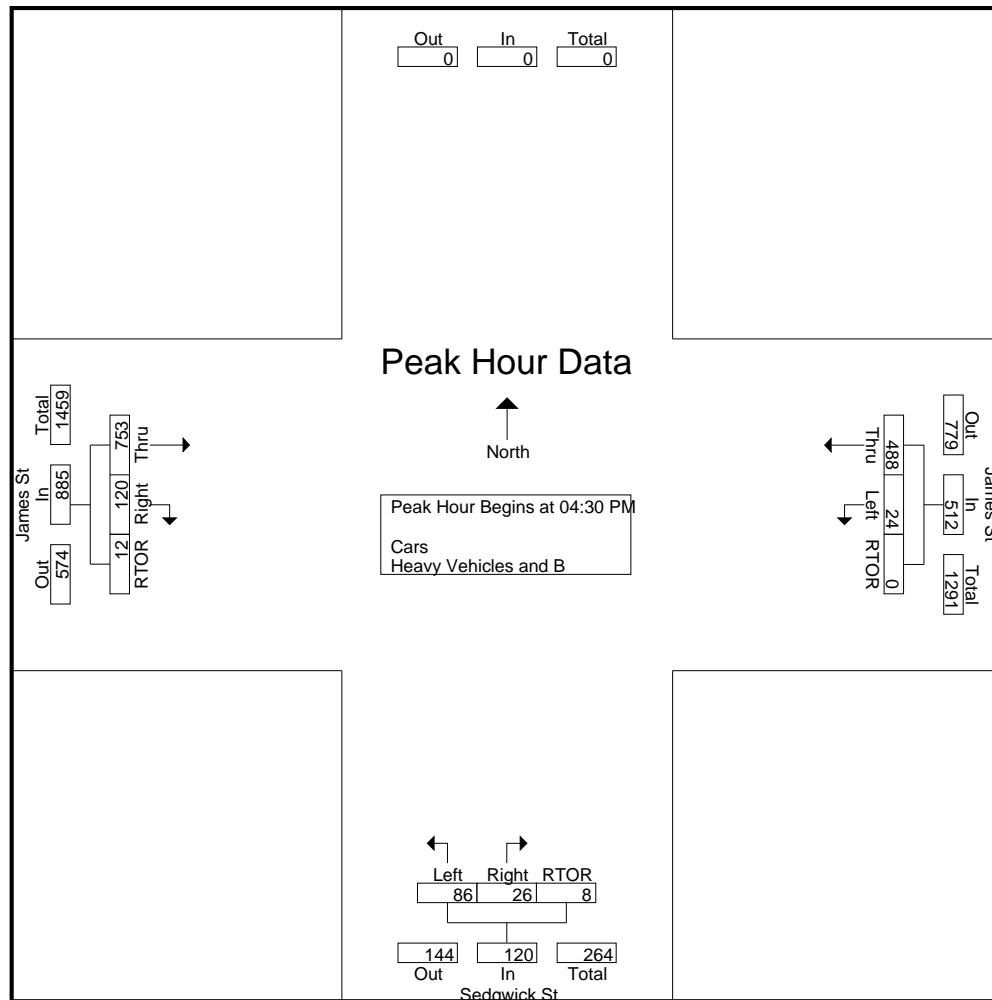
File Name : 6\_2\_09\_James\_Sedgwick\_Both

Site Code : 00791011

Start Date : 6/2/2009

Page No : 3

	James St Westbound Approach				Sedgwick St Northbound Approach				James St Eastbound Approach				
Start Time	Thru	Left	RTOR	App. Total	Right	Left	RTOR	App. Total	Right	Thru	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	118	4	0	122	9	19	2	30	36	171	3	210	362
04:45 PM	121	8	0	129	4	25	2	31	26	193	2	221	381
05:00 PM	118	9	0	127	6	22	2	30	28	197	5	230	387
05:15 PM	131	3	0	134	7	20	2	29	30	192	2	224	387
Total Volume	488	24	0	512	26	86	8	120	120	753	12	885	1517
% App. Total	95.3	4.7	0		21.7	71.7	6.7		13.6	85.1	1.4		
PHF	.931	.667	.000	.955	.722	.860	1.000	.968	.833	.956	.600	.962	.980





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File Name : 6\_2\_09\_James\_Sedgwick\_Both  
Site Code : 00791011  
Start Date : 6/2/2009  
Page No : 1

## Groups Printed- Bicyclists and Pedes

	James St Westbound Approach				Sedgwick St Northbound Approach				James St Eastbound Approach				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	1	0	1	2	0	0	2	2	0	1	4	5	9
07:15 AM	1	0	0	1	0	2	1	3	0	1	4	5	9
07:30 AM	0	0	0	0	0	0	3	3	1	0	0	1	4
07:45 AM	0	0	2	2	0	0	3	3	0	0	0	0	5
Total	2	0	3	5	0	2	9	11	1	2	8	11	27
08:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	1
08:30 AM	0	0	0	0	1	0	1	2	0	0	0	0	2
08:45 AM	2	1	0	3	0	0	1	1	0	0	0	0	4
Total	2	1	0	3	1	0	2	3	0	2	1	3	9
04:00 PM	0	0	3	3	0	1	1	2	0	2	1	3	8
04:15 PM	0	0	0	0	0	0	0	0	0	1	1	2	2
04:30 PM	1	0	0	1	0	0	3	3	0	0	0	0	4
04:45 PM	0	0	2	2	0	1	1	2	0	1	0	1	5
Total	1	0	5	6	0	2	5	7	0	4	2	6	19
05:15 PM	0	0	0	0	0	0	3	3	0	1	0	1	4
05:30 PM	0	0	0	0	0	0	1	1	0	1	0	1	2
05:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	2	0	2	0	0	4	4	0	2	0	2	8
Grand Total	5	3	8	16	1	4	20	25	1	10	11	22	63
Apprch %	31.2	18.8	50		4	16	80		4.5	45.5	50		
Total %	7.9	4.8	12.7	25.4	1.6	6.3	31.7	39.7	1.6	15.9	17.5	34.9	



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File Name : 5\_27\_09\_James\_Wilson\_Both

Site Code : 00001212

Start Date : 5/27/2009

Page No : 1

## Groups Printed- Cars - Heavy Vehicles

	James St Westbound Approach					Wilson St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	58	0	0	58	1	0	3	0	4	2	64	0	0	66	128
07:15 AM	0	74	2	0	76	3	0	0	0	3	0	80	0	0	80	159
07:30 AM	0	108	4	2	114	6	0	2	0	8	3	87	0	0	90	212
07:45 AM	0	146	3	1	150	12	0	3	0	15	3	131	0	0	134	299
Total	0	386	9	3	398	22	0	8	0	30	8	362	0	0	370	798
08:00 AM	0	213	3	0	216	9	0	0	0	9	2	106	0	0	108	333
08:15 AM	0	147	3	0	150	3	0	3	0	6	2	93	0	0	95	251
08:30 AM	0	137	4	0	141	0	0	2	0	2	2	92	0	0	94	237
08:45 AM	0	136	2	0	138	1	0	3	0	4	0	99	0	0	99	241
Total	0	633	12	0	645	13	0	8	0	21	6	390	0	0	396	1062
**BREAK**																
04:00 PM	0	129	3	0	132	4	0	2	4	10	2	176	0	0	178	320
04:15 PM	0	106	3	0	109	3	0	2	0	5	3	165	0	0	168	282
04:30 PM	0	120	2	0	122	3	0	2	0	5	2	165	0	0	167	294
04:45 PM	0	114	3	0	117	5	0	2	4	11	1	159	0	0	160	288
Total	0	469	11	0	480	15	0	8	8	31	8	665	0	0	673	1184
05:00 PM	0	127	4	0	131	5	0	0	4	9	2	188	0	1	191	331
05:15 PM	0	127	4	0	131	5	0	2	4	11	2	196	0	0	198	340
05:30 PM	0	115	3	0	118	5	0	4	3	12	0	141	0	0	141	271
05:45 PM	0	102	4	0	106	2	0	1	2	5	1	123	0	0	124	235
Total	0	471	15	0	486	17	0	7	13	37	5	648	0	1	654	1177
Grand Total	0	1959	47	3	2009	67	0	31	21	119	27	2065	0	1	2093	4221
Apprch %	0	97.5	2.3	0.1		56.3	0	26.1	17.6		1.3	98.7	0	0		
Total %	0	46.4	1.1	0.1	47.6	1.6	0	0.7	0.5	2.8	0.6	48.9	0	0	49.6	
Cars	0	1912	47	1	1960	66	0	30	21	117	27	2022	0	1	2050	4127
% Cars	0	97.6	100	33.3	97.6	98.5	0	96.8	100	98.3	100	97.9	0	100	97.9	97.8
Heavy Vehicles	0	47	0	2	49	1	0	1	0	2	0	43	0	0	43	94
% Heavy Vehicles	0	2.4	0	66.7	2.4	1.5	0	3.2	0	1.7	0	2.1	0	0	2.1	2.2



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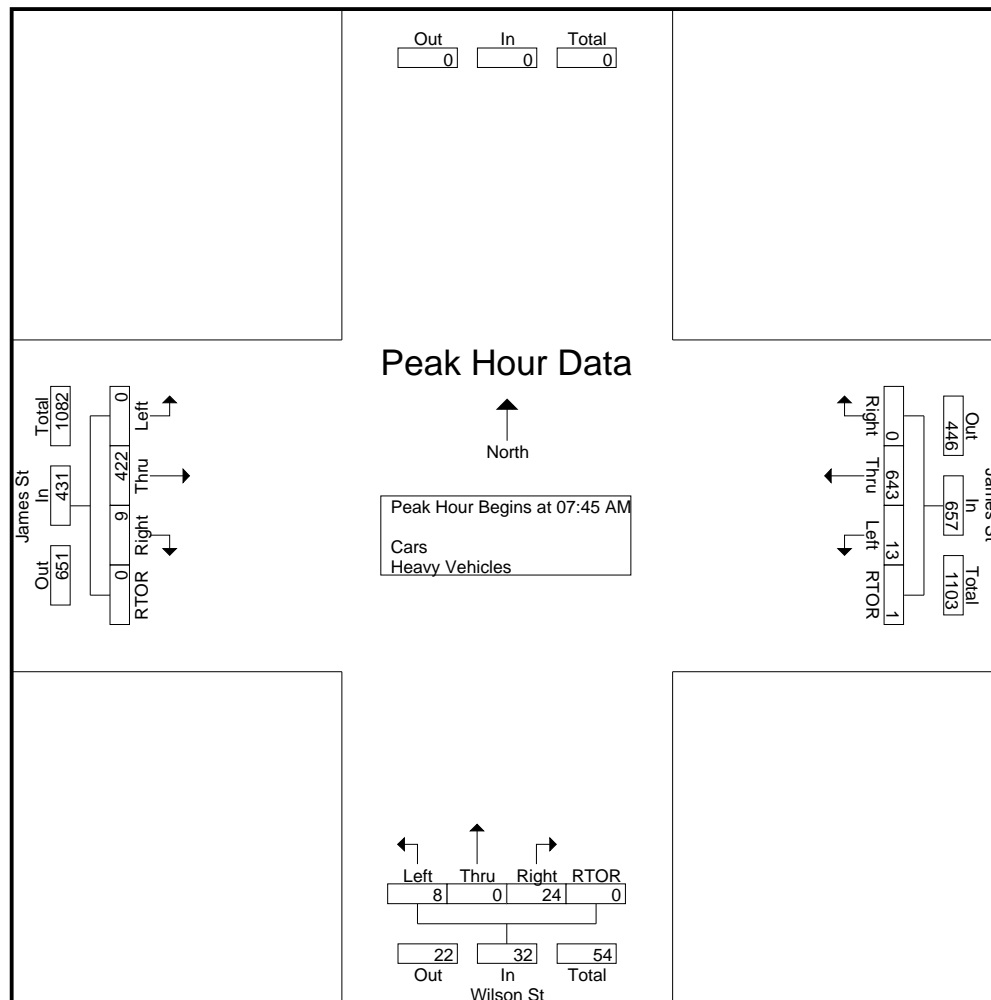
File Name : 5\_27\_09\_James\_Wilson\_Both

Site Code : 00001212

Start Date : 5/27/2009

Page No : 2

	James St Westbound Approach					Wilson St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:45 AM																
07:45 AM	0	146	3	1	150	12	0	3	0	15	3	131	0	0	134	299
08:00 AM	0	213	3	0	216	9	0	0	0	9	2	106	0	0	108	333
08:15 AM	0	147	3	0	150	3	0	3	0	6	2	93	0	0	95	251
08:30 AM	0	137	4	0	141	0	0	2	0	2	2	92	0	0	94	237
Total Volume	0	643	13	1	657	24	0	8	0	32	9	422	0	0	431	1120
% App. Total	0	97.9	2	0.2		75	0	25	0		2.1	97.9	0	0		
PHF	.000	.755	.813	.250	.760	.500	.000	.667	.000	.533	.750	.805	.000	.000	.804	.841







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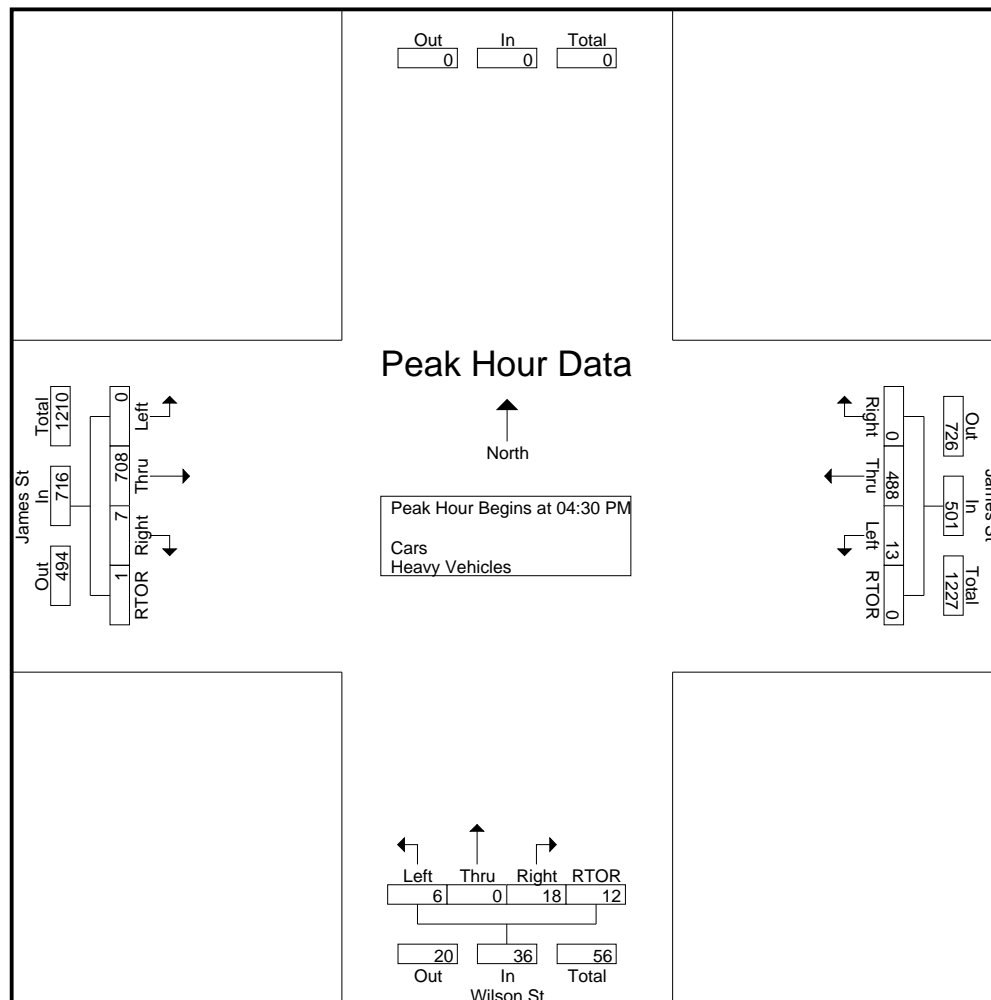
File Name : 5\_27\_09\_James\_Wilson\_Both

Site Code : 00001212

Start Date : 5/27/2009

Page No : 3

	James St Westbound Approach					Wilson St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTO R	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	0	120	2	0	122	3	0	2	0	5	2	165	0	0	167	294
04:45 PM	0	114	3	0	117	5	0	2	4	11	1	159	0	0	160	288
05:00 PM	0	127	4	0	131	5	0	0	4	9	2	188	0	1	191	331
05:15 PM	0	127	4	0	131	5	0	2	4	11	2	196	0	0	198	340
Total Volume	0	488	13	0	501	18	0	6	12	36	7	708	0	1	716	1253
% App. Total	0	97.4	2.6	0		50	0	16.7	33.3		1	98.9	0	0.1		
PHF	.000	.961	.813	.000	.956	.900	.000	.750	.750	.818	.875	.903	.000	.250	.904	.921





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File Name : 5\_27\_09\_James\_Wilson\_Both  
Site Code : 00001212  
Start Date : 5/27/2009  
Page No : 1

## Groups Printed- Bicyclists and Pedes

	James St Westbound Approach					Wilson St Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	1	0	1	2	0	0	0	3	3	0	0	0	0	0	5
07:15 AM	0	0	0	6	6	0	0	0	1	1	0	0	0	0	0	7
07:30 AM	0	0	0	8	8	0	0	0	5	5	0	0	0	0	0	13
07:45 AM	0	0	0	12	12	0	0	1	1	2	0	0	0	0	0	14
Total	0	1	0	27	28	0	0	1	10	11	0	0	0	0	0	39
08:00 AM	0	0	0	3	3	0	0	0	2	2	0	1	0	0	1	6
08:15 AM	0	1	0	2	3	0	0	0	1	1	0	0	0	0	0	4
08:30 AM	0	1	0	0	1	0	0	0	2	2	0	0	0	0	0	3
08:45 AM	0	1	0	0	1	0	0	0	1	1	0	1	0	0	1	3
Total	0	3	0	5	8	0	0	0	6	6	0	2	0	0	2	16
04:00 PM	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0	3
04:15 PM	0	0	0	4	4	0	0	0	6	6	0	0	0	0	0	10
04:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	2	0	0	2	0	0	0	1	1	0	1	0	0	1	4
Total	0	4	2	4	10	0	0	0	8	8	0	1	0	0	1	19
05:00 PM	0	1	0	0	1	0	0	0	3	3	0	2	0	0	2	6
05:15 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	3
05:30 PM	0	3	0	0	3	0	0	0	3	3	0	2	0	0	2	8
05:45 PM	0	0	0	0	0	0	0	0	2	2	0	1	0	0	1	3
Total	0	4	0	0	4	0	0	0	9	9	0	7	0	0	7	20
Grand Total	0	12	2	36	50	0	0	1	33	34	0	10	0	0	10	94
Apprch %	0	24	4	72		0	0	2.9	97.1		0	100	0	0		
Total %	0	12.8	2.1	38.3	53.2	0	0	1.1	35.1	36.2	0	10.6	0	0	10.6	



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File Name : 5\_27\_09\_James\_Teall\_Both  
Site Code : 00000845  
Start Date : 5/27/2009  
Page No : 1

## Groups Printed- Cars - Heavy Vehicles and B

	Teall Ave Southbound Approach					James St Westbound Approach					Teall Ave Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	16	52	1	1	70	0	39	12	0	51	13	40	10	3	66	10	36	6	5	57	244
07:15 AM	19	75	1	0	95	2	46	13	0	61	14	41	22	8	85	20	40	20	9	89	330
07:30 AM	27	97	3	2	129	5	62	17	2	86	18	48	19	4	89	20	48	15	7	90	394
07:45 AM	30	103	1	0	134	4	91	19	2	116	27	81	36	3	147	25	75	26	7	133	530
Total	92	327	6	3	428	11	238	61	4	314	72	210	87	18	387	75	199	67	28	369	1498
08:00 AM	42	91	2	1	136	3	102	18	0	123	28	69	41	3	141	18	58	23	4	103	503
08:15 AM	36	88	2	0	126	1	93	17	0	111	14	71	21	1	107	17	46	20	6	89	433
08:30 AM	33	90	1	3	127	2	87	14	1	104	8	74	24	2	108	16	60	16	4	96	435
08:45 AM	33	106	1	0	140	5	81	20	0	106	17	65	25	1	108	20	55	10	10	95	449
Total	144	375	6	4	529	11	363	69	1	444	67	279	111	7	464	71	219	69	24	383	1820
BREAK																					
04:00 PM	35	81	3	0	119	6	70	34	0	110	24	112	31	4	171	28	103	41	7	179	579
04:15 PM	35	87	5	0	127	2	59	22	0	83	21	103	13	3	140	27	108	25	9	169	519
04:30 PM	18	113	6	1	138	0	65	33	0	98	26	84	29	1	140	24	86	48	7	165	541
04:45 PM	30	98	5	0	133	1	69	24	0	94	20	115	22	1	158	21	95	35	4	155	540
Total	118	379	19	1	517	9	263	113	0	385	91	414	95	9	609	100	392	149	27	668	2179
05:00 PM	29	113	4	1	147	3	82	24	0	109	18	102	26	4	150	33	88	45	4	170	576
05:15 PM	23	113	6	0	142	4	78	23	1	106	20	97	27	7	151	49	111	50	8	218	617
05:30 PM	26	97	3	0	126	6	66	23	1	96	23	88	18	4	133	27	82	28	10	147	502
05:45 PM	15	82	5	1	103	6	65	22	1	94	22	92	32	3	149	14	81	22	5	122	468
Total	93	405	18	2	518	19	291	92	3	405	83	379	103	18	583	123	362	145	27	657	2163
Grand Total	447	1486	49	10	1992	50	1155	335	8	1548	313	1282	396	52	2043	369	1172	430	106	2077	7660
Apprch %	22.4	74.6	2.5	0.5		3.2	74.6	21.6	0.5		15.3	62.8	19.4	2.5		17.8	56.4	20.7	5.1		
Total %	5.8	19.4	0.6	0.1	26	0.7	15.1	4.4	0.1	20.2	4.1	16.7	5.2	0.7	26.7	4.8	15.3	5.6	1.4	27.1	
Cars	440	1438	46	10	1934	49	1119	315	8	1491	292	1260	391	51	1994	361	1143	422	106	2032	7451
% Cars	98.4	96.8	93.9	100	97.1	98	96.9	94	100	96.3	93.3	98.3	98.7	98.1	97.6	97.8	97.5	98.1	100	97.8	97.3
Heavy Vehicles and B	7	48	3	0	58	1	36	20	0	57	21	22	5	1	49	8	29	8	0	45	209
% Heavy Vehicles and B	1.6	3.2	6.1	0	2.9	2	3.1	6	0	3.7	6.7	1.7	1.3	1.9	2.4	2.2	2.5	1.9	0	2.2	2.7



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

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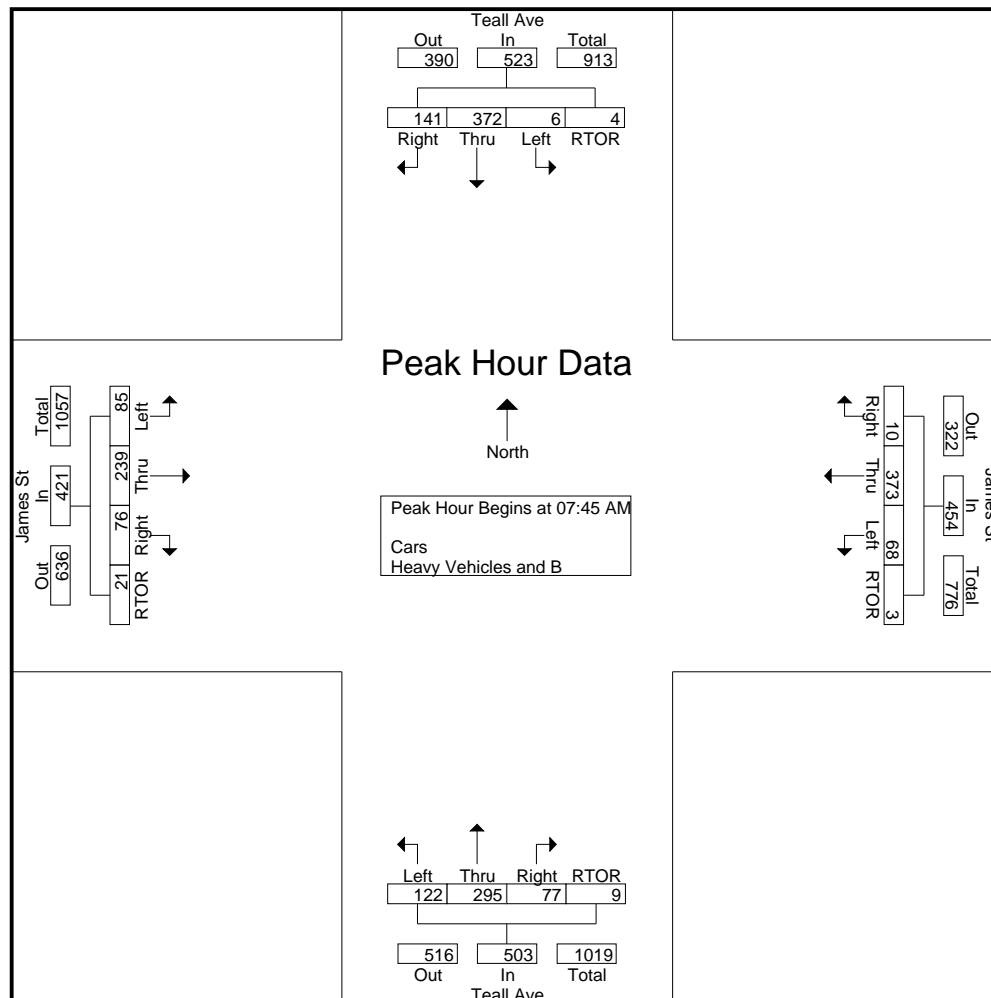
File Name : 5\_27\_09\_James\_Teall\_Both

Site Code : 00000845

Start Date : 5/27/2009

Page No : 2

	Teall Ave Southbound Approach					James St Westbound Approach					Teall Ave Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	30	103	1	0	134	4	91	19	2	116	27	81	36	3	147	25	75	26	7	133	530
08:00 AM	42	91	2	1	136	3	102	18	0	123	28	69	41	3	141	18	58	23	4	103	503
08:15 AM	36	88	2	0	126	1	93	17	0	111	14	71	21	1	107	17	46	20	6	89	433
08:30 AM	33	90	1	3	127	2	87	14	1	104	8	74	24	2	108	16	60	16	4	96	435
Total Volume	141	372	6	4	523	10	373	68	3	454	77	295	122	9	503	76	239	85	21	421	1901
% App. Total	27	71.1	1.1	0.8		2.2	82.2	15	0.7		15.3	58.6	24.3	1.8		18.1	56.8	20.2	5		
PHF	.839	.903	.750	.333	.961	.625	.914	.895	.375	.923	.688	.910	.744	.750	.855	.760	.797	.817	.750	.791	.897





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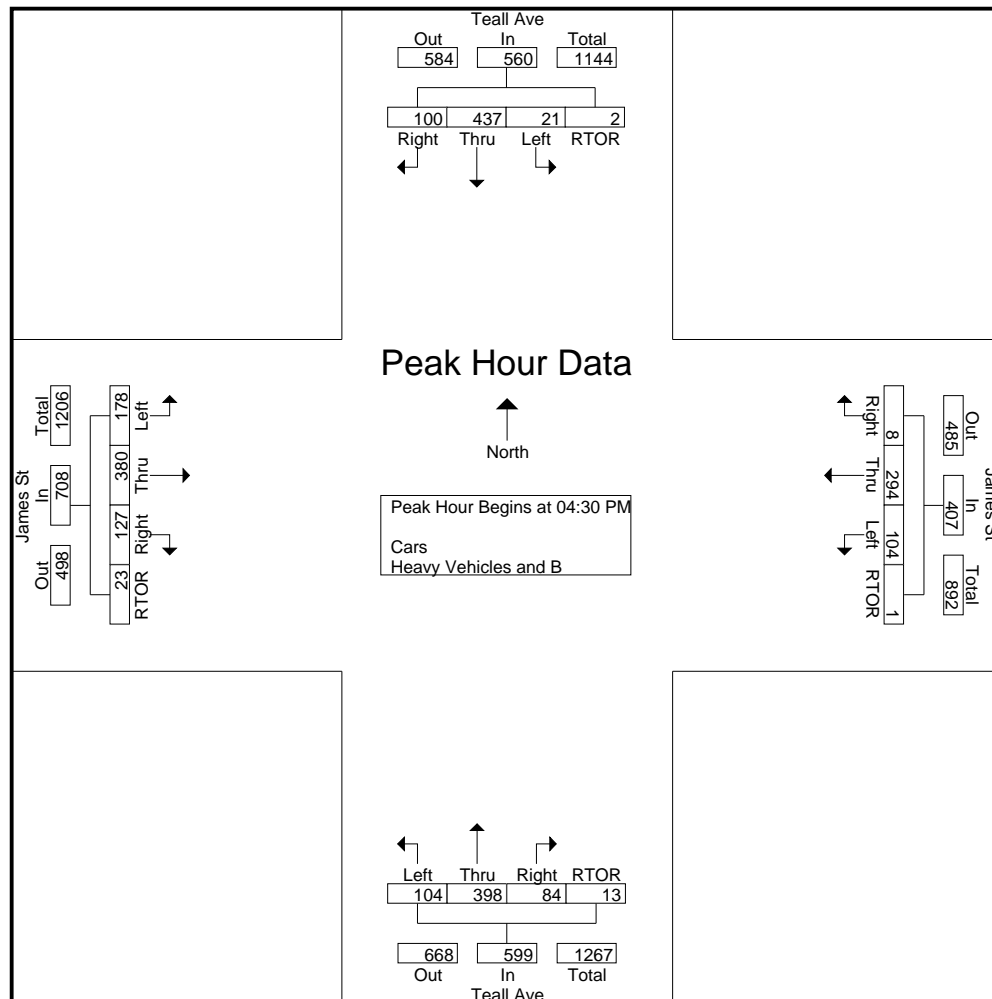
File Name : 5\_27\_09\_James\_Teall\_Both

Site Code : 00000845

Start Date : 5/27/2009

Page No : 3

	Teall Ave Southbound Approach					James St Westbound Approach					Teall Ave Northbound Approach					James St Eastbound Approach					
Start Time	Rig ht	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	18	113	6	1	138	0	65	33	0	98	26	84	29	1	140	24	86	48	7	165	541
04:45 PM	30	98	5	0	133	1	69	24	0	94	20	115	22	1	158	21	95	35	4	155	540
05:00 PM	29	113	4	1	147	3	82	24	0	109	18	102	26	4	150	33	88	45	4	170	576
05:15 PM	23	113	6	0	142	4	78	23	1	106	20	97	27	7	151	49	111	50	8	218	617
Total Volume	100	437	21	2	560	8	294	104	1	407	84	398	104	13	599	127	380	178	23	708	2274
% App. Total	17.9	78	3.8	0.4		2	72.2	25.6	0.2		14	66.4	17.4	2.2		17.9	53.7	25.1	3.2		
PHF	.833	.967	.875	.500	.952	.500	.896	.788	.250	.933	.808	.865	.897	.464	.948	.648	.856	.890	.719	.812	.921





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File Name : 5\_27\_09\_James\_Teall\_Both

Site Code : 00000845

Start Date : 5/27/2009

Page No : 1

## Groups Printed- Bicyclists and Pedes

	Teall Ave Southbound Approach					James St Westbound Approach					Teall Ave Northbound Approach					James St Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	1	1	0	1	0	0	1	0	0	0	2	2	0	0	0	2	2	6
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
07:30 AM	0	0	0	2	2	0	0	0	2	2	0	0	0	1	1	0	1	0	0	1	6
07:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	5
Total	0	0	0	5	5	0	1	0	2	3	0	0	0	7	7	0	1	0	3	4	19
08:00 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	1	0	1	4
08:15 AM	0	0	0	2	2	0	1	0	0	1	0	0	0	0	0	0	0	0	2	2	5
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
08:45 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	4
Total	0	0	0	3	3	0	1	0	4	5	0	0	0	2	2	0	0	1	4	5	15
04:00 PM	0	0	0	2	2	0	0	0	1	1	0	2	0	0	2	0	0	0	2	2	7
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
04:45 PM	0	0	0	2	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	4	4	0	1	0	1	2	0	2	0	1	3	0	0	0	2	2	11
05:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	1	2	3
05:15 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
05:45 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	4
Total	0	0	0	6	6	0	0	0	3	3	0	0	0	0	0	0	1	0	2	3	12
Grand Total	0	0	0	18	18	0	3	0	10	13	0	2	0	10	12	0	2	1	11	14	57
Apprch %	0	0	0	100		0	23.1	0	76.9		0	16.7	0	83.3		0	14.3	7.1	78.6		
Total %	0	0	0	31.6	31.6	0	5.3	0	17.5	22.8	0	3.5	0	17.5	21.1	0	3.5	1.8	19.3	24.6	



# Syracuse Metropolitan Transportation Council

126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

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City of Syracuse  
James and Shotwell Streets  
6/4/09  
PM count done on 6/3/09

File Name : James\_Shotwell\_Re\_merge  
Site Code : 00791011  
Start Date : 6/4/2009  
Page No : 1

## Groups Printed- Cars - Heavy Vehicles & Buses

	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
07:00 AM	8	2	22	3	35	22	29	2	1	54	8	2	0	4	14	2	51	3	0	56	159
07:15 AM	8	9	54	2	73	36	51	2	1	90	5	1	6	2	14	5	52	6	1	64	241
07:30 AM	11	5	49	4	69	44	77	4	0	125	12	7	3	4	26	5	70	6	2	83	303
07:45 AM	16	11	59	8	94	65	110	4	0	179	17	7	11	3	38	6	93	12	4	115	426
Total	43	27	184	17	271	167	267	12	2	448	42	17	20	13	92	18	266	27	7	318	1129
08:00 AM	16	15	47	4	82	44	99	2	0	145	11	5	6	2	24	6	75	6	2	89	340
08:15 AM	14	5	41	3	63	48	91	0	0	139	10	3	11	2	26	6	72	9	2	89	317
08:30 AM	12	5	51	4	72	58	68	2	0	128	3	5	9	2	19	7	63	3	2	75	294
08:45 AM	7	7	60	2	76	48	95	1	0	144	8	3	5	4	20	8	74	2	4	88	328
Total	49	32	199	13	293	198	353	5	0	556	32	16	31	10	89	27	284	20	10	341	1279
04:00 PM	13	17	65	0	95	104	87	1	0	192	11	1	4	4	20	8	85	18	2	113	420
04:15 PM	13	23	74	5	115	80	96	2	0	178	9	4	10	1	24	10	90	7	3	110	427
04:30 PM	29	11	79	3	122	73	103	0	0	176	12	0	10	4	26	15	74	13	7	109	433
04:45 PM	19	19	69	5	112	74	102	5	0	181	14	3	10	1	28	16	92	10	5	123	444
Total	74	70	287	13	444	331	388	8	0	727	46	8	34	10	98	49	341	48	17	455	1724
05:00 PM	22	18	57	7	104	91	104	1	0	196	3	15	11	1	30	10	80	13	7	110	440
05:15 PM	10	12	69	4	95	84	86	6	0	176	7	13	9	1	30	11	100	9	7	127	428
05:30 PM	16	15	71	2	104	84	86	2	1	173	5	4	14	0	23	7	95	17	1	120	420
05:45 PM	13	18	59	5	95	88	78	4	1	171	4	5	7	1	17	17	84	6	3	110	393
Total	61	63	256	18	398	347	354	13	2	716	19	37	41	3	100	45	359	45	18	467	1681
Grand Total	227	192	926	61	1406	1043	1362	38	4	2447	139	78	126	36	379	139	1250	140	52	1581	5813
Apprch %	16.1	13.7	65.9	4.3		42.6	55.7	1.6	0.2		36.7	20.6	33.2	9.5		8.8	79.1	8.9	3.3		
Total %	3.9	3.3	15.9	1	24.2	17.9	23.4	0.7	0.1	42.1	2.4	1.3	2.2	0.6	6.5	2.4	21.5	2.4	0.9	27.2	
Cars	220	186	915	61	1382	1038	1329	37	4	2408	139	78	112	36	365	128	1215	136	52	1531	5686
% Cars	96.9	96.9	98.8	100	98.3	99.5	97.6	97.4	100	98.4	100	100	88.9	100	96.3	92.1	97.2	97.1	100	96.8	97.8
Heavy Vehicles & Buses	7	6	11	0	24	5	33	1	0	39	0	0	14	0	14	11	35	4	0	50	127
% Heavy Vehicles & Buses	3.1	3.1	1.2	0	1.7	0.5	2.4	2.6	0	1.6	0	0	11.1	0	3.7	7.9	2.8	2.9	0	3.2	2.2



# Syracuse Metropolitan Transportation Council

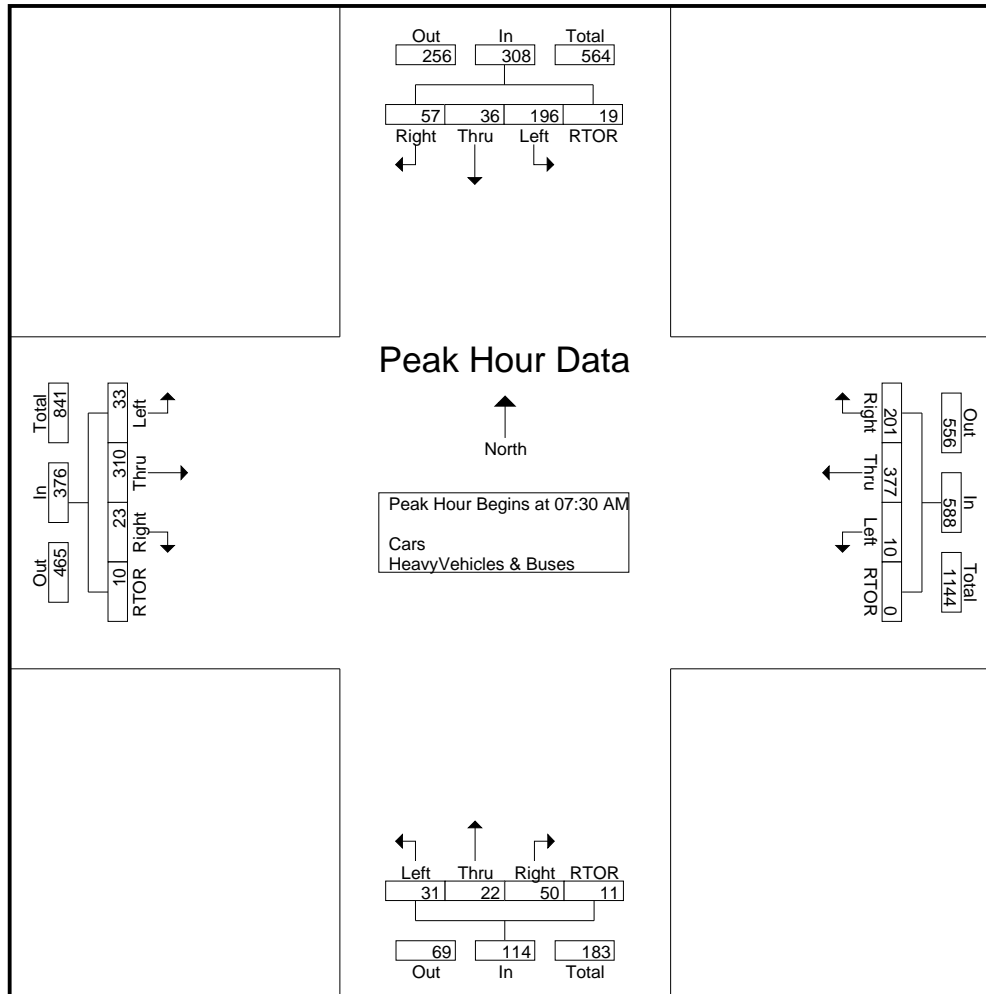
126 N. Salina St.  
Syracuse, NY 13202  
T: (315) 422-5716

[www.smctmpo.org](http://www.smctmpo.org)

City of Syracuse  
James and Shotwell Streets  
6/4/09  
PM count done on 6/3/09

File Name : James\_Shotwell\_Re\_merge  
Site Code : 00791011  
Start Date : 6/4/2009  
Page No : 2

	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	11	5	49	4	69	44	77	4	0	125	12	7	3	4	26	5	70	6	2	83	303
07:45 AM	16	11	59	8	94	65	110	4	0	179	17	7	11	3	38	6	93	12	4	115	426
08:00 AM	16	15	47	4	82	44	99	2	0	145	11	5	6	2	24	6	75	6	2	89	340
08:15 AM	14	5	41	3	63	48	91	0	0	139	10	3	11	2	26	6	72	9	2	89	317
Total Volume	57	36	196	19	308	201	377	10	0	588	50	22	31	11	114	23	310	33	10	376	1386
% App. Total	18.5	11.7	63.6	6.2		34.2	64.1	1.7	0		43.9	19.3	27.2	9.6		6.1	82.4	8.8	2.7		
PHF	.891	.600	.831	.594	.819	.773	.857	.625	.000	.821	.735	.786	.705	.688	.750	.958	.833	.688	.625	.817	.813







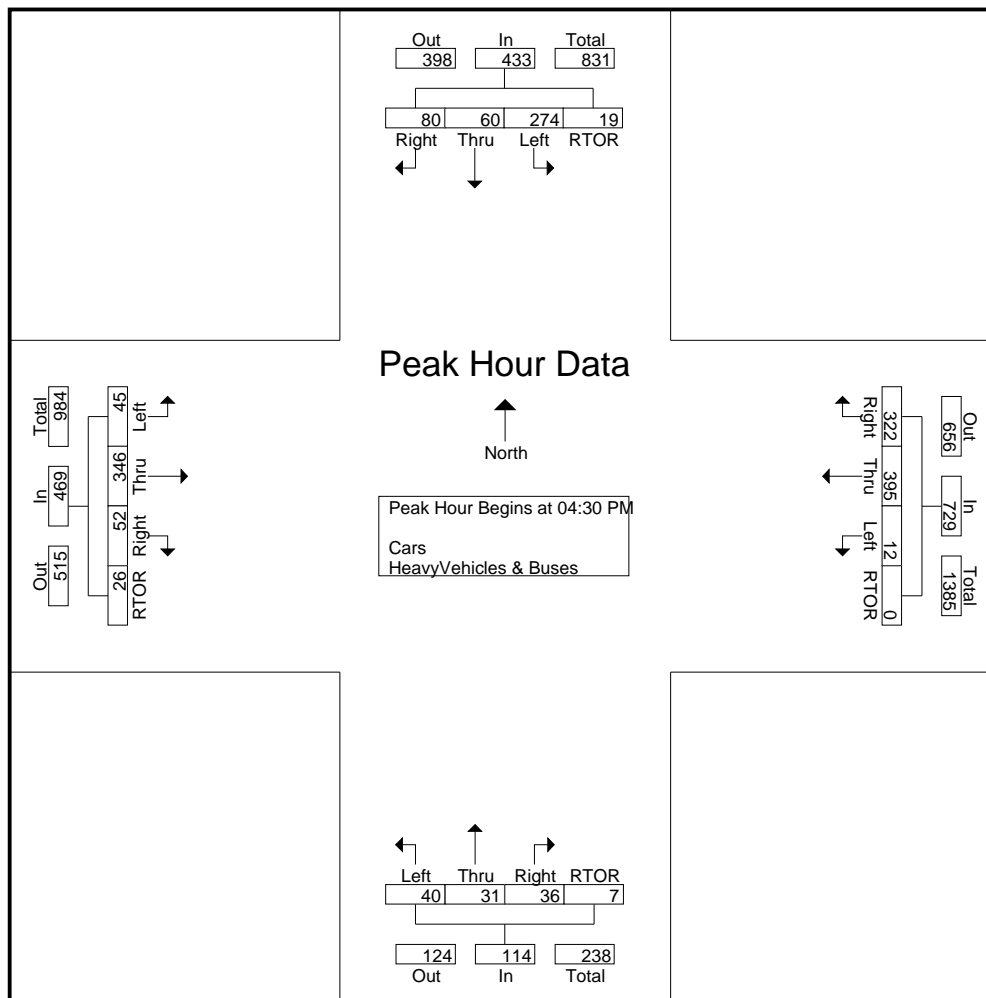
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Syracuse, NY 13202  
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City of Syracuse  
James and Shotwell Streets  
6/4/09  
PM count done on 6/3/09

File Name : James\_Shotwell\_Re\_merge  
Site Code : 00791011  
Start Date : 6/4/2009  
Page No : 3

	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
Start Time	Rig ht	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Right	Thr u	Left	RTOR	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	29	11	79	3	122	73	103	0	0	176	12	0	10	4	26	15	74	13	7	109	433
04:45 PM	19	19	69	5	112	74	102	5	0	181	14	3	10	1	28	16	92	10	5	123	444
05:00 PM	22	18	57	7	104	91	104	1	0	196	3	15	11	1	30	10	80	13	7	110	440
05:15 PM	10	12	69	4	95	84	86	6	0	176	7	13	9	1	30	11	100	9	7	127	428
Total Volume	80	60	274	19	433	322	395	12	0	729	36	31	40	7	114	52	346	45	26	469	1745
% App. Total	18.5	13.9	63.3	4.4		44.2	54.2	1.6	0		31.6	27.2	35.1	6.1		11.1	73.8	9.6	5.5		
PHF	.690	.789	.867	.679	.887	.885	.950	.500	.000	.930	.643	.517	.909	.438	.950	.813	.865	.865	.929	.923	.983





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City of Syracuse  
James and Shotwell Streets  
6/4/09  
PM count done on 6/3/09


















File Name : James\_Shotwell\_Re\_merge  
Site Code : 00791011  
Start Date : 6/4/2009  
Page No : 1

## Groups Printed- Bikes\_Peds

	Southbound Approach					Westbound Approach					Northbound Approach					Eastbound Approach					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	1	0	2	3	6
07:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	3	4	6
07:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	2	0	0	2	4
Total	0	0	0	1	1	0	0	0	1	1	0	0	0	6	6	0	4	0	5	9	17
08:00 AM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4
08:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
08:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3
08:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	5	6	0	0	0	0	0	0	0	0	1	1	0	1	0	2	3	10
04:15 PM	0	0	0	3	3	0	2	0	0	2	0	0	0	0	0	0	0	0	3	3	8
04:30 PM	1	0	0	0	1	0	1	0	1	2	0	0	0	1	1	0	0	0	5	5	9
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	4	4	0	1	0	2	3	9
Total	1	0	0	3	4	0	5	0	1	6	0	0	0	5	5	0	1	0	10	11	26
05:00 PM	0	0	5	0	5	0	0	1	2	3	0	0	0	2	2	0	0	0	1	1	11
05:15 PM	0	0	0	3	3	0	1	0	0	1	0	0	0	5	5	0	0	0	5	5	14
05:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	0	3	6	7
05:45 PM	0	0	0	3	3	0	4	0	0	4	0	0	0	2	2	0	0	0	0	0	9
Total	0	0	5	7	12	0	5	1	2	8	0	0	0	9	9	0	3	0	9	12	41
Grand Total	1	0	6	16	23	0	10	1	4	15	0	0	0	21	21	0	9	0	26	35	94
Apprch %	4.3	0	26.1	69.6		0	66.7	6.7	26.7		0	0	0	100		0	25.7	0	74.3		
Total %	1.1	0	6.4	17	24.5	0	10.6	1.1	4.3	16	0	0	0	22.3	22.3	0	9.6	0	27.7	37.2	

Lanes, Volumes, Timings  
1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	459	172	74	387	5	138	1	6	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			1.00				
Frt		0.960			0.998			0.987				
Flt Protected		0.999			0.992		0.950	0.957				
Satd. Flow (prot)	0	3367	0	0	3503	0	1681	1666	0	0	1863	0
Flt Permitted		0.947			0.765		0.950	0.950				
Satd. Flow (perm)	0	3192	0	0	2699	0	1681	1654	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			2			6				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		170			537			242			134	
Travel Time (s)		3.9			12.2			5.5			3.0	
Confl. Peds. (#/hr)	2		16	16		2	12		19	19		12
Confl. Bikes (#/hr)			1			3			1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	11	516	193	83	435	6	155	1	7	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	720	0	0	524	0	82	81	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	37.0	37.0		37.0	37.0		25.0	25.0		18.0	18.0	
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	25.0	25.0	0.0	18.0	18.0	0.0
Total Split (%)	46.3%	46.3%	0.0%	46.3%	46.3%	0.0%	31.3%	31.3%	0.0%	22.5%	22.5%	0.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		20.0	20.0		13.0	13.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		12.0	12.0				

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	5	5		5	5		5	5				
Act Effect Green (s)		52.0			52.0		22.0	22.0				
Actuated g/C Ratio		0.65			0.65		0.28	0.28				
v/c Ratio		0.34			0.30		0.18	0.18				
Control Delay		6.0			4.9		23.4	21.8				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		6.0			4.9		23.4	21.8				
LOS		A			A		C	C				
Approach Delay		6.0			4.9			22.6				
Approach LOS		A			A			C				
Queue Length 50th (ft)		43			21		22	20				
Queue Length 95th (ft)		61			27		46	44				
Internal Link Dist (ft)		90			457			162			54	
Turn Bay Length (ft)												
Base Capacity (vph)		2103			1755		462	459				
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		0.34			0.30		0.18	0.18				

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 70 (88%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 7.5

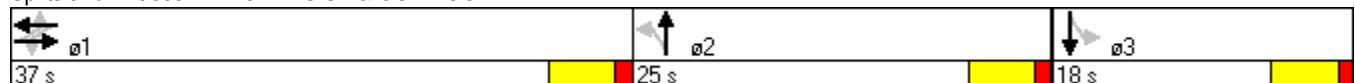
Intersection Capacity Utilization 63.1%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B





















### Splits and Phases: 1: JAMES ST & OSWEGO BLVD



# Lanes, Volumes, Timings

## 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	354	46	133	419	141	29	164	33	102	299	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99			1.00	0.98	0.99	1.00		0.99	1.00	
Frt		0.983				0.850		0.975			0.991	
Flt Protected	0.950				0.988		0.950			0.950		
Satd. Flow (prot)	1770	3461	0	0	3497	1583	1770	3439	0	1770	3501	0
Flt Permitted	0.425				0.655		0.545			0.537		
Satd. Flow (perm)	789	3461	0	0	2311	1556	1003	3439	0	993	3501	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				153		31			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	6		23	23		6	14		8	8		14
Confl. Bikes (#/hr)			1			3						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	385	50	145	455	153	32	178	36	111	325	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	435	0	0	600	153	32	214	0	111	345	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	28.0	28.0		14.0	42.0	
Total Split (s)	24.0	24.0	0.0	14.0	38.0	38.0	28.0	28.0	0.0	14.0	42.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	17.5%	47.5%	47.5%	35.0%	35.0%	0.0%	17.5%	52.5%	0.0%
Maximum Green (s)	19.0	19.0		9.0	33.0	33.0	23.0	23.0		9.0	37.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	

# Lanes, Volumes, Timings

## 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effect Green (s)	21.0	21.0			35.0	35.0	25.0	25.0		39.0	39.0	
Actuated g/C Ratio	0.26	0.26			0.44	0.44	0.31	0.31		0.49	0.49	
v/c Ratio	0.34	0.47			0.51	0.20	0.10	0.20		0.19	0.20	
Control Delay	24.0	20.5			13.1	3.9	20.8	17.7		12.1	11.6	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	24.0	20.5			13.1	3.9	20.8	17.7		12.1	11.6	
LOS	C	C			B	A	C	B		B	B	
Approach Delay		21.0			11.2			18.1			11.8	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	20	63			52	0	8	23		20	32	
Queue Length 95th (ft)	46	92			108	32	22	41		38	48	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	207	921			1174	767	313	1096		591	1712	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.34	0.47			0.51	0.20	0.10	0.20		0.19	0.20	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 75 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 14.7







Intersection Capacity Utilization 61.9%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B




















### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
14 s	24 s	14 s	28 s
 ø6		 ø8	
38 s		42 s	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	431	24	62	527	59	141	238	49	22	153	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	105		0	150		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99		0.99		0.98	0.99	1.00	
Frt		0.993			0.986				0.850		0.979	
Flt Protected		0.998			0.995		0.950			0.950		
Satd. Flow (prot)	0	3498	0	0	3458	0	1770	1863	1583	1770	1816	0
Flt Permitted		0.905			0.854		0.575			0.494		
Satd. Flow (perm)	0	3171	0	0	2964	0	1058	1863	1549	915	1816	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			20				54		12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	12		16	16		12	17		10	10		17
Confl. Bikes (#/hr)			2			1						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	474	26	68	579	65	155	262	54	24	168	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	526	0	0	712	0	155	262	54	24	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	46.0	46.0		46.0	46.0		34.0	34.0	34.0	34.0	34.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	34.0	34.0	34.0	34.0	34.0	0.0
Total Split (%)	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effect Green (s)		43.0			43.0		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio		0.54			0.54		0.39	0.39	0.39	0.39	0.39	
v/c Ratio		0.31			0.44		0.38	0.36	0.09	0.07	0.27	
Control Delay		4.2			5.7		21.0	19.3	5.2	16.2	17.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		4.2			5.7		21.0	19.3	5.2	16.2	17.0	
LOS		A			A		C	B	A	B	B	
Approach Delay		4.2			5.7			18.3			16.9	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		6			31		37	62	0	5	41	
Queue Length 95th (ft)		8			6		71	102	14	15	74	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)							105			150		
Base Capacity (vph)		1709			1602		410	722	633	355	711	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.31			0.44		0.38	0.36	0.09	0.07	0.27	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 37 (46%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 9.6

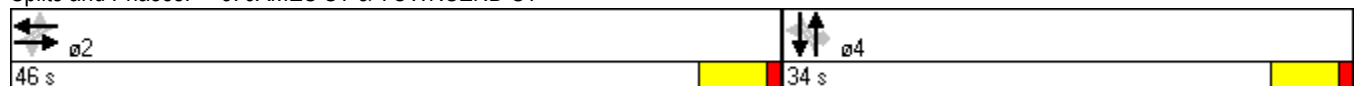
Intersection Capacity Utilization 76.2%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service D

Splits and Phases: 3: JAMES ST & TOWNSEND ST





















# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	443	10	14	624	29	13	35	10	13	17	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.997			0.993			0.976			0.964	
Flt Protected		0.995			0.999			0.989			0.985	
Satd. Flow (prot)	0	3507	0	0	3500	0	0	1793	0	0	1762	0
Flt Permitted		0.835			0.942			0.952			0.932	
Satd. Flow (perm)	0	2939	0	0	3299	0	0	1725	0	0	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			12			11			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	20		18	18		20	1		3	3		1
Confl. Bikes (#/hr)			1			4						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	54	487	11	15	686	32	14	38	11	14	19	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	552	0	0	733	0	0	63	0	0	45	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		52.0			52.0			22.0			22.0	
Actuated g/C Ratio		0.65			0.65			0.28			0.28	
v/c Ratio		0.29			0.34			0.13			0.10	
Control Delay		2.0			7.8			19.7			17.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		2.0			7.8			19.7			17.9	
LOS		A			A			B			B	
Approach Delay		2.0			7.8			19.7			17.9	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		7			38			13			8	
Queue Length 95th (ft)		14			118			33			25	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)												
Base Capacity (vph)		1912			2149			482			467	
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		0.29			0.34			0.13			0.10	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 46 (58%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 6.4

Intersection Capacity Utilization 57.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

















Splits and Phases: 4: JAMES ST & MCBRIDE ST



# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	418	36	105	598	18	39	66	47	2	106	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			0.99			0.99	
Frt		0.989			0.996			0.958			0.971	
Flt Protected		0.999			0.993			0.987			0.999	
Satd. Flow (prot)	0	3477	0	0	3495	0	0	1743	0	0	1793	0
Flt Permitted		0.934			0.801			0.902			0.997	
Satd. Flow (perm)	0	3250	0	0	2808	0	0	1587	0	0	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6			28			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	20		23	23		20	17		16	16		18
Confl. Bikes (#/hr)			1			2			2			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	13	445	38	112	636	19	41	70	50	2	113	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	496	0	0	767	0	0	161	0	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		52.0			52.0			22.0			22.0	
Actuated g/C Ratio		0.65			0.65			0.28			0.28	
v/c Ratio		0.23			0.42			0.35			0.29	
Control Delay		1.1			5.8			21.7			22.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		1.1			5.8			21.7			22.0	
LOS		A			A			C			C	
Approach Delay		1.1			5.8			21.7			22.0	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		3			15			36			34	
Queue Length 95th (ft)		7			63			71			67	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)												
Base Capacity (vph)		2120			1827			457			504	
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		0.23			0.42			0.35			0.29	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 54 (68%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 7.5

Intersection Capacity Utilization 77.7%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service D

















Splits and Phases: 5: JAMES ST & CATHERINE ST



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	398	44	19	678	53	28	223	44	32	210	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.986			0.989			0.978			0.991	
Flt Protected		0.997			0.999			0.995			0.994	
Satd. Flow (prot)	0	3471	0	0	3491	0	0	3425	0	0	3480	0
Flt Permitted		0.898			0.938			0.905			0.884	
Satd. Flow (perm)	0	3126	0	0	3278	0	0	3112	0	0	3089	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			11			23			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	11		10	10		11	14		18	18		14
Confl. Bikes (#/hr)			5			1			1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	26	415	46	20	706	55	29	232	46	33	219	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	487	0	0	781	0	0	307	0	0	268	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	35%
Maximum Green (s)	25.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	5

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		51.0			51.0			18.0			18.0	
Actuated g/C Ratio		0.64			0.64			0.22			0.22	
v/c Ratio		0.24			0.37			0.43			0.38	
Control Delay		11.4			9.5			26.7			27.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.4			9.5			26.7			27.5	
LOS		B			A			C			C	
Approach Delay		11.4			9.5			26.7			27.5	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)		53			45			43			39	
Queue Length 95th (ft)		42			147			68			63	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)												
Base Capacity (vph)		1999			2094			718			700	
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		0.24			0.37			0.43			0.38	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 47 (59%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 15.5


Intersection Capacity Utilization 71.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

### Splits and Phases: 6: JAMES ST & LODI ST

								
ø1			ø2			ø3		
31 s			21 s			28 s		

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST

10/7/2011

















Lane Group                      ø3  
Act Effect Green (s)  
Actuated g/C Ratio  
v/c Ratio  
Control Delay  
Queue Delay  
Total Delay  
LOS  
Approach Delay  
Approach LOS  
Queue Length 50th (ft)  
Queue Length 95th (ft)  
Internal Link Dist (ft)  
Turn Bay Length (ft)  
Base Capacity (vph)  
Starvation Cap Reductn  
Spillback Cap Reductn  
Storage Cap Reductn  
Reduced v/c Ratio  
Intersection Summary



# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	353	56	39	625	26	92	144	82	23	73	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			0.99	
Frt		0.982			0.994			0.965			0.966	
Flt Protected		0.993			0.997			0.986			0.991	
Satd. Flow (prot)	0	3421	0	0	3500	0	0	1761	0	0	1769	0
Flt Permitted		0.801			0.909			0.884			0.921	
Satd. Flow (perm)	0	2756	0	0	3187	0	0	1572	0	0	1642	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			10			29			29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	16		26	26		16	20		12	12		20
Confl. Bikes (#/hr)			2			1			1			1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	69	376	60	41	665	28	98	153	87	24	78	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	505	0	0	734	0	0	338	0	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		40.2			40.2			18.8			18.8	
Actuated g/C Ratio		0.62			0.62			0.29			0.29	
v/c Ratio		0.29			0.37			0.71			0.28	
Control Delay		6.5			4.1			27.2			14.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.5			4.1			27.2			14.5	
LOS		A			A			C			B	
Approach Delay		6.5			4.1			27.2			14.5	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		27			28			71			21	
Queue Length 95th (ft)		47			10			122			45	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)												
Base Capacity (vph)		1718			1974			551			575	
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		0.29			0.37			0.61			0.24	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 2 (3%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 10.2

Intersection Capacity Utilization 67.7%

Analysis Period (min) 15

Intersection LOS: B

















ICU Level of Service C

### Splits and Phases: 7: JAMES ST & OAK ST



Lanes, Volumes, Timings  
8: JAMES ST & DEWITT ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	424	9	0	640	100	6	1	2	149	5	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.97	
Frt		0.997			0.980			0.973			0.970	
Flt Protected		0.997						0.966			0.964	
Satd. Flow (prot)	0	3515	0	0	3442	0	0	1736	0	0	1735	0
Flt Permitted		0.896						0.834			0.773	
Satd. Flow (perm)	0	3157	0	0	3442	0	0	1495	0	0	1360	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			44			2			24	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	18		13	13		18	7		31	31		7
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	471	10	0	711	111	7	1	2	166	6	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	509	0	0	822	0	0	10	0	0	221	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		42.6			42.6			16.4			16.4	
Actuated g/C Ratio		0.66			0.66			0.25			0.25	
v/c Ratio		0.25			0.36			0.03			0.61	
Control Delay		9.7			3.7			14.3			25.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.7			3.7			14.3			25.7	
LOS		A			A			B			C	
Approach Delay		9.7			3.7			14.3			25.7	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		43			13			2			46	
Queue Length 95th (ft)		74			18			8			80	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)												
Base Capacity (vph)		2071			2271			507			476	
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		0.25			0.36			0.02			0.46	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 50 (77%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 8.8

Intersection Capacity Utilization 51.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

Splits and Phases: 8: JAMES ST & DEWITT ST



Lanes, Volumes, Timings  
9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	478	97	35	641	99	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99			1.00	0.99	
Frt	0.975				0.970	
Flt Protected				0.997	0.963	
Satd. Flow (prot)	3417	0	0	3529	1734	0
Flt Permitted				0.904	0.963	
Satd. Flow (perm)	3417	0	0	3197	1730	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	66				23	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		18	18		3	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	525	107	38	704	109	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	632	0	0	742	140	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	42.0		42.0	42.0	23.0	
Total Split (s)	42.0	0.0	42.0	42.0	23.0	0.0
Total Split (%)	64.6%	0.0%	64.6%	64.6%	35.4%	0.0%
Maximum Green (s)	37.0		37.0	37.0	18.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	Max	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	9.0		9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	39.0			39.0	20.0	
Actuated g/C Ratio	0.60			0.60	0.31	
v/c Ratio	0.30			0.39	0.26	
Control Delay	3.4			9.6	15.6	
Queue Delay	0.0			0.0	0.0	
Total Delay	3.4			9.6	15.6	
LOS	A			A	B	
Approach Delay	3.4			9.6	15.6	
Approach LOS	A			A	B	
Queue Length 50th (ft)	13			47	23	
Queue Length 95th (ft)	14			134	50	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)						
Base Capacity (vph)	2077			1918	549	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.30			0.39	0.26	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 42 (65%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 7.6

Intersection Capacity Utilization 60.3%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

### Splits and Phases: 9: JAMES ST & SEDGEWICK ST



# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	497	9	13	658	18	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00			1.00	0.98	
Frt	0.997				0.922	
Flt Protected				0.999	0.979	
Satd. Flow (prot)	3527	0	0	3536	1652	0
Flt Permitted				0.943	0.979	
Satd. Flow (perm)	3527	0	0	3337	1652	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5				29	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		6	6			18
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	592	11	15	783	21	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	603	0	0	798	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	40.0		40.0	40.0	25.0	
Total Split (s)	40.0	0.0	40.0	40.0	25.0	0.0
Total Split (%)	61.5%	0.0%	61.5%	61.5%	38.5%	0.0%
Maximum Green (s)	35.0		35.0	35.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	53.5			53.5	10.9	
Actuated g/C Ratio	0.82			0.82	0.17	
v/c Ratio	0.21			0.29	0.17	
Control Delay	4.9			3.6	12.6	
Queue Delay	0.0			0.0	0.0	
Total Delay	4.9			3.6	12.6	
LOS	A			A	B	
Approach Delay	4.9			3.6	12.6	
Approach LOS	A			A	B	
Queue Length 50th (ft)	8			21	5	
Queue Length 95th (ft)	67			73	16	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)						
Base Capacity (vph)	2903			2746	578	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.21			0.29	0.09	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 54 (83%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 4.4

Intersection Capacity Utilization 43.5%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A



















### Splits and Phases: 10: JAMES ST & WILSON ST





Lanes, Volumes, Timings  
11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	360	76	68	368	10	142	295	77	6	372	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.98	1.00			1.00			0.98	
Frt		0.974			0.996			0.977			0.955	
Flt Protected	0.950			0.950				0.986			0.999	
Satd. Flow (prot)	1770	3421	0	1770	3522	0	0	3396	0	0	3306	0
Flt Permitted	0.950			0.950				0.654			0.949	
Satd. Flow (perm)	1750	3421	0	1741	3522	0	0	2252	0	0	3140	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			2			18			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	8		13	13		8	24		6	6		24
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	94	400	84	76	409	11	158	328	86	7	413	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	484	0	76	420	0	0	572	0	0	599	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	25.0	50.0	0.0	25.0	50.0	0.0	25.0	65.0	0.0	40.0	40.0	0.0
Total Split (%)	17.9%	35.7%	0.0%	17.9%	35.7%	0.0%	17.9%	46.4%	0.0%	28.6%	28.6%	0.0%
Maximum Green (s)	20.5	45.0		20.5	45.0		20.0	60.0		35.0	35.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5			5			5		5	5	
Act Effect Green (s)	12.7	19.3		11.8	18.6			30.6			30.6	
Actuated g/C Ratio	0.19	0.29		0.18	0.28			0.45			0.45	
v/c Ratio	0.28	0.49		0.24	0.43			0.55			0.41	
Control Delay	31.7	23.5		32.2	24.4			17.0			13.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	31.7	23.5		32.2	24.4			17.0			13.6	
LOS	C	C		C	C			B			B	
Approach Delay		24.8			25.6			17.0			13.6	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	23	56		19	51			58			53	
Queue Length 95th (ft)	67	119		57	108			118			105	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	660	2467		660	2535			1966			1985	
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	0.14	0.20		0.12	0.17			0.29			0.30	

### Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 67.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 20.0








Intersection Capacity Utilization 61.8%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4
25 s	50 s	65 s
 ø5	 ø6	 ø7
25 s	50 s	25 s
		 ø8
		40 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	418	25	8	343	0	37	0	61	198	36	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			0.99			0.99	
Frt			0.850					0.916			0.973	
Flt Protected					0.999			0.981			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1650	0	0	1740	0
Flt Permitted					0.988			0.837			0.705	
Satd. Flow (perm)	0	1863	1537	0	1840	0	0	1408	0	0	1267	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31					71			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	23		11	11		23	12		1	1		12
Confl. Bikes (#/hr)			3									1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	0	516	31	10	423	0	46	0	75	244	44	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	516	31	0	433	0	0	121	0	0	360	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	78.0	78.0	78.0	78.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	72.2%	72.2%	72.2%	72.2%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%
Maximum Green (s)							25.5	25.5		25.5	25.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	13.0	40.0	25.0
Total Split (%)	12%	37%	23%
Maximum Green (s)	8.5	35.5	20.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effect Green (s)		70.9	70.9		70.9			25.5			25.5	
Actuated g/C Ratio		0.67	0.67		0.67			0.24			0.24	
v/c Ratio		0.41	0.03		0.35			0.31			1.14	
Control Delay		8.9	2.0		2.5			17.9			131.8	
Queue Delay		0.4	0.0		0.7			0.1			380.0	
Total Delay		9.4	2.0		3.2			17.9			511.8	
LOS		A	A		A			B			F	
Approach Delay		9.0			3.2			17.9			511.8	
Approach LOS		A			A			B			F	
Queue Length 50th (ft)		96	0		9			19			~199	
Queue Length 95th (ft)		117	5		24			44			#276	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)												
Base Capacity (vph)		1261	1050		1245			395			315	
Starvation Cap Reductn		0	0		490			0			135	
Spillback Cap Reductn		336	0		0			13			2	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.56	0.03		0.57			0.32			2.00	

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 105.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 131.9

Intersection LOS: F

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

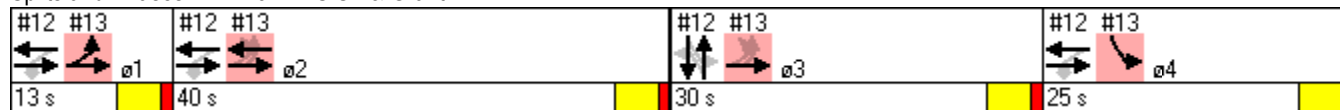
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 12: JAMES ST & Grant



# Lanes, Volumes, Timings 12: JAMES ST & Grant
















10/7/2011

Lane Group	ø1	ø2	ø4
Pedestrian Calls (#/hr)		5	
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings

## 13: James S & Walgreens










10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Lane Configurations										
Volume (vph)	50	85	542	351	215	5	8	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75			150	0	0	0	0	
Storage Lanes		1			1	1	0	0	0	
Taper Length (ft)		25			25	25	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.91	0.98				
Fr t					0.850	0.916				
Flt Protected		0.950				0.982				
Satd. Flow (prot)	0	1770	1863	1863	1583	1676	0	0	0	
Flt Permitted		0.368				0.982				
Satd. Flow (perm)	0	685	1863	1863	1438	1637	0	0	0	
Right Turn on Red									Yes	
Satd. Flow (RTOR)										
Link Speed (mph)			30	30		30		30		
Link Distance (ft)			208	618		139		186		
Travel Time (s)			4.7	14.0		3.2		4.2		
Confl. Peds. (#/hr)	23				23	23				
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Adj. Flow (vph)	62	105	669	433	265	6	10	0	0	
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	167	669	433	265	16	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)			12	12		12		0		
Link Offset(ft)			0	0		0		0		
Crosswalk Width(ft)			16	16		16		16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15			9	15	9	15	9	
Turn Type	custom	custom			Perm					
Protected Phases		1	1 2 3	2		4				3
Permitted Phases	2 3	2 3			2					
Detector Phase	2 3	1	1 2 3	2	2	4				
Switch Phase										
Minimum Initial (s)		5.0		10.0	10.0	5.0				8.0
Minimum Split (s)		9.5		22.0	22.0	9.5				22.0
Total Split (s)	70.0	13.0	83.0	40.0	40.0	25.0	0.0	0.0	0.0	30.0
Total Split (%)	64.8%	12.0%	76.9%	37.0%	37.0%	23.1%	0.0%	0.0%	0.0%	28%
Maximum Green (s)		8.5		35.5	35.5	20.5				25.5
Yellow Time (s)		3.5		3.5	3.5	3.5				3.5
All-Red Time (s)		1.0		1.0	1.0	1.0				1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	
Lead/Lag		Lead		Lag	Lag	Lag				Lead
Lead-Lag Optimize?										
Vehicle Extension (s)		3.0		3.0	3.0	3.0				3.0
Recall Mode		None		Min	Min	None				None

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Walk Time (s)				7.0	7.0					7.0
Flash Dont Walk (s)				10.0	10.0					10.0
Pedestrian Calls (#/hr)				5	5					5
Act Effect Green (s)		73.0	77.5	34.4	34.4	19.0				
Actuated g/C Ratio		0.69	0.73	0.33	0.33	0.18				
v/c Ratio		0.30	0.49	0.71	0.56	0.05				
Control Delay		7.1	9.8	39.0	35.2	36.5				
Queue Delay		0.3	1.3	0.0	0.0	0.0				
Total Delay		7.5	11.1	39.0	35.2	36.5				
LOS		A	B	D	D	D				
Approach Delay			10.4	37.6		36.5				
Approach LOS			B	D		D				
Queue Length 50th (ft)		32	157	177	102	6				
Queue Length 95th (ft)		m38	m161	221	140	17				
Internal Link Dist (ft)			128	538		59		106		
Turn Bay Length (ft)		75			150					
Base Capacity (vph)		562	1369	628	485	326				
Starvation Cap Reductn		116	461	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	0.74	0.69	0.55	0.05				

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 105.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 22.9

Intersection LOS: C









Intersection Capacity Utilization 41.4%

ICU Level of Service A

Analysis Period (min) 15

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

### Splits and Phases: 13: James S & Walgreens


















#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
13 s	40 s	30 s	25 s



# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	452	101	28	498	1	274	0	17	4	6	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			1.00			0.99	
Frt		0.973						0.982			0.936	
Flt Protected					0.997		0.950	0.958			0.990	
Satd. Flow (prot)	0	3414	0	0	3528	0	1681	1660	0	0	1711	0
Flt Permitted					0.907		0.215	0.287			0.883	
Satd. Flow (perm)	0	3414	0	0	3208	0	380	497	0	0	1522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34						9			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		170			537			242			134	
Travel Time (s)		3.9			12.2			5.5			3.0	
Confl. Peds. (#/hr)	6		29	29		6	3		11	11		3
Confl. Bikes (#/hr)			4			5						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	476	106	29	524	1	288	0	18	4	6	9
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	582	0	0	554	0	153	153	0	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		35.0	35.0		18.0	18.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	35.0	35.0	0.0	18.0	18.0	0.0
Total Split (%)	37.6%	37.6%	0.0%	37.6%	37.6%	0.0%	41.2%	41.2%	0.0%	21.2%	21.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		30.0	30.0		13.0	13.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		12.0	12.0				

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	5	5		5	5		5	5				
Act Effect Green (s)		42.1			42.1		32.0	32.0			8.3	
Actuated g/C Ratio		0.50			0.50		0.38	0.38			0.10	
v/c Ratio		0.34			0.35		1.07	0.79			0.12	
Control Delay		14.0			34.5		126.2	53.6			26.6	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		14.0			34.5		126.2	53.6			26.6	
LOS		B			C		F	D			C	
Approach Delay		14.0			34.5			89.9			26.6	
Approach LOS		B			C			F			C	
Queue Length 50th (ft)		52			95		~65	48			3	
Queue Length 95th (ft)		102			137		#149	#128			17	
Internal Link Dist (ft)		90			457			162			54	
Turn Bay Length (ft)												
Base Capacity (vph)		1708			1589		143	193			276	
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		0.34			0.35		1.07	0.79			0.07	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 32 (38%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 37.8

Intersection LOS: D

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15










~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





















### Splits and Phases: 1: JAMES ST & OSWEGO BLVD

								
ø1			ø2			ø3		
32 s			35 s			18 s		

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	408	13	81	474	291	32	694	103	99	151	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00			1.00	0.98	0.99	0.99			1.00	
Frt		0.995				0.850		0.981			0.982	
Flt Protected	0.950				0.993		0.950			0.950		
Satd. Flow (prot)	1770	3514	0	0	3514	1583	1770	3452	0	1770	3463	0
Flt Permitted	0.421				0.742		0.633			0.138		
Satd. Flow (perm)	779	3514	0	0	2618	1549	1163	3452	0	257	3463	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				298		21			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	11		38	38		11	12		38	38		12
Confl. Bikes (#/hr)			1			3			3			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	448	14	89	521	320	35	763	113	109	166	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	462	0	0	610	320	35	876	0	109	189	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	33.0	33.0		14.0	47.0	
Total Split (s)	24.0	24.0	0.0	14.0	38.0	38.0	33.0	33.0	0.0	14.0	47.0	0.0
Total Split (%)	28.2%	28.2%	0.0%	16.5%	44.7%	44.7%	38.8%	38.8%	0.0%	16.5%	55.3%	0.0%
Maximum Green (s)	19.0	19.0		9.0	33.0	33.0	28.0	28.0		9.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effect Green (s)	21.0	21.0			35.0	35.0	30.0	30.0		44.0	44.0	
Actuated g/C Ratio	0.25	0.25			0.41	0.41	0.35	0.35		0.52	0.52	
v/c Ratio	0.30	0.53			0.51	0.39	0.09	0.71		0.33	0.10	
Control Delay	24.3	25.1			25.8	11.2	19.2	27.0		13.4	9.3	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	24.3	25.1			25.8	11.2	19.2	27.0		13.4	9.3	
LOS	C	C			C	B	B	C		B	A	
Approach Delay		25.0			20.7			26.7			10.8	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	19	85			90	25	8	138		19	15	
Queue Length 95th (ft)	m45	m122			122	m71	22	185		37	26	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	192	870			1194	813	410	1232		329	1804	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.30	0.53			0.51	0.39	0.09	0.71		0.33	0.10	

#### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 53 (62%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 22.5

Intersection LOS: C







Intersection Capacity Utilization 71.3%

ICU Level of Service C

Analysis Period (min) 15

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




















#### Splits and Phases: 2: JAMES ST & STATE ST

			
ø1	ø2	ø3	ø4
14 s	24 s	14 s	33 s
			
ø6		ø8	
38 s		47 s	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	513	68	35	588	39	222	347	93	35	208	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	105		0	150		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.99		0.98	1.00	1.00	
Frt		0.983			0.991				0.850		0.978	
Flt Protected		0.998			0.997		0.950			0.950		
Satd. Flow (prot)	0	3447	0	0	3485	0	1770	1863	1583	1770	1815	0
Flt Permitted		0.901			0.897		0.488			0.361		
Satd. Flow (perm)	0	3110	0	0	3133	0	901	1863	1553	670	1815	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			12				99		12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	17		21	21		17	13		7	7		13
Confl. Bikes (#/hr)			2			7						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	31	546	72	37	626	41	236	369	99	37	221	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	649	0	0	704	0	236	369	99	37	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	50.0	50.0		50.0	50.0		35.0	35.0	35.0	35.0	35.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	58.8%	58.8%	0.0%	41.2%	41.2%	41.2%	41.2%	41.2%	0.0%
Maximum Green (s)	45.0	45.0		45.0	45.0		30.0	30.0	30.0	30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effect Green (s)		47.0			47.0		32.0	32.0	32.0	32.0	32.0	
Actuated g/C Ratio		0.55			0.55		0.38	0.38	0.38	0.38	0.38	
v/c Ratio		0.37			0.41		0.70	0.53	0.15	0.15	0.37	
Control Delay		6.3			6.0		35.5	24.0	4.6	19.5	20.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		6.3			6.0		35.5	24.0	4.6	19.5	20.3	
LOS		A			A		D	C	A	B	C	
Approach Delay		6.3			6.0			25.1			20.2	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		26			28		71	102	0	9	64	
Queue Length 95th (ft)		35			36		#146	159	20	24	106	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)							105			150		
Base Capacity (vph)		1731			1738		339	701	646	252	691	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.37			0.41		0.70	0.53	0.15	0.15	0.37	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 4 (5%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 81.7%

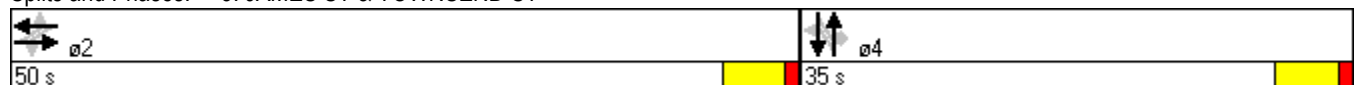
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

















Splits and Phases: 3: JAMES ST & TOWNSEND ST



# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	578	17	11	600	36	16	54	6	58	65	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			1.00			0.99	
Frt		0.996			0.992			0.989			0.963	
Flt Protected		0.996			0.999			0.990			0.983	
Satd. Flow (prot)	0	3504	0	0	3489	0	0	1820	0	0	1752	0
Flt Permitted		0.858			0.942			0.928			0.877	
Satd. Flow (perm)	0	3013	0	0	3289	0	0	1704	0	0	1558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			15			5			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	30		22	22		30	8		8	8		8
Confl. Bikes (#/hr)			5			4						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	52	649	19	12	674	40	18	61	7	65	73	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	720	0	0	726	0	0	86	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

















10/7/2011

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





Lanes, Volumes, Timings  
5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	580	35	59	499	23	113	178	57	6	113	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.992			0.994			0.978			0.969	
Flt Protected		0.998			0.995			0.984			0.998	
Satd. Flow (prot)	0	3492	0	0	3492	0	0	1777	0	0	1786	0
Flt Permitted		0.917			0.833			0.797			0.988	
Satd. Flow (perm)	0	3206	0	0	2919	0	0	1431	0	0	1767	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			10			11			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	16		17	17		16	19		32	32		19
Confl. Bikes (#/hr)			5			7						2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	28	598	36	61	514	24	116	184	59	6	116	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	662	0	0	599	0	0	359	0	0	158	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

10/7/2011

















Queue shown is maximum after two cycles.

 $\sigma_2$	 $\sigma_4$
59 s	26 s

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	621	11	11	491	62	62	425	88	39	187	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.997			0.984			0.977			0.983	
Flt Protected		0.999			0.999			0.995			0.992	
Satd. Flow (prot)	0	3523	0	0	3465	0	0	3421	0	0	3440	0
Flt Permitted		0.942			0.938			0.879			0.777	
Satd. Flow (perm)	0	3322	0	0	3254	0	0	3019	0	0	2691	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			18			32			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	17		12	12		17	19		27	27		19
Confl. Bikes (#/hr)			1			2			1			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	13	731	13	13	578	73	73	500	104	46	220	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	757	0	0	664	0	0	677	0	0	299	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		26.0	26.0		26.0	26.0	
Total Split (s)	19.0	19.0	0.0	19.0	19.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	14.0	14.0		14.0	14.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	36%
Maximum Green (s)	22.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	5

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		36.0			36.0			23.0			23.0	
Actuated g/C Ratio		0.51			0.51			0.33			0.33	
v/c Ratio		0.44			0.39			0.67			0.33	
Control Delay		15.8			21.9			23.1			17.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.8			21.9			23.1			17.7	
LOS		B			C			C			B	
Approach Delay		15.8			21.9			23.1			17.7	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		55			72			84			31	
Queue Length 95th (ft)		#178			#150			112			48	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)												
Base Capacity (vph)		1710			1682			1013			898	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.44			0.39			0.67			0.33	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 40 (57%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 65.4%



ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

### Splits and Phases: 6: JAMES ST & LODI ST

								
ø1			ø2			ø3		
19 s			26 s			25 s		

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST

















10/7/2011

Lane Group                      ø3  
Act Effect Green (s)  
Actuated g/C Ratio  
v/c Ratio  
Control Delay  
Queue Delay  
Total Delay  
LOS  
Approach Delay  
Approach LOS  
Queue Length 50th (ft)  
Queue Length 95th (ft)  
Internal Link Dist (ft)  
Turn Bay Length (ft)  
Base Capacity (vph)  
Starvation Cap Reductn  
Spillback Cap Reductn  
Storage Cap Reductn  
Reduced v/c Ratio  
Intersection Summary

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	688	35	55	448	21	62	91	45	25	141	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.993			0.994			0.969			0.967	
Flt Protected		0.998			0.995			0.985			0.994	
Satd. Flow (prot)	0	3497	0	0	3494	0	0	1767	0	0	1780	0
Flt Permitted		0.927			0.815			0.743			0.952	
Satd. Flow (perm)	0	3247	0	0	2859	0	0	1330	0	0	1703	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			9			25			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	11		19	19		11	12		15	15		12
Confl. Bikes (#/hr)			2			4						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	764	39	61	498	23	69	101	50	28	157	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	831	0	0	582	0	0	220	0	0	245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		31.0	31.0		31.0	31.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	31.0	31.0	0.0	31.0	31.0	0.0
Total Split (%)	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		47.6			47.6			16.4			16.4	
Actuated g/C Ratio		0.68			0.68			0.23			0.23	
v/c Ratio		0.38			0.30			0.66			0.58	
Control Delay		10.2			8.5			30.8			25.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.2			8.5			30.8			25.9	
LOS		B			A			C			C	
Approach Delay		10.2			8.5			30.8			25.9	
Approach LOS		B			A			C			C	
Queue Length 50th (ft)		89			31			52			56	
Queue Length 95th (ft)		152			107			88			91	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)												
Base Capacity (vph)		2211			1947			547			698	
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		0.38			0.30			0.40			0.35	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 43 (61%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 14.1

Intersection Capacity Utilization 69.2%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

### Splits and Phases: 7: JAMES ST & OAK ST





















# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	706	7	1	460	113	20	0	5	149	3	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.98	
Frt		0.999			0.970			0.975			0.970	
Flt Protected		0.997						0.961			0.963	
Satd. Flow (prot)	0	3524	0	0	3401	0	0	1735	0	0	1734	0
Flt Permitted		0.890			0.954			0.805			0.760	
Satd. Flow (perm)	0	3144	0	0	3245	0	0	1451	0	0	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			77			5			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	12		3	3		12	3		18	18		3
Confl. Bikes (#/hr)			3			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	767	8	1	500	123	22	0	5	162	3	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	824	0	0	624	0	0	27	0	0	213	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	64.3%	64.3%	0.0%	64.3%	64.3%	0.0%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		47.2			47.2			16.8			16.8	
Actuated g/C Ratio		0.67			0.67			0.24			0.24	
v/c Ratio		0.39			0.28			0.08			0.63	
Control Delay		4.2			6.5			16.3			28.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.2			6.5			16.3			28.9	
LOS		A			A			B			C	
Approach Delay		4.2			6.5			16.3			28.9	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		12			19			5			49	
Queue Length 95th (ft)		16			71			15			86	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)												
Base Capacity (vph)		2122			2215			459			439	
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			0.28			0.06			0.49	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 68 (97%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 8.3

Intersection Capacity Utilization 60.0%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

Splits and Phases: 8: JAMES ST & DEWITT ST



Lanes, Volumes, Timings  
9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	733	127	24	488	86	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99			1.00	0.99	
Frt	0.978				0.968	
Flt Protected				0.998	0.963	
Satd. Flow (prot)	3434	0	0	3532	1730	0
Flt Permitted				0.903	0.963	
Satd. Flow (perm)	3434	0	0	3195	1712	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	54				22	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		15	15		12	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	748	130	24	498	88	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	878	0	0	522	115	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	47.0		47.0	47.0	23.0	
Total Split (s)	47.0	0.0	47.0	47.0	23.0	0.0
Total Split (%)	67.1%	0.0%	67.1%	67.1%	32.9%	0.0%
Maximum Green (s)	42.0		42.0	42.0	18.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	Max	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	9.0		9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	44.0			44.0	20.0	
Actuated g/C Ratio	0.63			0.63	0.29	
v/c Ratio	0.40			0.26	0.23	
Control Delay	8.7			5.6	17.0	
Queue Delay	0.2			0.0	0.0	
Total Delay	8.9			5.6	17.0	
LOS	A			A	B	
Approach Delay	8.9			5.6	17.0	
Approach LOS	A			A	B	
Queue Length 50th (ft)	109			26	20	
Queue Length 95th (ft)	82			36	46	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)						
Base Capacity (vph)	2179			2008	510	
Starvation Cap Reductn	542			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.54			0.26	0.23	

## Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 12 (17%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 8.4

Intersection Capacity Utilization 52.9%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

## Splits and Phases: 9: JAMES ST & SEDGEWICK ST

 <p>2</p>	 <p>4</p>
47 s	23 s

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	752	7	23	496	16	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00			1.00	1.00	
Frt	0.999				0.927	
Flt Protected				0.998	0.978	
Satd. Flow (prot)	3534	0	0	3532	1689	0
Flt Permitted				0.908	0.978	
Satd. Flow (perm)	3534	0	0	3212	1688	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2				20	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		17	17		1	
Confl. Bikes (#/hr)		5				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	817	8	25	539	17	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	825	0	0	564	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	45.0		45.0	45.0	25.0	
Total Split (s)	45.0	0.0	45.0	45.0	25.0	0.0
Total Split (%)	64.3%	0.0%	64.3%	64.3%	35.7%	0.0%
Maximum Green (s)	40.0		40.0	40.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	58.6			58.6	10.8	
Actuated g/C Ratio	0.84			0.84	0.15	
v/c Ratio	0.28			0.21	0.13	
Control Delay	10.4			3.0	14.8	
Queue Delay	0.0			0.0	0.0	
Total Delay	10.4			3.0	14.8	
LOS	B			A	B	
Approach Delay	10.4			3.0	14.8	
Approach LOS	B			A	B	
Queue Length 50th (ft)	110			13	5	
Queue Length 95th (ft)	162			54	16	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)						
Base Capacity (vph)	2957			2687	545	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.28			0.21	0.07	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 7.6

Intersection Capacity Utilization 40.7%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A



















### Splits and Phases: 10: JAMES ST & WILSON ST

	
<p>45 s</p>	<p>25 s</p>

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	198	425	147	154	315	28	104	398	84	21	437	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00			1.00			0.99	
Frt		0.961			0.988			0.979			0.973	
Flt Protected	0.950			0.950				0.991			0.998	
Satd. Flow (prot)	1770	3363	0	1770	3487	0	0	3425	0	0	3394	0
Flt Permitted	0.950			0.950				0.701			0.919	
Satd. Flow (perm)	1746	3363	0	1746	3487	0	0	2423	0	0	3125	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			7			17			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	9		13	13		9	24		2	2		24
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	462	160	167	342	30	113	433	91	23	475	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	622	0	167	372	0	0	637	0	0	607	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	25.0	50.0	0.0	25.0	50.0	0.0	25.0	65.0	0.0	40.0	40.0	0.0
Total Split (%)	17.9%	35.7%	0.0%	17.9%	35.7%	0.0%	17.9%	46.4%	0.0%	28.6%	28.6%	0.0%
Maximum Green (s)	20.5	45.0		20.5	45.0		20.0	60.0		35.0	35.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5			5			5		5	5	
Act Effect Green (s)	18.9	24.9		16.6	22.6			36.3			36.3	
Actuated g/C Ratio	0.22	0.29		0.19	0.26			0.42			0.42	
v/c Ratio	0.56	0.63		0.49	0.41			0.62			0.46	
Control Delay	40.7	30.2		41.1	29.3			23.2			19.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	40.7	30.2		41.1	29.3			23.2			19.6	
LOS	D	C		D	C			C			B	
Approach Delay		32.9			32.9			23.2			19.6	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	68	96		54	58			90			78	
Queue Length 95th (ft)	165	183		130	110			168			143	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	490	1961		490	2020			1811			1558	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.44	0.32		0.34	0.18			0.35			0.39	

### Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 86.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 27.5








Intersection Capacity Utilization 71.7%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C

### Splits and Phases: 11: JAMES ST & TEALL AVE


















 ø1	 ø2	 ø4
25 s	50 s	65 s
 ø5	 ø6	 ø7
25 s	50 s	25 s
		 ø8
		40 s



# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	478	52	12	392	0	35	0	64	274	60	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			0.98			0.98	
Frt			0.850					0.913			0.977	
Flt Protected					0.999			0.982			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1639	0	0	1733	0
Flt Permitted					0.985			0.860			0.730	
Satd. Flow (perm)	0	1863	1529	0	1834	0	0	1435	0	0	1302	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			53					65			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	22		19	19		22	39		3	3		39
Confl. Bikes (#/hr)			1			5						6
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	488	53	12	400	0	36	0	65	280	61	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	488	53	0	412	0	0	101	0	0	412	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	78.0	78.0	78.0	78.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	72.2%	72.2%	72.2%	72.2%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%
Maximum Green (s)							25.5	25.5		25.5	25.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	13.0	40.0	25.0
Total Split (%)	12%	37%	23%
Maximum Green (s)	8.5	35.5	20.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effect Green (s)		70.6	70.6		70.6			25.5			25.5	
Actuated g/C Ratio		0.67	0.67		0.67			0.24			0.24	
v/c Ratio		0.39	0.05		0.33			0.25			1.28	
Control Delay		8.7	1.7		2.2			16.1			180.7	
Queue Delay		0.3	0.0		0.6			0.0			404.9	
Total Delay		9.0	1.7		2.7			16.1			585.6	
LOS		A	A		A			B			F	
Approach Delay		8.3			2.7			16.1			585.6	
Approach LOS		A			A			B			F	
Queue Length 50th (ft)		89	0		9			13			~249	
Queue Length 95th (ft)		128	8		12			44			#382	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)												
Base Capacity (vph)		1262	1053		1242			398			323	
Starvation Cap Reductn		0	0		463			0			134	
Spillback Cap Reductn		315	0		0			10			1	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.52	0.05		0.53			0.26			2.18	

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 105.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.28

Intersection Signal Delay: 169.5

Intersection LOS: F

Intersection Capacity Utilization 67.6%

ICU Level of Service C

Analysis Period (min) 15

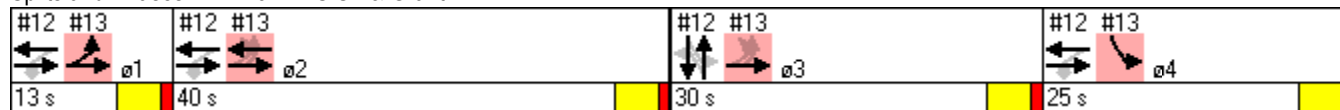
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 12: JAMES ST & Grant



# Lanes, Volumes, Timings 12: JAMES ST & Grant


















10/7/2011

Lane Group	ø1	ø2	ø4
Pedestrian Calls (#/hr)		5	
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings

## 13: James S & Walgreens












10/7/2011

													
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER		ø3
Lane Configurations													
Volume (vph)	76	91	649	377	322	8	32	27	10	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		75			150		0	0		0	0		
Storage Lanes		1			1		1	0		0	0		
Taper Length (ft)		25			25		25	25		25	25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor		0.98			0.83		0.97						
Frt					0.850		0.928						
Flt Protected		0.950					0.977						
Satd. Flow (prot)	0	1770	1863	1863	1583	0	1689	0	0	0	0		
Flt Permitted		0.412					0.977						
Satd. Flow (perm)	0	750	1863	1863	1319	0	1643	0	0	0	0		
Right Turn on Red						Yes			Yes		Yes		
Satd. Flow (RTOR)					1		7						
Link Speed (mph)			30	30			30			30			
Link Distance (ft)			208	618			139			186			
Travel Time (s)			4.7	14.0			3.2			4.2			
Confl. Peds. (#/hr)	22				22	22	22						
Confl. Bikes (#/hr)					5	5							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	78	93	662	385	329	8	33	28	10	0	0		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	171	662	385	337	0	71	0	0	0	0		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Right	Right	Left	Right		
Median Width(ft)			12	12			12			0			
Link Offset(ft)			0	0			0			0			
Crosswalk Width(ft)			16	16			16			16			
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15	15			9	9	15	9	9	15	9		
Turn Type	custom	custom			Perm								
Protected Phases		1	1 2 3	2			4						3
Permitted Phases	2 3	2 3			2								
Detector Phase	2 3	1	1 2 3	2	2		4						
Switch Phase													
Minimum Initial (s)		5.0		10.0	10.0		5.0						8.0
Minimum Split (s)		9.5		22.0	22.0		9.5						22.0
Total Split (s)	70.0	13.0	83.0	40.0	40.0	0.0	25.0	0.0	0.0	0.0	0.0		30.0
Total Split (%)	64.8%	12.0%	76.9%	37.0%	37.0%	0.0%	23.1%	0.0%	0.0%	0.0%	0.0%		28%
Maximum Green (s)		8.5		35.5	35.5		20.5						25.5
Yellow Time (s)		3.5		3.5	3.5		3.5						3.5
All-Red Time (s)		1.0		1.0	1.0		1.0						1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.0	4.0	4.0	4.0		
Lead/Lag		Lead		Lag	Lag		Lag						Lead
Lead-Lag Optimize?													
Vehicle Extension (s)		3.0		3.0	3.0		3.0						3.0

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

												
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER	ø3
Recall Mode		None		Min	Min		None					None
Walk Time (s)				7.0	7.0							7.0
Flash Dont Walk (s)				10.0	10.0							10.0
Pedestrian Calls (#/hr)				5	5							5
Act Effect Green (s)		73.0	77.5	34.4	34.4		18.7					
Actuated g/C Ratio		0.69	0.74	0.33	0.33		0.18					
v/c Ratio		0.28	0.48	0.63	0.78		0.23					
Control Delay		6.9	9.4	35.8	46.4		35.8					
Queue Delay		0.4	1.5	0.0	0.0		0.0					
Total Delay		7.3	11.0	35.8	46.4		35.8					
LOS		A	B	D	D		D					
Approach Delay			10.2	40.7			35.8					
Approach LOS			B	D			D					
Queue Length 50th (ft)		32	148	152	142		26					
Queue Length 95th (ft)		m41	m161	223	#239		54					
Internal Link Dist (ft)			128	538			59			106		
Turn Bay Length (ft)		75			150							
Base Capacity (vph)		603	1373	630	446		335					
Starvation Cap Reductn		147	498	0	0		0					
Spillback Cap Reductn		0	0	0	0		0					
Storage Cap Reductn		0	0	0	0		0					
Reduced v/c Ratio		0.38	0.76	0.61	0.76		0.21					

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 105.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.28

Intersection Signal Delay: 24.9

Intersection LOS: C

Intersection Capacity Utilization 45.8%

ICU Level of Service A









Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















### Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	551	206	89	465	6	166	1	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			1.00				
Frt		0.960			0.998			0.988				
Flt Protected		0.999			0.992		0.950	0.957				
Satd. Flow (prot)	0	3364	0	0	3503	0	1681	1668	0	0	1863	0
Flt Permitted		0.945			0.722		0.950	0.950				
Satd. Flow (perm)	0	3183	0	0	2548	0	1681	1655	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			2			6				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		170			537			242			134	
Travel Time (s)		3.9			12.2			5.5			3.0	
Confl. Peds. (#/hr)	2		19	19		2	14		23	23		14
Confl. Bikes (#/hr)			1			4			1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	13	619	231	100	522	7	187	1	8	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	863	0	0	629	0	99	97	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	37.0	37.0		37.0	37.0		25.0	25.0		18.0	18.0	
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	25.0	25.0	0.0	18.0	18.0	0.0
Total Split (%)	46.3%	46.3%	0.0%	46.3%	46.3%	0.0%	31.3%	31.3%	0.0%	22.5%	22.5%	0.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		20.0	20.0		13.0	13.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		12.0	12.0				

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	5	5		5	5		5	5				
Act Effect Green (s)		52.0			52.0		22.0	22.0				
Actuated g/C Ratio		0.65			0.65		0.28	0.28				
v/c Ratio		0.41			0.38		0.21	0.21				
Control Delay		6.7			5.9		23.9	22.4				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		6.7			5.9		23.9	22.4				
LOS		A			A		C	C				
Approach Delay		6.7			5.9			23.2				
Approach LOS		A			A			C				
Queue Length 50th (ft)		57			25		27	25				
Queue Length 95th (ft)		78			48		53	51				
Internal Link Dist (ft)		90			457			162				
Turn Bay Length (ft)											54	
Base Capacity (vph)		2097			1657		462	459				
Starvation Cap Reductn		0			0		0	0				
Spillback Cap Reductn		0			0		0	0				
Storage Cap Reductn		0			0		0	0				
Reduced v/c Ratio		0.41			0.38		0.21	0.21				

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 70 (88%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 8.3










Intersection Capacity Utilization 66.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

### Splits and Phases: 1: JAMES ST & OSWEGO BLVD





















								
ø1			ø2			ø3		
37 s			25 s			18 s		



# Lanes, Volumes, Timings

## 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	425	55	160	503	169	35	230	40	122	419	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99			1.00	0.98	0.99	1.00		0.99	1.00	
Frt		0.983				0.850		0.978			0.992	
Flt Protected	0.950				0.988		0.950			0.950		
Satd. Flow (prot)	1770	3458	0	0	3497	1583	1770	3450	0	1770	3505	0
Flt Permitted	0.378				0.589		0.478			0.467		
Satd. Flow (perm)	702	3458	0	0	2078	1554	879	3450	0	863	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				184		25			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	7		28	28		7	17		10	10		17
Confl. Bikes (#/hr)			1			4						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	462	60	174	547	184	38	250	43	133	455	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	522	0	0	721	184	38	293	0	133	479	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	28.0	28.0		14.0	42.0	
Total Split (s)	24.0	24.0	0.0	14.0	38.0	38.0	28.0	28.0	0.0	14.0	42.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	17.5%	47.5%	47.5%	35.0%	35.0%	0.0%	17.5%	52.5%	0.0%
Maximum Green (s)	19.0	19.0		9.0	33.0	33.0	23.0	23.0		9.0	37.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effect Green (s)	21.0	21.0			35.0	35.0	25.0	25.0		39.0	39.0	
Actuated g/C Ratio	0.26	0.26			0.44	0.44	0.31	0.31		0.49	0.49	
v/c Ratio	0.46	0.57			0.65	0.23	0.14	0.27		0.24	0.28	
Control Delay	28.0	21.6			16.1	3.9	21.5	19.6		12.7	12.5	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.0	21.6			16.1	3.9	21.5	19.6		12.7	12.5	
LOS	C	C			B	A	C	B		B	B	
Approach Delay		22.5			13.6			19.8			12.5	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	24	78			72	1	9	35		24	47	
Queue Length 95th (ft)	55	112			134	28	25	56		45	68	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	184	920			1104	783	275	1095		545	1713	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.46	0.57			0.65	0.23	0.14	0.27		0.24	0.28	

#### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 75 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.4







Intersection Capacity Utilization 66.1%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C




















#### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
14 s	24 s	14 s	28 s
 ø6		 ø8	
38 s		42 s	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	517	41	74	633	71	169	333	59	26	214	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	105		0	150		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99		0.99		0.98	0.99	1.00	
Frt		0.990			0.986				0.850		0.982	
Flt Protected		0.998			0.995		0.950			0.950		
Satd. Flow (prot)	0	3483	0	0	3457	0	1770	1863	1583	1770	1822	0
Flt Permitted		0.888			0.827		0.487			0.377		
Satd. Flow (perm)	0	3098	0	0	2870	0	896	1863	1546	698	1822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			20				65		10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	14		19	19		14	20		12	12		20
Confl. Bikes (#/hr)			2			1						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	32	568	45	81	696	78	186	366	65	29	235	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	645	0	0	855	0	186	366	65	29	268	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	46.0	46.0		46.0	46.0		34.0	34.0	34.0	34.0	34.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	34.0	34.0	34.0	34.0	34.0	0.0
Total Split (%)	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effect Green (s)		43.0			43.0		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio		0.54			0.54		0.39	0.39	0.39	0.39	0.39	
v/c Ratio		0.39			0.55		0.54	0.51	0.10	0.11	0.38	
Control Delay		4.6			8.0		25.9	21.7	4.9	17.1	18.8	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		4.6			8.0		25.9	21.7	4.9	17.1	18.8	
LOS		A			A		C	C	A	B	B	
Approach Delay		4.6			8.0			21.2			18.6	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		8			41		48	93	0	6	61	
Queue Length 95th (ft)		11			21		93	146	16	18	103	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)							105			150		
Base Capacity (vph)		1672			1552		347	722	639	270	712	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.39			0.55		0.54	0.51	0.10	0.11	0.38	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 37 (46%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 11.8

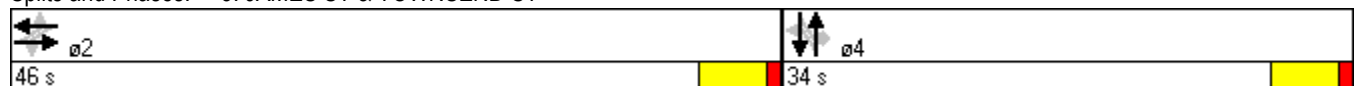
Intersection Capacity Utilization 81.4%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service D

















Splits and Phases: 3: JAMES ST & TOWNSEND ST



# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	531	12	17	749	35	16	42	12	16	20	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.997			0.994			0.977			0.965	
Flt Protected		0.995			0.999			0.988			0.984	
Satd. Flow (prot)	0	3506	0	0	3503	0	0	1793	0	0	1763	0
Flt Permitted		0.801			0.936			0.944			0.919	
Satd. Flow (perm)	0	2819	0	0	3280	0	0	1713	0	0	1644	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			11			13			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	24		22	22		24	1		4	4		1
Confl. Bikes (#/hr)			1			5						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	65	584	13	19	823	38	18	46	13	18	22	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	662	0	0	880	0	0	77	0	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		52.0			52.0			22.0			22.0	
Actuated g/C Ratio		0.65			0.65			0.28			0.28	
v/c Ratio		0.36			0.41			0.16			0.12	
Control Delay		2.2			7.3			19.9			18.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		2.2			7.3			19.9			18.1	
LOS		A			A			B			B	
Approach Delay		2.2			7.3			19.9			18.1	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		9			46			16			10	
Queue Length 95th (ft)		18			117			39			28	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)												
Base Capacity (vph)		1834			2136			481			462	
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		0.36			0.41			0.16			0.12	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 46 (58%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 6.2

Intersection Capacity Utilization 64.2%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

















Splits and Phases: 4: JAMES ST & MCBRIDE ST



# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	502	43	126	718	22	47	79	57	2	127	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			0.98			0.99	
Frt		0.988			0.996			0.958			0.971	
Flt Protected		0.999			0.993			0.987			0.999	
Satd. Flow (prot)	0	3470	0	0	3494	0	0	1741	0	0	1791	0
Flt Permitted		0.928			0.768			0.902			0.997	
Satd. Flow (perm)	0	3223	0	0	2692	0	0	1584	0	0	1787	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6			28			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	24		28	28		24	22		19	19		22
Confl. Bikes (#/hr)			1			2			2			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	534	46	134	764	23	50	84	61	2	135	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	595	0	0	921	0	0	195	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		52.0			52.0			22.0			22.0	
Actuated g/C Ratio		0.65			0.65			0.28			0.28	
v/c Ratio		0.28			0.53			0.43			0.35	
Control Delay		1.4			7.5			23.7			23.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		1.4			7.5			23.7			23.3	
LOS		A			A			C			C	
Approach Delay		1.4			7.5			23.7			23.3	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		5			27			46			43	
Queue Length 95th (ft)		8			102			87			79	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)												
Base Capacity (vph)		2103			1752			456			504	
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		0.28			0.53			0.43			0.35	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 54 (68%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 8.7

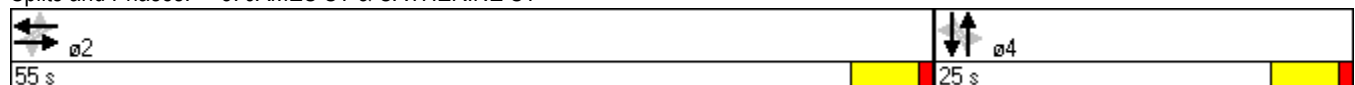
Intersection Capacity Utilization 85.1%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service E

Splits and Phases: 5: JAMES ST & CATHERINE ST





















# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	478	53	23	814	64	34	268	53	38	252	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.986			0.989			0.978			0.991	
Flt Protected		0.997			0.999			0.995			0.994	
Satd. Flow (prot)	0	3471	0	0	3491	0	0	3423	0	0	3479	0
Flt Permitted		0.880			0.933			0.895			0.860	
Satd. Flow (perm)	0	3063	0	0	3260	0	0	3075	0	0	3004	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			11			23			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	13		12	12		13	17		22	22		17
Confl. Bikes (#/hr)			6			1			1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	498	55	24	848	67	35	279	55	40	262	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	584	0	0	939	0	0	369	0	0	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	35%
Maximum Green (s)	25.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	5

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		51.0			51.0			18.0			18.0	
Actuated g/C Ratio		0.64			0.64			0.22			0.22	
v/c Ratio		0.30			0.45			0.52			0.47	
Control Delay		11.0			10.4			28.5			29.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.0			10.4			28.5			29.0	
LOS		B			B			C			C	
Approach Delay		11.0			10.4			28.5			29.0	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)		45			57			54			48	
Queue Length 95th (ft)		62			187			83			75	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)												
Base Capacity (vph)		1958			2082			710			681	
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		0.30			0.45			0.52			0.47	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 47 (59%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 16.2



Intersection Capacity Utilization 78.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service D

### Splits and Phases: 6: JAMES ST & LODI ST

								
ø1			ø2			ø3		
31 s			21 s			28 s		

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST

















10/7/2011

Lane Group                      ø3  
Act Effect Green (s)  
Actuated g/C Ratio  
v/c Ratio  
Control Delay  
Queue Delay  
Total Delay  
LOS  
Approach Delay  
Approach LOS  
Queue Length 50th (ft)  
Queue Length 95th (ft)  
Internal Link Dist (ft)  
Turn Bay Length (ft)  
Base Capacity (vph)  
Starvation Cap Reductn  
Spillback Cap Reductn  
Storage Cap Reductn  
Reduced v/c Ratio  
Intersection Summary

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	424	67	47	750	31	110	173	98	28	88	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			0.99	
Frt		0.982			0.994			0.965			0.965	
Flt Protected		0.993			0.997			0.986			0.991	
Satd. Flow (prot)	0	3418	0	0	3500	0	0	1761	0	0	1765	0
Flt Permitted		0.763			0.894			0.862			0.899	
Satd. Flow (perm)	0	2623	0	0	3134	0	0	1532	0	0	1599	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			10			29			30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	19		31	31		19	24		14	14		24
Confl. Bikes (#/hr)			2			1			1			1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	83	451	71	50	798	33	117	184	104	30	94	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	605	0	0	881	0	0	405	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		38.6			38.6			20.4			20.4	
Actuated g/C Ratio		0.59			0.59			0.31			0.31	
v/c Ratio		0.38			0.47			0.81			0.32	
Control Delay		7.7			4.5			33.2			15.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.7			4.5			33.2			15.1	
LOS		A			A			C			B	
Approach Delay		7.7			4.5			33.2			15.1	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		39			37			88			26	
Queue Length 95th (ft)		61			10			#178			55	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)												
Base Capacity (vph)		1573			1865			538			561	
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		0.38			0.47			0.75			0.30	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 2 (3%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

















### Splits and Phases: 7: JAMES ST & OAK ST



# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	509	11	0	768	120	7	1	2	179	6	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.97	
Frt		0.997			0.980			0.975			0.970	
Flt Protected		0.997						0.965			0.964	
Satd. Flow (prot)	0	3514	0	0	3438	0	0	1738	0	0	1734	0
Flt Permitted		0.879						0.822			0.773	
Satd. Flow (perm)	0	3097	0	0	3438	0	0	1475	0	0	1353	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			44			2			24	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	22		16	16		22	8		37	37		8
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	566	12	0	853	133	8	1	2	199	7	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	611	0	0	986	0	0	11	0	0	265	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		41.0			41.0			18.0			18.0	
Actuated g/C Ratio		0.63			0.63			0.28			0.28	
v/c Ratio		0.31			0.45			0.03			0.68	
Control Delay		11.1			4.8			13.8			27.4	
Queue Delay		0.0			0.1			0.0			0.0	
Total Delay		11.1			4.9			13.8			27.4	
LOS		B			A			B			C	
Approach Delay		11.1			4.9			13.8			27.4	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)		57			16			2			56	
Queue Length 95th (ft)		m90			22			8			99	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)												
Base Capacity (vph)		1955			2185			501			474	
Starvation Cap Reductn		0			229			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.31			0.50			0.02			0.56	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 50 (77%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 10.1

Intersection LOS: B

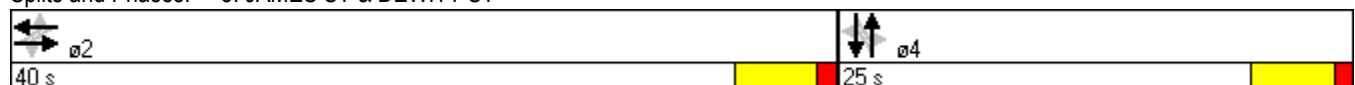
Intersection Capacity Utilization 59.7%

ICU Level of Service B

Analysis Period (min) 15

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

### Splits and Phases: 8: JAMES ST & DEWITT ST





# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	574	116	42	769	119	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99			1.00	0.99	
Frt	0.975				0.970	
Flt Protected				0.997	0.962	
Satd. Flow (prot)	3413	0	0	3529	1733	0
Flt Permitted				0.888	0.962	
Satd. Flow (perm)	3413	0	0	3141	1727	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	65				23	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		22	22		4	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	631	127	46	845	131	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	0	891	168	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	42.0		42.0	42.0	23.0	
Total Split (s)	42.0	0.0	42.0	42.0	23.0	0.0
Total Split (%)	64.6%	0.0%	64.6%	64.6%	35.4%	0.0%
Maximum Green (s)	37.0		37.0	37.0	18.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	Max	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	9.0		9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	39.0			39.0	20.0	
Actuated g/C Ratio	0.60			0.60	0.31	
v/c Ratio	0.37			0.47	0.31	
Control Delay	3.5			10.9	16.6	
Queue Delay	0.0			0.0	0.0	
Total Delay	3.5			11.0	16.6	
LOS	A			B	B	
Approach Delay	3.5			11.0	16.6	
Approach LOS	A			B	B	
Queue Length 50th (ft)	15			61	29	
Queue Length 95th (ft)	17			171	59	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)						
Base Capacity (vph)	2074			1885	549	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			54	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.37			0.49	0.31	

## Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 42 (65%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 8.4

Intersection Capacity Utilization 67.4%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

## Splits and Phases: 9: JAMES ST & SEDGEWICK ST



# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	596	12	16	789	22	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00			1.00	0.98	
Frt	0.997				0.923	
Flt Protected				0.999	0.979	
Satd. Flow (prot)	3526	0	0	3536	1651	0
Flt Permitted				0.938	0.979	
Satd. Flow (perm)	3526	0	0	3320	1651	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5				35	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		7	7			22
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	710	14	19	939	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	724	0	0	958	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	40.0		40.0	40.0	25.0	
Total Split (s)	40.0	0.0	40.0	40.0	25.0	0.0
Total Split (%)	61.5%	0.0%	61.5%	61.5%	38.5%	0.0%
Maximum Green (s)	35.0		35.0	35.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	53.4			53.4	11.0	
Actuated g/C Ratio	0.82			0.82	0.17	
v/c Ratio	0.25			0.35	0.20	
Control Delay	6.0			4.0	12.6	
Queue Delay	0.0			0.0	0.0	
Total Delay	6.0			4.0	12.6	
LOS	A			A	B	
Approach Delay	6.0			4.0	12.6	
Approach LOS	A			A	B	
Queue Length 50th (ft)	28			28	6	
Queue Length 95th (ft)	80			93	18	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)						
Base Capacity (vph)	2896			2725	582	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.25			0.35	0.10	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 54 (83%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 5.1

Intersection LOS: A

Intersection Capacity Utilization 50.6%

ICU Level of Service A

Analysis Period (min) 15



















### Splits and Phases: 10: JAMES ST & WILSON ST



# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	432	91	82	442	12	170	354	92	7	446	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.98	1.00			1.00			0.98	
Frt		0.974			0.996			0.978			0.955	
Flt Protected	0.950			0.950				0.986			0.999	
Satd. Flow (prot)	1770	3416	0	1770	3522	0	0	3398	0	0	3294	0
Flt Permitted	0.950			0.950				0.583			0.948	
Satd. Flow (perm)	1748	3416	0	1738	3522	0	0	2009	0	0	3125	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			2			18			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	10		16	16		10	29		7	7		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	113	480	101	91	491	13	189	393	102	8	496	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	581	0	91	504	0	0	684	0	0	718	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	25.0	50.0	0.0	25.0	50.0	0.0	25.0	65.0	0.0	40.0	40.0	0.0
Total Split (%)	17.9%	35.7%	0.0%	17.9%	35.7%	0.0%	17.9%	46.4%	0.0%	28.6%	28.6%	0.0%
Maximum Green (s)	20.5	45.0		20.5	45.0		20.0	60.0		35.0	35.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5			5			5		5	5	
Act Effect Green (s)	14.2	27.4		13.0	22.8			40.9			40.9	
Actuated g/C Ratio	0.16	0.31		0.15	0.26			0.47			0.47	
v/c Ratio	0.39	0.53		0.34	0.54			0.72			0.48	
Control Delay	42.3	29.7		43.1	32.2			23.3			16.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	42.3	29.7		43.1	32.2			23.3			16.1	
LOS	D	C		D	C			C			B	
Approach Delay		31.7			33.9			23.3			16.1	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	37	92		30	82			98			84	
Queue Length 95th (ft)	94	180		80	161			180			147	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	491	1986		491	2041			1499			1672	
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	0.23	0.29		0.19	0.25			0.46			0.43	

### Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 87

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 25.9








Intersection Capacity Utilization 70.3%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4
25 s	50 s	65 s
 ø5	 ø6	 ø7
25 s	50 s	25 s
		 ø8
		40 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	501	30	10	422	0	44	0	73	238	43	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			0.99			0.99	
Frt			0.850					0.916			0.973	
Flt Protected					0.999			0.982			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1651	0	0	1739	0
Flt Permitted					0.985			0.847			0.672	
Satd. Flow (perm)	0	1863	1533	0	1835	0	0	1424	0	0	1207	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37					73			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	28		13	13		28	14		1	1		14
Confl. Bikes (#/hr)			4									1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	0	619	37	12	521	0	54	0	90	294	53	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	619	37	0	533	0	0	144	0	0	433	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	78.0	78.0	78.0	78.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	72.2%	72.2%	72.2%	72.2%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%
Maximum Green (s)							25.5	25.5		25.5	25.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011













Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	13.0	40.0	25.0
Total Split (%)	12%	37%	23%
Maximum Green (s)	8.5	35.5	20.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	



# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effect Green (s)		73.2	73.2		73.2			25.5			25.5	
Actuated g/C Ratio		0.68	0.68		0.68			0.24			0.24	
v/c Ratio		0.49	0.04		0.43			0.37			1.47	
Control Delay		9.9	1.9		5.1			20.5			262.1	
Queue Delay		0.9	0.0		1.4			0.1			401.5	
Total Delay		10.8	1.9		6.5			20.6			663.6	
LOS		B	A		A			C			F	
Approach Delay		10.3			6.5			20.6			663.6	
Approach LOS		B			A			C			F	
Queue Length 50th (ft)		125	0		12			27			~280	
Queue Length 95th (ft)		149	6		40			55			#358	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)												
Base Capacity (vph)		1256	1045		1237			393			294	
Starvation Cap Reductn		0	0		481			0			111	
Spillback Cap Reductn		359	0		0			14			2	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.69	0.04		0.71			0.38			2.37	

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.47

Intersection Signal Delay: 170.2

Intersection LOS: F

Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15













~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 12: JAMES ST & Grant

#12 #13	#12 #13	#12 #13	#12 #13
  	  	  	  
ø1	ø2	ø3	ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings 12: JAMES ST & Grant















10/7/2011

Lane Group	ø1	ø2	ø4
Pedestrian Calls (#/hr)		5	
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings

## 13: James S & Walgreens










10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Lane Configurations										
Volume (vph)	60	102	650	422	258	6	10	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75			150	0	0	0	0	
Storage Lanes		1			1	1	0	0	0	
Taper Length (ft)		25			25	25	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.89	0.97				
Fr t					0.850	0.915				
Flt Protected		0.950				0.982				
Satd. Flow (prot)	0	1770	1863	1863	1583	1674	0	0	0	
Flt Permitted		0.292				0.982				
Satd. Flow (perm)	0	544	1863	1863	1414	1628	0	0	0	
Right Turn on Red									Yes	
Satd. Flow (RTOR)										
Link Speed (mph)			30	30		30		30		
Link Distance (ft)			208	618		139		186		
Travel Time (s)			4.7	14.0		3.2		4.2		
Confl. Peds. (#/hr)	28				28	28				
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Adj. Flow (vph)	74	126	802	521	319	7	12	0	0	
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	200	802	521	319	19	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)			12	12		12		0		
Link Offset(ft)			0	0		0		0		
Crosswalk Width(ft)			16	16		16		16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15			9	15	9	15	9	
Turn Type	custom	custom			Perm					
Protected Phases		1	1 2 3	2		4				3
Permitted Phases	2 3	2 3			2					
Detector Phase	2 3	1	1 2 3	2	2	4				
Switch Phase										
Minimum Initial (s)		5.0		10.0	10.0	5.0				8.0
Minimum Split (s)		9.5		22.0	22.0	9.5				22.0
Total Split (s)	70.0	13.0	83.0	40.0	40.0	25.0	0.0	0.0	0.0	30.0
Total Split (%)	64.8%	12.0%	76.9%	37.0%	37.0%	23.1%	0.0%	0.0%	0.0%	28%
Maximum Green (s)		8.5		35.5	35.5	20.5				25.5
Yellow Time (s)		3.5		3.5	3.5	3.5				3.5
All-Red Time (s)		1.0		1.0	1.0	1.0				1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	
Lead/Lag		Lead		Lag	Lag	Lag				Lead
Lead-Lag Optimize?										
Vehicle Extension (s)		3.0		3.0	3.0	3.0				3.0
Recall Mode		None		Min	Min	None				None

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Walk Time (s)				7.0	7.0					7.0
Flash Dont Walk (s)				10.0	10.0					10.0
Pedestrian Calls (#/hr)				5	5					5
Act Effect Green (s)		74.0	78.5	35.5	35.5	20.2				
Actuated g/C Ratio		0.69	0.73	0.33	0.33	0.19				
v/c Ratio		0.43	0.59	0.85	0.68	0.06				
Control Delay		7.7	11.0	48.3	40.2	36.6				
Queue Delay		0.3	1.6	0.0	0.0	0.0				
Total Delay		8.0	12.7	48.3	40.2	36.6				
LOS		A	B	D	D	D				
Approach Delay			11.7	45.2		36.6				
Approach LOS			B	D		D				
Queue Length 50th (ft)		38	199	227	129	7				
Queue Length 95th (ft)		m37	m185	277	173	19				
Internal Link Dist (ft)			128	538		59		106		
Turn Bay Length (ft)		75			150					
Base Capacity (vph)		470	1358	614	466	319				
Starvation Cap Reductn		44	362	0	0	0				
Spillback Cap Reductn		0	0	0	0	0				
Storage Cap Reductn		0	0	0	0	0				
Reduced v/c Ratio		0.47	0.81	0.85	0.68	0.06				

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.47

Intersection Signal Delay: 27.1

Intersection LOS: C









Intersection Capacity Utilization 46.6%

ICU Level of Service A

Analysis Period (min) 15

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


















### Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	543	121	34	596	1	329	0	20	5	7	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			1.00			0.99	
Frt		0.973						0.983			0.932	
Flt Protected					0.997		0.950	0.958			0.990	
Satd. Flow (prot)	0	3409	0	0	3528	0	1681	1661	0	0	1702	0
Flt Permitted					0.890		0.213	0.260			0.875	
Satd. Flow (perm)	0	3409	0	0	3148	0	377	451	0	0	1500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34						9			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		170			537			242			134	
Travel Time (s)		3.9			12.2			5.5			3.0	
Confl. Peds. (#/hr)	7		35	35		7	4		13	13		4
Confl. Bikes (#/hr)			5			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	572	127	36	627	1	346	0	21	5	7	12
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	699	0	0	664	0	183	184	0	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		35.0	35.0		18.0	18.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	35.0	35.0	0.0	18.0	18.0	0.0
Total Split (%)	37.6%	37.6%	0.0%	37.6%	37.6%	0.0%	41.2%	41.2%	0.0%	21.2%	21.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		30.0	30.0		13.0	13.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		12.0	12.0				

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	5	5		5	5		5	5				
Act Effect Green (s)		42.0			42.0		32.0	32.0			8.4	
Actuated g/C Ratio		0.49			0.49		0.38	0.38			0.10	
v/c Ratio		0.41			0.43		1.29	1.05			0.15	
Control Delay		15.0			35.5		200.7	111.8			25.6	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		15.0			35.5		200.7	111.8			25.6	
LOS		B			D		F	F			C	
Approach Delay		15.0			35.5			156.1			25.6	
Approach LOS		B			D			F			C	
Queue Length 50th (ft)		65			116		~90	~75			4	
Queue Length 95th (ft)		128			163		#181	#167			19	
Internal Link Dist (ft)		90			457			162			54	
Turn Bay Length (ft)												
Base Capacity (vph)		1701			1555		142	175			275	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.41			0.43		1.29	1.05			0.09	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 32 (38%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.29

Intersection Signal Delay: 52.4

Intersection LOS: D

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

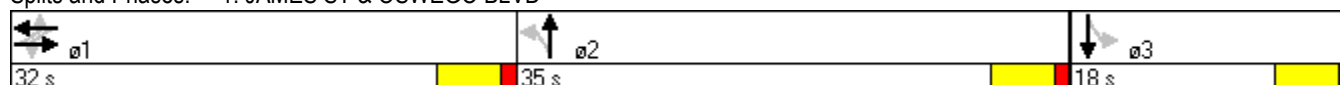
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





















### Splits and Phases: 1: JAMES ST & OSWEGO BLVD



# Lanes, Volumes, Timings

## 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	490	16	97	568	349	38	972	124	119	211	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00			1.00	0.98	0.99	0.99			1.00	
Frt		0.995				0.850		0.983			0.984	
Flt Protected	0.950				0.993		0.950			0.950		
Satd. Flow (prot)	1770	3512	0	0	3514	1583	1770	3458	0	1770	3471	0
Flt Permitted	0.374				0.661		0.592			0.121		
Satd. Flow (perm)	692	3512	0	0	2332	1546	1087	3458	0	225	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				274		18			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	13		46	46		13	14		46	46		14
Confl. Bikes (#/hr)			1			4			4			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	68	538	18	107	624	384	42	1068	136	131	232	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	556	0	0	731	384	42	1204	0	131	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	33.0	33.0		14.0	47.0	
Total Split (s)	24.0	24.0	0.0	14.0	38.0	38.0	33.0	33.0	0.0	14.0	47.0	0.0
Total Split (%)	28.2%	28.2%	0.0%	16.5%	44.7%	44.7%	38.8%	38.8%	0.0%	16.5%	55.3%	0.0%
Maximum Green (s)	19.0	19.0		9.0	33.0	33.0	28.0	28.0		9.0	42.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effect Green (s)	21.0	21.0			35.0	35.0	30.0	30.0		44.0	44.0	
Actuated g/C Ratio	0.25	0.25			0.41	0.41	0.35	0.35		0.52	0.52	
v/c Ratio	0.40	0.64			0.66	0.48	0.11	0.98		0.41	0.14	
Control Delay	27.5	26.7			27.9	14.0	19.6	48.8		14.9	10.0	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.5	26.7			27.9	14.0	19.6	48.8		14.9	10.0	
LOS	C	C			C	B	B	D		B	A	
Approach Delay		26.8			23.1			47.9			11.6	
Approach LOS		C			C			D			B	
Queue Length 50th (ft)	23	106			112	54	10	221		23	22	
Queue Length 95th (ft)	m53	m146			m136	m82	26	#322		44	35	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	171	871			1113	798	384	1232		316	1807	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.40	0.64			0.66	0.48	0.11	0.98		0.41	0.14	

#### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 53 (62%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 31.6

Intersection LOS: C

Intersection Capacity Utilization 83.9%

ICU Level of Service E









Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

#### Splits and Phases: 2: JAMES ST & STATE ST




















			
ø1	ø2	ø3	ø4
14 s	24 s	14 s	33 s
			
ø6	ø8		
38 s	47 s		



# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	616	82	42	705	47	266	486	112	42	291	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	105		0	150		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.99		0.98	1.00	1.00	
Frt		0.983			0.991				0.850		0.981	
Flt Protected		0.998			0.997		0.950			0.950		
Satd. Flow (prot)	0	3444	0	0	3483	0	1770	1863	1583	1770	1821	0
Flt Permitted		0.885			0.877		0.376			0.202		
Satd. Flow (perm)	0	3052	0	0	3061	0	695	1863	1551	375	1821	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			12				119		10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	20		25	25		20	16		8	8		16
Confl. Bikes (#/hr)			2			8						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	37	655	87	45	750	50	283	517	119	45	310	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	779	0	0	845	0	283	517	119	45	356	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	50.0	50.0		50.0	50.0		35.0	35.0	35.0	35.0	35.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	35.0	35.0	35.0	35.0	35.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	58.8%	58.8%	0.0%	41.2%	41.2%	41.2%	41.2%	41.2%	0.0%
Maximum Green (s)	45.0	45.0		45.0	45.0		30.0	30.0	30.0	30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effect Green (s)		47.0			47.0		32.0	32.0	32.0	32.0	32.0	
Actuated g/C Ratio		0.55			0.55		0.38	0.38	0.38	0.38	0.38	
v/c Ratio		0.46			0.50		1.08	0.74	0.18	0.32	0.51	
Control Delay		6.4			6.5		108.0	30.5	4.3	26.6	23.1	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		6.4			6.5		108.0	30.5	4.3	26.6	23.1	
LOS		A			A		F	C	A	C	C	
Approach Delay		6.4			6.5			51.0			23.5	
Approach LOS		A			A			D			C	
Queue Length 50th (ft)		32			34		~116	159	0	11	95	
Queue Length 95th (ft)		m40			42		#219	240	22	32	151	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)							105			150		
Base Capacity (vph)		1699			1698		262	701	658	141	692	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.46			0.50		1.08	0.74	0.18	0.32	0.51	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 4 (5%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 22.7

Intersection LOS: C

Intersection Capacity Utilization 91.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

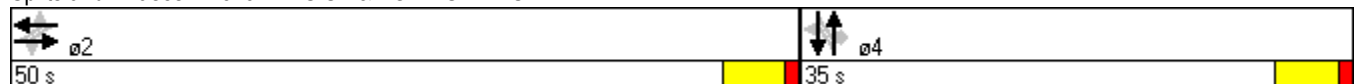
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 3: JAMES ST & TOWNSEND ST



# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	695	20	13	720	43	19	65	7	70	78	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			1.00			0.99	
Frt		0.996			0.992			0.989			0.963	
Flt Protected		0.996			0.999			0.990			0.983	
Satd. Flow (prot)	0	3503	0	0	3486	0	0	1820	0	0	1751	0
Flt Permitted		0.830			0.937			0.928			0.879	
Satd. Flow (perm)	0	2915	0	0	3269	0	0	1704	0	0	1560	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			14			5			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	36		26	26		36	10		10	10		10
Confl. Bikes (#/hr)			6			5						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	62	781	22	15	809	48	21	73	8	79	88	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	865	0	0	872	0	0	102	0	0	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

10/7/2011

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	696	43	71	598	28	136	214	68	7	136	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.99	
Frt		0.992			0.994			0.978			0.969	
Flt Protected		0.998			0.995			0.984			0.998	
Satd. Flow (prot)	0	3490	0	0	3490	0	0	1775	0	0	1784	0
Flt Permitted		0.904			0.800			0.727			0.984	
Satd. Flow (perm)	0	3159	0	0	2802	0	0	1303	0	0	1758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			10			11			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	19		20	20		19	23		38	38		23
Confl. Bikes (#/hr)			6			8						2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	34	718	44	73	616	29	140	221	70	7	140	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	796	0	0	718	0	0	431	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		56.0			56.0			23.0			23.0	
Actuated g/C Ratio		0.66			0.66			0.27			0.27	
v/c Ratio		0.38			0.39			1.19			0.39	
Control Delay		3.5			7.3			141.4			25.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		3.5			7.3			141.4			25.8	
LOS		A			A			F			C	
Approach Delay		3.5			7.3			141.4			25.8	
Approach LOS		A			A			F			C	
Queue Length 50th (ft)		26			54			~190			51	
Queue Length 95th (ft)		30			75			#313			91	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)												
Base Capacity (vph)		2086			1849			361			488	
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		0.38			0.39			1.19			0.39	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 6 (7%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 34.6

Intersection LOS: C

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15




~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

















### Splits and Phases: 5: JAMES ST & CATHERINE ST

  ø2	  ø4
59 s	26 s

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	745	13	13	589	74	74	510	106	47	224	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.998			0.984			0.977			0.983	
Flt Protected		0.999			0.999			0.995			0.992	
Satd. Flow (prot)	0	3527	0	0	3464	0	0	3419	0	0	3439	0
Flt Permitted		0.939			0.934			0.864			0.697	
Satd. Flow (perm)	0	3315	0	0	3238	0	0	2965	0	0	2413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			18			32			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	20		14	14		20	23		32	32		23
Confl. Bikes (#/hr)			1			2			1			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	15	876	15	15	693	87	87	600	125	55	264	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	906	0	0	795	0	0	812	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		26.0	26.0		26.0	26.0	
Total Split (s)	19.0	19.0	0.0	19.0	19.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	14.0	14.0		14.0	14.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011













Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	36%
Maximum Green (s)	22.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	5



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		36.0			36.0			23.0			23.0	
Actuated g/C Ratio		0.51			0.51			0.33			0.33	
v/c Ratio		0.53			0.47			0.82			0.44	
Control Delay		17.3			23.2			29.0			19.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.3			23.2			29.0			19.5	
LOS		B			C			C			B	
Approach Delay		17.3			23.2			29.0			19.5	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		71			103			108			40	
Queue Length 95th (ft)		#230			#196			143			60	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)												
Base Capacity (vph)		1705			1674			996			807	
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		0.53			0.47			0.82			0.44	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 40 (57%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 73.7%


ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

### Splits and Phases: 6: JAMES ST & LODI ST

		
ø1	ø2	ø3
19 s	26 s	25 s

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST

















10/7/2011

Lane Group                      ø3  
Act Effect Green (s)  
Actuated g/C Ratio  
v/c Ratio  
Control Delay  
Queue Delay  
Total Delay  
LOS  
Approach Delay  
Approach LOS  
Queue Length 50th (ft)  
Queue Length 95th (ft)  
Internal Link Dist (ft)  
Turn Bay Length (ft)  
Base Capacity (vph)  
Starvation Cap Reductn  
Spillback Cap Reductn  
Storage Cap Reductn  
Reduced v/c Ratio  
Intersection Summary

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	826	42	66	538	25	74	109	53	30	169	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.993			0.994			0.970			0.967	
Flt Protected		0.998			0.995			0.985			0.994	
Satd. Flow (prot)	0	3496	0	0	3493	0	0	1768	0	0	1779	0
Flt Permitted		0.918			0.777			0.720			0.946	
Satd. Flow (perm)	0	3215	0	0	2725	0	0	1289	0	0	1691	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			9			25			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	13		23	23		13	14		18	18		14
Confl. Bikes (#/hr)			2			5						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	918	47	73	598	28	82	121	59	33	188	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	998	0	0	699	0	0	262	0	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		31.0	31.0		31.0	31.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	31.0	31.0	0.0	31.0	31.0	0.0
Total Split (%)	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		45.3			45.3			18.7			18.7	
Actuated g/C Ratio		0.65			0.65			0.27			0.27	
v/c Ratio		0.48			0.40			0.72			0.62	
Control Delay		13.6			11.2			31.9			25.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.6			11.2			31.9			25.2	
LOS		B			B			C			C	
Approach Delay		13.6			11.2			31.9			25.2	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)		123			39			63			67	
Queue Length 95th (ft)		m190			130			100			101	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)												
Base Capacity (vph)		2084			1767			531			693	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.48			0.40			0.49			0.42	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 43 (61%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.5

Intersection LOS: B

Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 15

















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

### Splits and Phases: 7: JAMES ST & OAK ST



Lanes, Volumes, Timings  
8: JAMES ST & DEWITT ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	847	8	1	551	136	24	0	6	179	4	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.98	
Frt		0.999			0.970			0.971			0.969	
Flt Protected		0.997						0.962			0.964	
Satd. Flow (prot)	0	3524	0	0	3398	0	0	1727	0	0	1733	0
Flt Permitted		0.870			0.954			0.791			0.757	
Satd. Flow (perm)	0	3073	0	0	3242	0	0	1418	0	0	1338	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			77			7			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	14		4	4		14	4		22	22		4
Confl. Bikes (#/hr)			4			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	921	9	1	599	148	26	0	7	195	4	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	989	0	0	748	0	0	33	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	64.3%	64.3%	0.0%	64.3%	64.3%	0.0%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		45.6			45.6			18.4			18.4	
Actuated g/C Ratio		0.65			0.65			0.26			0.26	
v/c Ratio		0.49			0.35			0.09			0.70	
Control Delay		4.2			7.3			15.3			31.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.2			7.3			15.3			31.4	
LOS		A			A			B			C	
Approach Delay		4.2			7.3			15.3			31.4	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		15			24			6			61	
Queue Length 95th (ft)		18			91			18			107	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)												
Base Capacity (vph)		2002			2138			450			436	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		36			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.50			0.35			0.07			0.59	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 68 (97%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 9.0

Intersection Capacity Utilization 69.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

Splits and Phases: 8: JAMES ST & DEWITT ST



Lanes, Volumes, Timings  
9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	880	152	29	585	103	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99			1.00	0.98	
Frt	0.978				0.969	
Flt Protected				0.998	0.963	
Satd. Flow (prot)	3431	0	0	3532	1732	0
Flt Permitted				0.882	0.963	
Satd. Flow (perm)	3431	0	0	3121	1710	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	54				21	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		18	18		14	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	898	155	30	597	105	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1053	0	0	627	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	47.0		47.0	47.0	23.0	
Total Split (s)	47.0	0.0	47.0	47.0	23.0	0.0
Total Split (%)	67.1%	0.0%	67.1%	67.1%	32.9%	0.0%
Maximum Green (s)	42.0		42.0	42.0	18.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	Max	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	9.0		9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	44.0			44.0	20.0	
Actuated g/C Ratio	0.63			0.63	0.29	
v/c Ratio	0.48			0.32	0.27	
Control Delay	8.3			5.9	18.0	
Queue Delay	0.3			0.0	0.0	
Total Delay	8.6			5.9	18.0	
LOS	A			A	B	
Approach Delay	8.6			5.9	18.0	
Approach LOS	A			A	B	
Queue Length 50th (ft)	141			33	26	
Queue Length 95th (ft)	93			43	54	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)						
Base Capacity (vph)	2177			1962	510	
Starvation Cap Reductn	457			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.61			0.32	0.27	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 12 (17%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 8.3

Intersection Capacity Utilization 59.3%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

Splits and Phases: 9: JAMES ST & SEDGEWICK ST

←	↖	↗	↘
47 s	23 s		



# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	902	8	28	595	19	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00			1.00	1.00	
Frt	0.999				0.928	
Flt Protected				0.998	0.977	
Satd. Flow (prot)	3534	0	0	3532	1689	0
Flt Permitted				0.892	0.977	
Satd. Flow (perm)	3534	0	0	3156	1688	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2				24	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		20	20		1	
Confl. Bikes (#/hr)		6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	980	9	30	647	21	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	989	0	0	677	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	45.0		45.0	45.0	25.0	
Total Split (s)	45.0	0.0	45.0	45.0	25.0	0.0
Total Split (%)	64.3%	0.0%	64.3%	64.3%	35.7%	0.0%
Maximum Green (s)	40.0		40.0	40.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Act Effect Green (s)	58.5			58.5	10.9	
Actuated g/C Ratio	0.84			0.84	0.16	
v/c Ratio	0.33			0.26	0.16	
Control Delay	10.6			3.2	14.7	
Queue Delay	0.0			0.0	0.0	
Total Delay	10.6			3.2	14.7	
LOS	B			A	B	
Approach Delay	10.6			3.2	14.7	
Approach LOS	B			A	B	
Queue Length 50th (ft)	137			17	6	
Queue Length 95th (ft)	198			67	18	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)						
Base Capacity (vph)	2953			2637	547	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.33			0.26	0.08	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 7.8

Intersection Capacity Utilization 47.1%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A



















### Splits and Phases: 10: JAMES ST & WILSON ST



# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	510	176	185	378	34	125	478	101	25	524	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00			1.00			0.99	
Frt		0.962			0.988			0.978			0.973	
Flt Protected	0.950			0.950				0.991			0.998	
Satd. Flow (prot)	1770	3360	0	1770	3485	0	0	3422	0	0	3386	0
Flt Permitted	0.950			0.950				0.624			0.904	
Satd. Flow (perm)	1744	3360	0	1745	3485	0	0	2155	0	0	3067	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			7			17			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	11		16	16		11	29		2	2		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	259	554	191	201	411	37	136	520	110	27	570	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	259	745	0	201	448	0	0	766	0	0	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	25.0	50.0	0.0	25.0	50.0	0.0	25.0	65.0	0.0	40.0	40.0	0.0
Total Split (%)	17.9%	35.7%	0.0%	17.9%	35.7%	0.0%	17.9%	46.4%	0.0%	28.6%	28.6%	0.0%
Maximum Green (s)	20.5	45.0		20.5	45.0		20.0	60.0		35.0	35.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5			5			5		5	5	
Act Effect Green (s)	22.2	33.2		19.6	30.7			52.9			52.9	
Actuated g/C Ratio	0.19	0.29		0.17	0.27			0.46			0.46	
v/c Ratio	0.76	0.74		0.66	0.48			0.76			0.51	
Control Delay	62.5	41.3		59.5	37.0			32.1			23.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	62.5	41.3		59.5	37.0			32.1			23.4	
LOS	E	D		E	D			C			C	
Approach Delay		46.8			44.0			32.1			23.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	136	188		103	106			166			133	
Queue Length 95th (ft)	#264	245		177	143			258			200	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	363	1459		363	1495			1224			1448	
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		0.55	0.30			0.63			0.50	

### Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 114.6

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 37.2

Intersection LOS: D

Intersection Capacity Utilization 83.3%








ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4
25 s	50 s	65 s
 ø5	 ø6	 ø7
25 s	50 s	25 s
		 ø8
		40 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	574	62	14	470	0	42	0	77	329	72	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96		1.00			0.98			0.98	
Frt			0.850					0.913			0.976	
Flt Protected					0.999			0.983			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1637	0	0	1726	0
Flt Permitted					0.981			0.876			0.698	
Satd. Flow (perm)	0	1863	1525	0	1827	0	0	1458	0	0	1238	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63					79			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	26		23	23		26	47		4	4		47
Confl. Bikes (#/hr)			1			6						7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	586	63	14	480	0	43	0	79	336	73	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	586	63	0	494	0	0	122	0	0	496	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	78.0	78.0	78.0	78.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	72.2%	72.2%	72.2%	72.2%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%
Maximum Green (s)							25.5	25.5		25.5	25.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	13.0	40.0	25.0
Total Split (%)	12%	37%	23%
Maximum Green (s)	8.5	35.5	20.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effect Green (s)		72.8	72.8		72.8			25.5			25.5	
Actuated g/C Ratio		0.68	0.68		0.68			0.24			0.24	
v/c Ratio		0.46	0.06		0.40			0.30			1.65	
Control Delay		9.5	1.6		3.3			16.0			334.9	
Queue Delay		0.8	0.0		0.9			0.1			379.0	
Total Delay		10.3	1.6		4.2			16.0			713.9	
LOS		B	A		A			B			F	
Approach Delay		9.4			4.2			16.0			713.9	
Approach LOS		A			A			B			F	
Queue Length 50th (ft)		115	0		11			16			~341	
Queue Length 95th (ft)		163	9		40			50			#482	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)												
Base Capacity (vph)		1260	1052		1235			407			301	
Starvation Cap Reductn		0	0		456			0			106	
Spillback Cap Reductn		365	0		0			15			2	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.65	0.06		0.63			0.31			2.54	

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.65

Intersection Signal Delay: 206.8

Intersection LOS: F

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15













~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 12: JAMES ST & Grant

#12 #13	#12 #13	#12 #13	#12 #13
  	  	  	  
ø1	ø2	ø3	ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings 12: JAMES ST & Grant

10/7/2011


















Lane Group	ø1	ø2	ø4
Pedestrian Calls (#/hr)		5	
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			



# Lanes, Volumes, Timings

## 13: James S & Walgreens












10/7/2011

													
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER		ø3
Lane Configurations													
Volume (vph)	91	109	780	452	386	10	38	32	12	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		75			150		0	0		0	0		
Storage Lanes		1			1		1	0		0	0		
Taper Length (ft)		25			25		25	25		25	25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor					0.81		0.97						
Frt					0.850		0.928						
Flt Protected		0.950					0.977						
Satd. Flow (prot)	0	1770	1863	1863	1583	0	1689	0	0	0	0		
Flt Permitted		0.344					0.977						
Satd. Flow (perm)	0	641	1863	1863	1277	0	1635	0	0	0	0		
Right Turn on Red						Yes			Yes		Yes		
Satd. Flow (RTOR)					1		7						
Link Speed (mph)			30	30			30			30			
Link Distance (ft)			208	618			139			186			
Travel Time (s)			4.7	14.0			3.2			4.2			
Confl. Peds. (#/hr)	26				26	26	26						
Confl. Bikes (#/hr)					6	6							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	93	111	796	461	394	10	39	33	12	0	0		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	204	796	461	404	0	84	0	0	0	0		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Right	Right	Left	Right		
Median Width(ft)			12	12			12			0			
Link Offset(ft)			0	0			0			0			
Crosswalk Width(ft)			16	16			16			16			
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15	15			9	9	15	9	9	15	9		
Turn Type	custom	custom			Perm								
Protected Phases		1	1 2 3	2			4						3
Permitted Phases	2 3	2 3			2								
Detector Phase	2 3	1	1 2 3	2	2		4						
Switch Phase													
Minimum Initial (s)		5.0		10.0	10.0		5.0						8.0
Minimum Split (s)		9.5		22.0	22.0		9.5						22.0
Total Split (s)	70.0	13.0	83.0	40.0	40.0	0.0	25.0	0.0	0.0	0.0	0.0		30.0
Total Split (%)	64.8%	12.0%	76.9%	37.0%	37.0%	0.0%	23.1%	0.0%	0.0%	0.0%	0.0%		28%
Maximum Green (s)		8.5		35.5	35.5		20.5						25.5
Yellow Time (s)		3.5		3.5	3.5		3.5						3.5
All-Red Time (s)		1.0		1.0	1.0		1.0						1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.0	4.0	4.0	4.0		
Lead/Lag		Lead		Lag	Lag		Lag						Lead
Lead-Lag Optimize?													
Vehicle Extension (s)		3.0		3.0	3.0		3.0						3.0

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

												
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER	ø3
Recall Mode		None		Min	Min		None					None
Walk Time (s)				7.0	7.0							7.0
Flash Dont Walk (s)				10.0	10.0							10.0
Pedestrian Calls (#/hr)				5	5							5
Act Effect Green (s)		74.0	78.5	35.5	35.5		19.8					
Actuated g/C Ratio		0.69	0.73	0.33	0.33		0.18					
v/c Ratio		0.38	0.58	0.75	0.96		0.26					
Control Delay		7.2	10.6	41.0	70.5		36.7					
Queue Delay		0.5	2.1	0.0	0.0		0.0					
Total Delay		7.7	12.7	41.0	70.5		36.7					
LOS		A	B	D	E		D					
Approach Delay			11.7	54.8			36.7					
Approach LOS			B	D			D					
Queue Length 50th (ft)		38	190	192	185		31					
Queue Length 95th (ft)		m40	m186	277	#322		62					
Internal Link Dist (ft)			128	538			59			106		
Turn Bay Length (ft)		75			150							
Base Capacity (vph)		531	1363	616	423		328					
Starvation Cap Reductn		96	405	0	0		0					
Spillback Cap Reductn		0	0	0	0		0					
Storage Cap Reductn		0	0	0	0		0					
Reduced v/c Ratio		0.47	0.83	0.75	0.96		0.26					

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.65

Intersection Signal Delay: 31.9

Intersection LOS: C

Intersection Capacity Utilization 53.4%

ICU Level of Service A









Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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





















### Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
 	 	 	 
ø1	ø2	ø3	ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	551	206	89	465	6	166	1	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	0		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00			0.99				
Frt			0.850		0.998			0.988				
Flt Protected	0.950			0.950			0.950	0.957				
Satd. Flow (prot)	1770	1863	1583	1770	1858	0	1681	1664	0	0	1863	0
Flt Permitted	0.390			0.334			0.950	0.950				
Satd. Flow (perm)	726	1863	1531	619	1858	0	1681	1652	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			231		1			6				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		229			537			242			134	
Travel Time (s)		5.2			12.2			5.5			3.0	
Confl. Peds. (#/hr)	2		19	19		2	14		23	23		14
Confl. Bikes (#/hr)			1			4			1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	13	619	231	100	522	7	187	1	8	0	0	0
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	13	619	231	100	529	0	99	97	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1		1	1			2			3		
Detector Phase	1	1	1	1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	37.0	37.0	37.0	37.0	37.0		25.0	25.0		18.0	18.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	25.0	25.0	0.0	18.0	18.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	31.3%	31.3%	0.0%	22.5%	22.5%	0.0%
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0		20.0	20.0		13.0	13.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		12.0	12.0				
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5				
Act Effct Green (s)	52.0	52.0	51.0	52.0	52.0		22.0	22.0				
Actuated g/C Ratio	0.65	0.65	0.64	0.65	0.65		0.28	0.28				
v/c Ratio	0.03	0.51	0.22	0.25	0.44		0.21	0.21				
Control Delay	5.2	9.2	1.4	7.2	6.9		23.9	22.4				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay	5.2	9.2	1.4	7.2	6.9		23.9	22.4				
LOS	A	A	A	A	A		C	C				
Approach Delay		7.0			7.0			23.2				
Approach LOS		A			A			C				
Queue Length 50th (ft)	1	97	0	7	41		27	25				
Queue Length 95th (ft)	5	145	15	m21	91		53	51				
Internal Link Dist (ft)		149			457			162				
Turn Bay Length (ft)	150		150	150								
Base Capacity (vph)	472	1211	1060	402	1208		462	459				
Starvation Cap Reductn	0	0	0	0	0		0	0				
Spillback Cap Reductn	0	0	0	0	0		0	0				
Storage Cap Reductn	0	0	0	0	0		0	0				
Reduced v/c Ratio	0.03	0.51	0.22	0.25	0.44		0.21	0.21				

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 70 (88%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 8.9

Intersection LOS: A

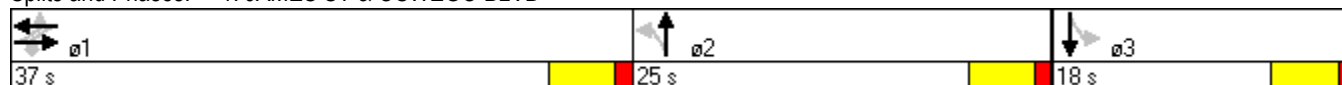
Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

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






















### Splits and Phases: 1: JAMES ST & OSWEGO BLVD



## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	425	55	160	503	169	35	230	40	122	419	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	120		0	120		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99				0.98	0.98	0.99		0.99	1.00	
Frt		0.983				0.850		0.978			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1820	0	1770	1863	1583	1770	3443	0	1770	3500	0
Flt Permitted	0.434			0.148			0.478			0.461		
Satd. Flow (perm)	805	1820	0	276	1863	1555	872	3443	0	847	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				184		25			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	7		28	28		7	17		10	10		17
Confl. Bikes (#/hr)			1			4						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	462	60	174	547	184	38	250	43	133	455	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	522	0	174	547	184	38	293	0	133	479	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	27.0	27.0		12.0	39.0	
Total Split (s)	27.0	27.0	0.0	14.0	41.0	41.0	27.0	27.0	0.0	12.0	39.0	0.0
Total Split (%)	33.8%	33.8%	0.0%	17.5%	51.3%	51.3%	33.8%	33.8%	0.0%	15.0%	48.8%	0.0%
Maximum Green (s)	22.0	22.0		9.0	36.0	36.0	22.0	22.0		7.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effect Green (s)	24.0	24.0		38.0	38.0	38.0	24.0	24.0		36.0	36.0	
Actuated g/C Ratio	0.30	0.30		0.48	0.48	0.48	0.30	0.30		0.45	0.45	
v/c Ratio	0.35	0.95		0.52	0.62	0.22	0.15	0.28		0.27	0.30	
Control Delay	18.9	47.3		14.1	16.9	3.6	22.4	20.4		14.8	14.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.9	47.3		14.1	16.9	3.6	22.4	20.4		14.8	14.4	
LOS	B	D		B	B	A	C	C		B	B	
Approach Delay		43.3			13.7			20.6			14.5	
Approach LOS		D			B			C			B	
Queue Length 50th (ft)	23	170		38	149	13	9	36		26	51	
Queue Length 95th (ft)	m50	#101		m47	m223	m17	25	57		48	74	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150			150		150	120			120		
Base Capacity (vph)	242	552		337	885	835	262	1050		485	1580	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.35	0.95		0.52	0.62	0.22	0.15	0.28		0.27	0.30	

#### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 75 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 22.1

Intersection LOS: C

Intersection Capacity Utilization 68.3%

ICU Level of Service C







Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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























#### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
14 s	27 s	12 s	27 s
 ø6		 ø8	
41 s		39 s	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	517	41	74	633	71	169	333	59	26	214	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	105		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99	1.00		0.98		0.96	0.99	0.99	
Frt		0.989			0.985				0.850		0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1826	0	1770	1863	1583	1770	1817	0
Flt Permitted	0.157			0.270			0.487			0.377		
Satd. Flow (perm)	292	1834	0	498	1826	0	889	1863	1521	695	1817	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			11				65		10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	14		19	19		14	20		12	12		20
Confl. Bikes (#/hr)			2			1						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	32	568	45	81	696	78	186	366	65	29	235	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	613	0	81	774	0	186	366	65	29	268	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	46.0	46.0		46.0	46.0		34.0	34.0	34.0	34.0	34.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	34.0	34.0	34.0	34.0	34.0	0.0
Total Split (%)	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effect Green (s)	43.0	43.0		43.0	43.0		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.39	0.39	0.39	0.39	0.39	
v/c Ratio	0.20	0.62		0.30	0.78		0.54	0.51	0.10	0.11	0.38	
Control Delay	4.9	8.1		13.4	18.2		26.2	21.7	4.9	17.1	18.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	4.9	8.1		13.4	18.2		26.2	21.7	4.9	17.1	18.8	
LOS	A	A		B	B		C	C	A	B	B	
Approach Delay		7.9			17.8			21.3			18.7	
Approach LOS		A			B			C			B	
Queue Length 50th (ft)	1	50		13	120		48	93	0	6	61	
Queue Length 95th (ft)	m1	m91		m15	126		93	146	16	18	103	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)	150			150			105			150		
Base Capacity (vph)	157	989		268	987		344	722	629	269	710	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.20	0.62		0.30	0.78		0.54	0.51	0.10	0.11	0.38	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 37 (46%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 16.1

Intersection LOS: B



Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 15

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

### Splits and Phases: 3: JAMES ST & TOWNSEND ST



















					
46 s			34 s		



# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	531	12	17	749	35	16	42	12	16	20	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	1.00			0.99			0.99	
Frt		0.997			0.993			0.977			0.965	
Flt Protected	0.950			0.950				0.988			0.984	
Satd. Flow (prot)	1770	1854	0	1770	1843	0	0	1789	0	0	1759	0
Flt Permitted	0.194			0.347				0.944			0.919	
Satd. Flow (perm)	361	1854	0	636	1843	0	0	1709	0	0	1638	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			13			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	24		22	22		24	1		4	4		1
Confl. Bikes (#/hr)			1			5						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	65	584	13	19	823	38	18	46	13	18	22	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	597	0	19	861	0	0	77	0	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	52.0	52.0		52.0	52.0			22.0			22.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.28			0.28	
v/c Ratio	0.28	0.50		0.05	0.72			0.16			0.12	
Control Delay	4.3	2.9		6.3	10.9			19.9			18.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.3	2.9		6.3	10.9			19.9			18.1	
LOS	A	A		A	B			B			B	
Approach Delay		3.0			10.8			19.9			18.1	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	2	16		2	91			16			10	
Queue Length 95th (ft)	m4	30		m0	187			39			28	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	235	1206		413	1200			479			461	
Starvation Cap Reductn	0	0		0	5			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.28	0.50		0.05	0.72			0.16			0.12	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 46 (58%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 8.4

Intersection LOS: A







Intersection Capacity Utilization 70.0%

ICU Level of Service C

Analysis Period (min) 15

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



















### Splits and Phases: 4: JAMES ST & MCBRIDE ST

					
ø2			ø4		
55 s			25 s		

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	502	43	126	718	22	47	79	57	2	127	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00			0.97			0.98	
Frt		0.988			0.996			0.958			0.971	
Flt Protected	0.950			0.950				0.987			0.999	
Satd. Flow (prot)	1770	1828	0	1770	1851	0	0	1727	0	0	1780	0
Flt Permitted	0.235			0.358				0.902			0.997	
Satd. Flow (perm)	438	1828	0	653	1851	0	0	1566	0	0	1776	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			4			28			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	24		28	28		24	22		19	19		22
Confl. Bikes (#/hr)			1			2			2			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	534	46	134	764	23	50	84	61	2	135	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	580	0	134	787	0	0	195	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	52.0	52.0		52.0	52.0			22.0			22.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.28			0.28	
v/c Ratio	0.05	0.49		0.32	0.65			0.43			0.35	
Control Delay	1.5	2.3		8.0	10.6			23.9			23.3	
Queue Delay	0.0	0.0		0.0	0.1			0.0			0.0	
Total Delay	1.5	2.3		8.0	10.7			23.9			23.3	
LOS	A	A		A	B			C			C	
Approach Delay		2.3			10.3			23.9			23.3	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	0	10		11	63			46			43	
Queue Length 95th (ft)	m1	17		m30	213			87			79	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	285	1192		424	1205			451			501	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	26			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.05	0.49		0.32	0.67			0.43			0.35	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 54 (68%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 10.4

Intersection LOS: B













Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

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



















### Splits and Phases: 5: JAMES ST & CATHERINE ST

											
ø2						ø4					
55 s						25 s					

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	478	53	23	814	64	34	268	53	38	252	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.985			0.989			0.978			0.991	
Flt Protected	0.950			0.950				0.995			0.994	
Satd. Flow (prot)	1770	1830	0	1770	1839	0	0	3408	0	0	3475	0
Flt Permitted	0.128			0.354				0.895			0.860	
Satd. Flow (perm)	238	1830	0	657	1839	0	0	3059	0	0	2997	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			5			23			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	13		12	12		13	17		22	22		17
Confl. Bikes (#/hr)			6			1			1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	498	55	24	848	67	35	279	55	40	262	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	553	0	24	915	0	0	369	0	0	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	35%
Maximum Green (s)	25.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effect Green (s)	51.0	51.0		51.0	51.0			18.0			18.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64			0.22			0.22	
v/c Ratio	0.20	0.47		0.06	0.78			0.52			0.47	
Control Delay	18.2	14.4		10.2	20.1			28.6			29.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	18.2	14.4		10.2	20.1			28.6			29.0	
LOS	B	B		B	C			C			C	
Approach Delay		14.6			19.8			28.6			29.0	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	4	89		2	154			54			48	
Queue Length 95th (ft)	m15	#209		16	#557			83			75	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	152	1169		419	1174			706			680	
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	0.20	0.47		0.06	0.78			0.52			0.47	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 47 (59%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 21.2

Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 6: JAMES ST & LODI ST

		
ø1	ø2	ø3
31 s	21 s	28 s

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST

10/7/2011



















Lane Group	ø3
Walk Time (s)	7.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	5
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	



# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	424	67	47	750	31	110	173	98	28	88	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00			0.98			0.98	
Frt		0.980			0.994			0.965			0.965	
Flt Protected	0.950			0.950				0.986			0.991	
Satd. Flow (prot)	1770	1805	0	1770	1847	0	0	1753	0	0	1754	0
Flt Permitted	0.173			0.376				0.862			0.899	
Satd. Flow (perm)	322	1805	0	685	1847	0	0	1520	0	0	1588	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			5			29			30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	19		31	31		19	24		14	14		24
Confl. Bikes (#/hr)			2			1			1			1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	83	451	71	50	798	33	117	184	104	30	94	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	522	0	50	831	0	0	405	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	38.6	38.6		38.6	38.6			20.4			20.4	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.31			0.31	
v/c Ratio	0.43	0.48		0.12	0.76			0.81			0.32	
Control Delay	17.3	9.6		4.8	7.8			33.6			15.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	17.3	9.6		4.8	7.8			33.6			15.2	
LOS	B	A		A	A			C			B	
Approach Delay		10.6			7.6			33.6			15.2	
Approach LOS		B			A			C			B	
Queue Length 50th (ft)	12	73		3	46			88			26	
Queue Length 95th (ft)	40	121		m4	m67			#179			56	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	191	1079		406	1098			534			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	0.43	0.48		0.12	0.76			0.76			0.30	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 2 (3%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 90.7%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















Splits and Phases: 7: JAMES ST & OAK ST



# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	509	11	0	768	120	7	1	2	179	6	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.98			0.95	
Frt		0.997			0.980			0.975			0.970	
Flt Protected	0.950							0.965			0.964	
Satd. Flow (prot)	1770	1855	0	1863	1809	0	0	1727	0	0	1729	0
Flt Permitted	0.110							0.823			0.773	
Satd. Flow (perm)	205	1855	0	1863	1809	0	0	1465	0	0	1325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			20			2			24	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	22		16	16		22	8		37	37		8
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	566	12	0	853	133	8	1	2	199	7	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	578	0	0	986	0	0	11	0	0	265	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	40.9	40.9			40.9			18.1			18.1	
Actuated g/C Ratio	0.63	0.63			0.63			0.28			0.28	
v/c Ratio	0.26	0.50			0.86			0.03			0.68	
Control Delay	18.0	14.1			15.7			13.7			27.9	
Queue Delay	0.0	0.0			1.3			0.0			0.0	
Total Delay	18.0	14.1			17.0			13.7			27.9	
LOS	B	B			B			B			C	
Approach Delay		14.3			17.0			13.7			27.9	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	6	119			252			2			56	
Queue Length 95th (ft)	m15	m185			#417			8			100	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)	150											
Base Capacity (vph)	129	1167			1144			497			464	
Starvation Cap Reductn	0	0			50			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.26	0.50			0.90			0.02			0.57	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 50 (77%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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












Splits and Phases: 8: JAMES ST & DEWITT ST



# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	574	116	42	769	119	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.93	0.99		0.99	
Frt		0.850			0.970	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	1863	1583	1770	1863	1729	0
Flt Permitted			0.305		0.962	
Satd. Flow (perm)	1863	1480	561	1863	1719	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		127			23	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		22	22		4	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	631	127	46	845	131	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	631	127	46	845	168	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type		Perm	Perm			
Protected Phases	2			2	4	
Permitted Phases		2	2			
Detector Phase	2	2	2	2	4	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	42.0	42.0	42.0	42.0	23.0	
Total Split (s)	42.0	42.0	42.0	42.0	23.0	0.0
Total Split (%)	64.6%	64.6%	64.6%	64.6%	35.4%	0.0%
Maximum Green (s)	37.0	37.0	37.0	37.0	18.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	
Act Effect Green (s)	39.0	38.0	39.0	39.0	20.0	
Actuated g/C Ratio	0.60	0.58	0.60	0.60	0.31	
v/c Ratio	0.56	0.14	0.14	0.76	0.31	
Control Delay	6.0	0.8	8.6	18.5	16.6	
Queue Delay	0.2	0.0	0.0	4.8	0.0	
Total Delay	6.3	0.8	8.6	23.3	16.6	
LOS	A	A	A	C	B	
Approach Delay	5.4			22.6	16.6	
Approach LOS	A			C	B	
Queue Length 50th (ft)	52	1	7	205	29	
Queue Length 95th (ft)	75	m1	m10	331	59	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)		150	150			
Base Capacity (vph)	1118	918	337	1118	548	
Starvation Cap Reductn	97	0	0	0	0	
Spillback Cap Reductn	0	0	0	206	2	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.62	0.14	0.14	0.93	0.31	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 42 (65%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 14.8

Intersection LOS: B

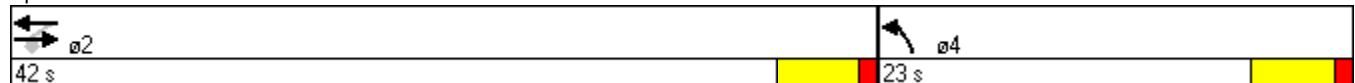
Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

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





### Splits and Phases: 9: JAMES ST & SEDGEWICK ST



# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	596	12	16	789	22	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		0.97	
Frt	0.997				0.923	
Flt Protected			0.950		0.979	
Satd. Flow (prot)	1856	0	1770	1863	1629	0
Flt Permitted			0.336		0.979	
Satd. Flow (perm)	1856	0	624	1863	1629	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3				35	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		7	7			22
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	710	14	19	939	26	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	724	0	19	939	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	40.0		40.0	40.0	25.0	
Total Split (s)	40.0	0.0	40.0	40.0	25.0	0.0
Total Split (%)	61.5%	0.0%	61.5%	61.5%	38.5%	0.0%
Maximum Green (s)	35.0		35.0	35.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effect Green (s)	53.4		53.4	53.4	11.0	
Actuated g/C Ratio	0.82		0.82	0.82	0.17	
v/c Ratio	0.48		0.04	0.61	0.20	
Control Delay	7.9		4.4	8.8	12.6	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	7.9		4.4	8.8	12.6	
LOS	A		A	A	B	
Approach Delay	7.9			8.7	12.6	
Approach LOS	A			A	B	
Queue Length 50th (ft)	96		1	76	6	
Queue Length 95th (ft)	155		7	#331	18	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)			150			
Base Capacity (vph)	1524		512	1529	575	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.48		0.04	0.61	0.11	

### Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 54 (83%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 8.5

Intersection LOS: A

Intersection Capacity Utilization 58.9%

ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

### Splits and Phases: 10: JAMES ST & WILSON ST























# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	432	91	82	442	12	170	354	92	7	446	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.98	1.00			0.99			0.96	
Frt		0.974			0.996			0.978			0.955	
Flt Protected	0.950			0.950				0.986			0.999	
Satd. Flow (prot)	1770	1798	0	1770	1854	0	0	3388	0	0	3239	0
Flt Permitted	0.950			0.950				0.558			0.947	
Satd. Flow (perm)	1748	1798	0	1738	1854	0	0	1918	0	0	3070	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			1			17			40	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	10		16	16		10	29		7	7		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	113	480	101	91	491	13	189	393	102	8	496	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	581	0	91	504	0	0	684	0	0	718	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	35.0	48.0	0.0	35.0	48.0	0.0	30.0	57.0	0.0	27.0	27.0	0.0
Total Split (%)	25.0%	34.3%	0.0%	25.0%	34.3%	0.0%	21.4%	40.7%	0.0%	19.3%	19.3%	0.0%
Maximum Green (s)	30.5	43.0		30.5	43.0		25.0	52.0		22.0	22.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5			5			5		5	5	
Act Effect Green (s)	14.8	45.4		13.4	44.0			44.2			44.2	
Actuated g/C Ratio	0.13	0.41		0.12	0.39			0.40			0.40	
v/c Ratio	0.48	0.79		0.43	0.69			0.97dl			0.58	
Control Delay	54.3	40.0		54.7	36.5			45.8			27.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	54.3	40.0		54.7	36.5			45.8			27.0	
LOS	D	D		D	D			D			C	
Approach Delay		42.3			39.3			45.8			27.0	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	52	248		42	208			156			133	
Queue Length 95th (ft)	99	#441		84	346			#236			190	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	524	752		524	760			951			1239	
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	0.22	0.77		0.17	0.66			0.72			0.58	

### Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 111.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 38.4

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E








Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4
35 s	48 s	57 s
 ø5	 ø6	 ø7
35 s	48 s	30 s
		 ø8
		27 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	501	30	10	422	0	44	0	73	238	43	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			0.99			0.99	
Frt			0.850					0.916			0.973	
Flt Protected					0.999			0.982			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1651	0	0	1730	0
Flt Permitted					0.985			0.847			0.672	
Satd. Flow (perm)	0	1863	1533	0	1835	0	0	1424	0	0	1201	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37					73			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	28		13	13		28	14		1	1		14
Confl. Bikes (#/hr)			4									1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	0	619	37	12	521	0	54	0	90	294	53	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	619	37	0	533	0	0	144	0	0	433	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	78.0	78.0	78.0	78.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	72.2%	72.2%	72.2%	72.2%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%
Maximum Green (s)							25.5	25.5		25.5	25.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	13.0	40.0	25.0
Total Split (%)	12%	37%	23%
Maximum Green (s)	8.5	35.5	20.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effct Green (s)		73.2	73.2		73.2			25.5			25.5	
Actuated g/C Ratio		0.68	0.68		0.68			0.24			0.24	
v/c Ratio		0.49	0.04		0.43			0.37			1.48	
Control Delay		9.9	1.9		5.1			20.5			264.3	
Queue Delay		0.9	0.0		1.4			0.1			393.5	
Total Delay		10.8	1.9		6.5			20.6			657.7	
LOS		B	A		A			C			F	
Approach Delay		10.3			6.5			20.6			657.7	
Approach LOS		B			A			C			F	
Queue Length 50th (ft)		125	0		12			27			~280	
Queue Length 95th (ft)		149	6		40			55			#359	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)			150									
Base Capacity (vph)		1256	1045		1237			393			293	
Starvation Cap Reductn		0	0		481			0			109	
Spillback Cap Reductn		359	0		0			14			2	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.69	0.04		0.71			0.38			2.35	

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 168.7

Intersection LOS: F

Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15













~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 12: JAMES ST & Grant

#12 #13	#12 #13	#12 #13	#12 #13
  	  	  	  
ø1	ø2	ø3	ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings 12: JAMES ST & Grant















10/7/2011

Lane Group	ø1	ø2	ø4
Recall Mode	None	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	
Pedestrian Calls (#/hr)		5	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings

## 13: James S & Walgreens










10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Lane Configurations										
Volume (vph)	60	102	650	422	258	6	10	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75			150	0	0	0	0	
Storage Lanes		1			1	1	0	0	0	
Taper Length (ft)		25			25	25	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.89	0.97				
Fr t					0.850	0.915				
Flt Protected		0.950				0.982				
Satd. Flow (prot)	0	1770	1863	1863	1583	1674	0	0	0	
Flt Permitted		0.292				0.982				
Satd. Flow (perm)	0	544	1863	1863	1414	1628	0	0	0	
Right Turn on Red									Yes	
Satd. Flow (RTOR)										
Link Speed (mph)			30	30		30		30		
Link Distance (ft)			208	618		139		186		
Travel Time (s)			4.7	14.0		3.2		4.2		
Confl. Peds. (#/hr)	28				28	28				
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Adj. Flow (vph)	74	126	802	521	319	7	12	0	0	
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	200	802	521	319	19	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)			12	12		12		0		
Link Offset(ft)			0	0		0		0		
Crosswalk Width(ft)			16	16		16		16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15			9	15	9	15	9	
Turn Type	custom	custom			Perm					
Protected Phases		1	1 2 3	2		4				3
Permitted Phases	2 3	2 3			2					
Detector Phase	2 3	1	1 2 3	2	2	4				
Switch Phase										
Minimum Initial (s)		5.0		10.0	10.0	5.0				8.0
Minimum Split (s)		9.5		22.0	22.0	9.5				22.0
Total Split (s)	70.0	13.0	83.0	40.0	40.0	25.0	0.0	0.0	0.0	30.0
Total Split (%)	64.8%	12.0%	76.9%	37.0%	37.0%	23.1%	0.0%	0.0%	0.0%	28%
Maximum Green (s)		8.5		35.5	35.5	20.5				25.5
Yellow Time (s)		3.5		3.5	3.5	3.5				3.5
All-Red Time (s)		1.0		1.0	1.0	1.0				1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	
Lead/Lag		Lead		Lag	Lag	Lag				Lead
Lead-Lag Optimize?										
Vehicle Extension (s)		3.0		3.0	3.0	3.0				3.0
Recall Mode		None		Min	Min	None				None

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Walk Time (s)				7.0	7.0					7.0
Flash Dont Walk (s)				10.0	10.0					10.0
Pedestrian Calls (#/hr)				5	5					5
Act Effect Green (s)		74.0	78.5	35.5	35.5	20.2				
Actuated g/C Ratio		0.69	0.73	0.33	0.33	0.19				
v/c Ratio		0.43	0.59	0.85	0.68	0.06				
Control Delay		7.8	11.1	48.3	40.2	36.6				
Queue Delay		0.3	1.6	0.0	0.0	0.0				
Total Delay		8.0	12.7	48.3	40.2	36.6				
LOS		A	B	D	D	D				
Approach Delay			11.8	45.2		36.6				
Approach LOS			B	D		D				
Queue Length 50th (ft)		38	199	227	129	7				
Queue Length 95th (ft)		m37	m186	277	173	19				
Internal Link Dist (ft)			128	538		59		106		
Turn Bay Length (ft)		75			150					
Base Capacity (vph)		470	1358	614	466	319				
Starvation Cap Reductn		44	362	0	0	0				
Spillback Cap Reductn		0	0	0	0	0				
Storage Cap Reductn		0	0	0	0	0				
Reduced v/c Ratio		0.47	0.81	0.85	0.68	0.06				

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 27.1

Intersection LOS: C









Intersection Capacity Utilization 46.6%

ICU Level of Service A

Analysis Period (min) 15

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

### Splits and Phases: 13: James S & Walgreens





















#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
13 s	40 s	30 s	25 s



# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	543	121	34	596	1	329	0	20	5	7	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	0		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor			0.94		1.00			0.99			0.98	
Frt			0.850					0.983			0.932	
Flt Protected				0.950			0.950	0.958			0.990	
Satd. Flow (prot)	1863	1863	1583	1770	1863	0	1681	1657	0	0	1697	0
Flt Permitted				0.142			0.210	0.276			0.875	
Satd. Flow (perm)	1863	1863	1495	265	1863	0	372	477	0	0	1493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125					11			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		225			537			242			134	
Travel Time (s)		5.1			12.2			5.5			3.0	
Confl. Peds. (#/hr)	7		35	35		7	4		13	13		4
Confl. Bikes (#/hr)			5			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	572	127	36	627	1	346	0	21	5	7	12
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	572	127	36	628	0	183	184	0	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1		1	1			2			3		
Detector Phase	1	1	1	1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		35.0	35.0		12.0	12.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	47.0	47.0	0.0	12.0	12.0	0.0
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%	0.0%	54.7%	54.7%	0.0%	14.0%	14.0%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		42.0	42.0		7.0	7.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		12.0	12.0				
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5				
Act Effct Green (s)		31.2	30.2	31.2	31.2		44.0	44.0			8.2	
Actuated g/C Ratio		0.36	0.35	0.36	0.36		0.51	0.51			0.10	
v/c Ratio		0.85	0.21	0.38	0.93		0.96	0.74			0.16	
Control Delay		41.7	6.0	38.9	51.4		81.9	36.7			26.5	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay		41.7	6.0	38.9	51.4		81.9	36.7			26.5	
LOS		D	A	D	D		F	D			C	
Approach Delay		35.2			50.8			59.2			26.5	
Approach LOS		D			D			E			C	
Queue Length 50th (ft)		172	0	9	197		64	49			4	
Queue Length 95th (ft)		#375	28	#41	#423		#162	#137			20	
Internal Link Dist (ft)		145			457			162			54	
Turn Bay Length (ft)			150	150								
Base Capacity (vph)		676	606	96	676		190	249			167	
Starvation Cap Reductn		0	0	0	0		0	0			0	
Spillback Cap Reductn		0	0	0	0		0	0			0	
Storage Cap Reductn		0	0	0	0		0	0			0	
Reduced v/c Ratio		0.85	0.21	0.38	0.93		0.96	0.74			0.14	

### Intersection Summary

Area Type: Other

Cycle Length: 86

Actuated Cycle Length: 86

Offset: 32 (37%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 46.0

Intersection LOS: D

Intersection Capacity Utilization 54.6%
















ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.






















Splits and Phases: 1: JAMES ST & OSWEGO BLVD

														
27 s			47 s									12 s		

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	490	16	97	568	349	38	972	124	119	211	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	120		0	120		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00				0.98	0.98	0.99			0.99	
Frt		0.995				0.850		0.983			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1849	0	1770	1863	1583	1770	3445	0	1770	3463	0
Flt Permitted	0.249			0.143			0.592			0.121		
Satd. Flow (perm)	461	1849	0	266	1863	1547	1076	3445	0	225	3463	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				228		18			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	13		46	46		13	14		46	46		14
Confl. Bikes (#/hr)			1			4			4			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	68	538	18	107	624	384	42	1068	136	131	232	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	556	0	107	624	384	42	1204	0	131	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		12.0	38.0	38.0	33.0	33.0		12.0	45.0	
Total Split (s)	28.0	28.0	0.0	12.0	40.0	40.0	33.0	33.0	0.0	12.0	45.0	0.0
Total Split (%)	32.9%	32.9%	0.0%	14.1%	47.1%	47.1%	38.8%	38.8%	0.0%	14.1%	52.9%	0.0%
Maximum Green (s)	23.0	23.0		7.0	35.0	35.0	28.0	28.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		Max	C-Max	C-Max	Max	Max		Max	Max	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effect Green (s)	25.0	25.0		37.0	37.0	37.0	30.0	30.0		42.0	42.0	
Actuated g/C Ratio	0.29	0.29		0.44	0.44	0.44	0.35	0.35		0.49	0.49	
v/c Ratio	0.50	1.02		0.39	0.77	0.48	0.11	0.98		0.48	0.15	
Control Delay	39.9	75.6		17.8	27.5	10.8	19.6	49.6		17.8	11.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	39.9	75.6		17.8	27.5	10.8	19.6	49.6		17.8	11.0	
LOS	D	E		B	C	B	B	D		B	B	
Approach Delay		71.7			20.8			48.6			13.3	
Approach LOS		E			C			D			B	
Queue Length 50th (ft)	20	~208		27	205	64	10	221		25	23	
Queue Length 95th (ft)	#55	#351		m32	m258	m84	26	#323		47	37	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150			150		150	120			120		
Base Capacity (vph)	136	545		275	811	802	380	1228		275	1722	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	1.02		0.39	0.77	0.48	0.11	0.98		0.48	0.15	

#### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 53 (62%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 39.6

Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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























#### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
12 s	28 s	12 s	33 s
 ø6		 ø8	
40 s		45 s	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	616	82	42	705	47	266	486	112	42	291	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	105		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.99		0.97	1.00	0.99	
Frt		0.982			0.991				0.850		0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1813	0	1770	1838	0	1770	1863	1583	1770	1816	0
Flt Permitted	0.095			0.136			0.417			0.264		
Satd. Flow (perm)	177	1813	0	253	1838	0	766	1863	1530	490	1816	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			6				119		11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	20		25	25		20	16		8	8		16
Confl. Bikes (#/hr)			2			8						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	37	655	87	45	750	50	283	517	119	45	310	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	742	0	45	800	0	283	517	119	45	356	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	45.0	45.0		45.0	45.0		35.0	35.0	35.0	35.0	35.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
Total Split (%)	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	47.1%	47.1%	47.1%	47.1%	47.1%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max	Max	Max	Max	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effect Green (s)	42.0	42.0		42.0	42.0		37.0	37.0	37.0	37.0	37.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.44	0.44	0.44	0.44	0.44	
v/c Ratio	0.43	0.82		0.36	0.88		0.85	0.64	0.16	0.21	0.45	
Control Delay	16.8	16.7		14.8	20.7		47.3	23.2	3.6	18.2	18.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.8	16.7		14.8	20.7		47.3	23.2	3.6	18.2	18.5	
LOS	B	B		B	C		D	C	A	B	B	
Approach Delay		16.7			20.4			28.1			18.5	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	3	257		4	157		89	142	0	10	85	
Queue Length 95th (ft)	m3	m264		m8	#403		#192	215	20	27	134	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)	150			150			105			150		
Base Capacity (vph)	87	901		125	911		333	811	733	213	797	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.43	0.82		0.36	0.88		0.85	0.64	0.16	0.21	0.45	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 4 (5%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 84.8%

ICU Level of Service E

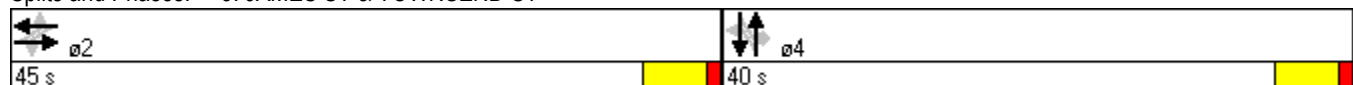
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















Splits and Phases: 3: JAMES ST & TOWNSEND ST



# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	695	20	13	720	43	19	65	7	70	78	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.98	
Frt		0.996			0.992			0.989			0.963	
Flt Protected	0.950			0.950				0.990			0.983	
Satd. Flow (prot)	1770	1851	0	1770	1836	0	0	1818	0	0	1743	0
Flt Permitted	0.201			0.231				0.928			0.879	
Satd. Flow (perm)	374	1851	0	430	1836	0	0	1699	0	0	1549	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			7			5			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	36		26	26		36	10		10	10		10
Confl. Bikes (#/hr)			6			5						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	62	781	22	15	809	48	21	73	8	79	88	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	803	0	15	857	0	0	102	0	0	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	



















10/7/2011



# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	696	43	71	598	28	136	214	68	7	136	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.97			0.98	
Frt		0.991			0.993			0.978			0.969	
Flt Protected	0.950			0.950				0.984			0.998	
Satd. Flow (prot)	1770	1838	0	1770	1844	0	0	1763	0	0	1772	0
Flt Permitted	0.257			0.177				0.815			0.984	
Satd. Flow (perm)	479	1838	0	330	1844	0	0	1444	0	0	1745	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			13			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	19		20	20		19	23		38	38		23
Confl. Bikes (#/hr)			6			8						2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	34	718	44	73	616	29	140	221	70	7	140	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	762	0	73	645	0	0	431	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	50.0	50.0		50.0	50.0		26.0	26.0		26.0	26.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	58.8%	58.8%	0.0%	41.2%	41.2%	0.0%	41.2%	41.2%	0.0%
Maximum Green (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	47.0	47.0		47.0	47.0			32.0			32.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.38			0.38	
v/c Ratio	0.13	0.75		0.40	0.63			0.78			0.28	
Control Delay	9.0	14.4		19.3	16.5			34.6			17.9	
Queue Delay	0.0	0.1		0.0	0.0			0.0			0.0	
Total Delay	9.0	14.5		19.3	16.5			34.6			17.9	
LOS	A	B		B	B			C			B	
Approach Delay		14.2			16.8			34.6			17.9	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	4	137		14	149			132			42	
Queue Length 95th (ft)	m6	220		41	225			#236			76	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	265	1019		182	1021			552			669	
Starvation Cap Reductn	0	11		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	0.13	0.76		0.40	0.63			0.78			0.28	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 6 (7%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 95.9%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















Splits and Phases: 5: JAMES ST & CATHERINE ST



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	745	13	13	589	74	74	510	106	47	224	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.997			0.983			0.977			0.983	
Flt Protected	0.950			0.950				0.995			0.992	
Satd. Flow (prot)	1770	1856	0	1770	1823	0	0	3404	0	0	3430	0
Flt Permitted	0.119			0.119				0.864			0.697	
Satd. Flow (perm)	221	1856	0	221	1823	0	0	2950	0	0	2406	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			8			32			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	20		14	14		20	23		32	32		23
Confl. Bikes (#/hr)			1			2			1			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	15	876	15	15	693	87	87	600	125	55	264	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	891	0	15	780	0	0	812	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		26.0	26.0		26.0	26.0	
Total Split (s)	19.0	19.0	0.0	19.0	19.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	14.0	14.0		14.0	14.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	36%
Maximum Green (s)	22.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effect Green (s)	36.0	36.0		36.0	36.0			23.0			23.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51			0.33			0.33	
v/c Ratio	0.13	0.93		0.13	0.83			0.82			0.45	
Control Delay	20.0	37.6		24.8	33.9			29.2			19.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	20.0	37.6		24.8	33.9			29.2			19.5	
LOS	B	D		C	C			C			B	
Approach Delay		37.3			33.8			29.2			19.5	
Approach LOS		D			C			C			B	
Queue Length 50th (ft)	2	186		0	205			108			40	
Queue Length 95th (ft)	#16	#538		m9	#474			143			60	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	113	955		113	941			991			805	
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	0.13	0.93		0.13	0.83			0.82			0.45	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 40 (57%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 31.8

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 6: JAMES ST & LODI ST

		
19 s	26 s	25 s

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST



















10/7/2011

Lane Group	ø3
Walk Time (s)	7.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	5
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	826	42	66	538	25	74	109	53	30	169	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00			1.00			0.98			0.99	
Frt		0.993			0.993			0.970			0.967	
Flt Protected	0.950			0.950				0.985			0.994	
Satd. Flow (prot)	1770	1843	0	1770	1845	0	0	1759	0	0	1771	0
Flt Permitted	0.331			0.135				0.722			0.947	
Satd. Flow (perm)	613	1843	0	251	1845	0	0	1284	0	0	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			5			25			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	13		23	23		13	14		18	18		14
Confl. Bikes (#/hr)			2			5						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	918	47	73	598	28	82	121	59	33	188	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	965	0	73	626	0	0	262	0	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		31.0	31.0		31.0	31.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	31.0	31.0	0.0	31.0	31.0	0.0
Total Split (%)	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	45.2	45.2		45.2	45.2			18.8			18.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.27			0.27	
v/c Ratio	0.08	0.81		0.45	0.52			0.72			0.62	
Control Delay	6.7	22.0		23.2	12.4			31.9			25.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	22.0		23.2	12.4			31.9			25.2	
LOS	A	C		C	B			C			C	
Approach Delay		21.5			13.5			31.9			25.2	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	6	286		11	117			63			68	
Queue Length 95th (ft)	m2	m#368		m36	253			99			100	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	396	1192		162	1193			529			690	
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	0.08	0.81		0.45	0.52			0.50			0.42	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 43 (61%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 87.9%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: JAMES ST & OAK ST























# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011












												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	847	8	1	551	136	24	0	6	179	4	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.98			0.97	
Frt		0.999			0.970			0.971			0.969	
Flt Protected	0.950			0.950				0.962			0.964	
Satd. Flow (prot)	1770	1860	0	1770	1789	0	0	1719	0	0	1728	0
Flt Permitted	0.261			0.158				0.791			0.757	
Satd. Flow (perm)	486	1860	0	294	1789	0	0	1409	0	0	1320	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			32			7			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	14		4	4		14	4		22	22		4
Confl. Bikes (#/hr)			4			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	921	9	1	599	148	26	0	7	195	4	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	930	0	1	747	0	0	33	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	64.3%	64.3%	0.0%	64.3%	64.3%	0.0%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

10/7/2011

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	880	152	29	585	103	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94			0.97	
Frt		0.850			0.969	
Flt Protected			0.950		0.963	
Satd. Flow (prot)	1863	1583	1770	1863	1728	0
Flt Permitted			0.159		0.963	
Satd. Flow (perm)	1863	1489	296	1863	1692	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		155			21	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		18	18		14	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	898	155	30	597	105	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	898	155	30	597	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type		Perm	Perm			
Protected Phases	2			2	4	
Permitted Phases		2	2			
Detector Phase	2	2	2	2	4	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	47.0	47.0	47.0	47.0	23.0	
Total Split (s)	47.0	47.0	47.0	47.0	23.0	0.0
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	0.0%
Maximum Green (s)	42.0	42.0	42.0	42.0	18.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	
Act Effect Green (s)	44.0	43.0	44.0	44.0	20.0	
Actuated g/C Ratio	0.63	0.61	0.63	0.63	0.29	
v/c Ratio	0.77	0.16	0.16	0.51	0.27	
Control Delay	12.8	0.5	7.8	8.0	18.0	
Queue Delay	7.2	0.0	0.0	0.0	0.4	
Total Delay	20.0	0.5	7.8	8.1	18.3	
LOS	B	A	A	A	B	
Approach Delay	17.1			8.1	18.3	
Approach LOS	B			A	B	
Queue Length 50th (ft)	229	1	3	60	26	
Queue Length 95th (ft)	294	m0	m9	97	54	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)		150	150			
Base Capacity (vph)	1171	974	186	1171	509	
Starvation Cap Reductn	232	0	0	0	0	
Spillback Cap Reductn	0	0	0	34	121	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.96	0.16	0.16	0.53	0.35	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 12 (17%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 14.1

Intersection LOS: B





Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

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





### Splits and Phases: 9: JAMES ST & SEDGEWICK ST

  2	  4
47 s	23 s

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	902	8	28	595	19	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00	
Frt	0.999				0.928	
Flt Protected			0.950		0.977	
Satd. Flow (prot)	1860	0	1770	1863	1689	0
Flt Permitted			0.222		0.977	
Satd. Flow (perm)	1860	0	414	1863	1687	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1				24	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		20	20		1	
Confl. Bikes (#/hr)		6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	980	9	30	647	21	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	989	0	30	647	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	45.0		45.0	45.0	25.0	
Total Split (s)	45.0	0.0	45.0	45.0	25.0	0.0
Total Split (%)	64.3%	0.0%	64.3%	64.3%	35.7%	0.0%
Maximum Green (s)	40.0		40.0	40.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effect Green (s)	58.5		58.5	58.5	10.9	
Actuated g/C Ratio	0.84		0.84	0.84	0.16	
v/c Ratio	0.64		0.09	0.42	0.16	
Control Delay	14.9		4.6	4.8	14.7	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	14.9		4.6	4.8	14.7	
LOS	B		A	A	B	
Approach Delay	14.9			4.8	14.7	
Approach LOS	B			A	B	
Queue Length 50th (ft)	303		1	39	6	
Queue Length 95th (ft)	#438		11	163	18	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)			150			
Base Capacity (vph)	1554		346	1556	547	
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	0.64		0.09	0.42	0.08	

### Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 10.9

Intersection LOS: B

Intersection Capacity Utilization 58.0%


ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.



















### Splits and Phases: 10: JAMES ST & WILSON ST

  45 s	  25 s
--	---

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	510	176	185	378	34	125	478	101	25	524	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00			1.00			0.98	
Frt		0.962			0.988			0.978			0.973	
Flt Protected	0.950			0.950				0.991			0.998	
Satd. Flow (prot)	1770	1768	0	1770	1834	0	0	3416	0	0	3353	0
Flt Permitted	0.950			0.950				0.576			0.867	
Satd. Flow (perm)	1744	1768	0	1745	1834	0	0	1986	0	0	2912	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			4			16			15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	11		16	16		11	29		2	2		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	259	554	191	201	411	37	136	520	110	27	570	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	259	745	0	201	448	0	0	766	0	0	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	58.0	0.0	25.0	53.0	0.0	35.0	57.0	0.0	22.0	22.0	0.0
Total Split (%)	21.4%	41.4%	0.0%	17.9%	37.9%	0.0%	25.0%	40.7%	0.0%	15.7%	15.7%	0.0%
Maximum Green (s)	25.5	53.0		20.5	48.0		30.0	52.0		17.0	17.0	
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5			5			5		5	5	
Act Effect Green (s)	24.9	55.1		20.4	50.7			51.9			51.9	
Actuated g/C Ratio	0.18	0.41		0.15	0.37			0.38			0.38	
v/c Ratio	0.80	1.03		0.76	0.65			1.00			0.65	
Control Delay	72.1	79.8		74.3	41.6			73.1			37.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	72.1	79.8		74.3	41.6			73.1			37.2	
LOS	E	E		E	D			E			D	
Approach Delay		77.8			51.7			73.1			37.2	
Approach LOS		E			D			E			D	
Queue Length 50th (ft)	153	~500		119	233			242			188	
Queue Length 95th (ft)	#232	#671		#182	320			#342			236	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	359	726		293	686			800			1120	
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	1.03		0.69	0.65			0.96			0.65	

### Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 136

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 61.9

Intersection LOS: E

Intersection Capacity Utilization 101.2%

ICU Level of Service G

Analysis Period (min) 15








~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 11: JAMES ST & TEALL AVE


















 ø1	 ø2	 ø4	
30 s	53 s	57 s	
 ø5	 ø6	 ø7	 ø8
25 s	58 s	35 s	22 s



# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	574	62	14	470	0	42	0	77	329	72	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96		1.00			0.98			0.96	
Frt			0.850					0.913			0.976	
Flt Protected					0.999			0.983			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1637	0	0	1704	0
Flt Permitted					0.981			0.876			0.698	
Satd. Flow (perm)	0	1863	1525	0	1827	0	0	1458	0	0	1222	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63					79			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	26		23	23		26	47		4	4		47
Confl. Bikes (#/hr)			1			6						7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	586	63	14	480	0	43	0	79	336	73	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	586	63	0	494	0	0	122	0	0	496	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	78.0	78.0	78.0	78.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	0.0%	72.2%	72.2%	72.2%	72.2%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%
Maximum Green (s)							25.5	25.5		25.5	25.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	13.0	40.0	25.0
Total Split (%)	12%	37%	23%
Maximum Green (s)	8.5	35.5	20.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effct Green (s)		72.8	72.8		72.8			25.5			25.5	
Actuated g/C Ratio		0.68	0.68		0.68			0.24			0.24	
v/c Ratio		0.46	0.06		0.40			0.30			1.67	
Control Delay		9.5	1.6		3.3			16.0			344.6	
Queue Delay		0.8	0.0		0.9			0.1			369.0	
Total Delay		10.3	1.6		4.2			16.0			713.6	
LOS		B	A		A			B			F	
Approach Delay		9.4			4.2			16.0			713.6	
Approach LOS		A			A			B			F	
Queue Length 50th (ft)		115	0		11			16			~343	
Queue Length 95th (ft)		163	9		40			50			#484	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)			150									
Base Capacity (vph)		1260	1052		1235			407			297	
Starvation Cap Reductn		0	0		456			0			103	
Spillback Cap Reductn		365	0		0			15			2	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.65	0.06		0.63			0.31			2.56	

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.67

Intersection Signal Delay: 206.8

Intersection LOS: F

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15













~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

### Splits and Phases: 12: JAMES ST & Grant

#12 #13	#12 #13	#12 #13	#12 #13
  	  	  	  
ø1	ø2	ø3	ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings 12: JAMES ST & Grant


















10/7/2011

Lane Group	ø1	ø2	ø4
Recall Mode	None	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	
Pedestrian Calls (#/hr)		5	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings

## 13: James S & Walgreens












10/7/2011

													
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER		ø3
Lane Configurations													
Volume (vph)	91	109	780	452	386	10	38	32	12	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		75			150		0	0		0	0		
Storage Lanes		1			1		1	0		0	0		
Taper Length (ft)		25			25		25	25		25	25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor					0.81		0.97						
Frt					0.850		0.928						
Flt Protected		0.950					0.977						
Satd. Flow (prot)	0	1770	1863	1863	1583	0	1689	0	0	0	0		
Flt Permitted		0.344					0.977						
Satd. Flow (perm)	0	641	1863	1863	1277	0	1635	0	0	0	0		
Right Turn on Red						Yes			Yes		Yes		
Satd. Flow (RTOR)					1		7						
Link Speed (mph)			30	30			30			30			
Link Distance (ft)			208	618			139			186			
Travel Time (s)			4.7	14.0			3.2			4.2			
Confl. Peds. (#/hr)	26				26	26	26						
Confl. Bikes (#/hr)					6	6							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	93	111	796	461	394	10	39	33	12	0	0		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	204	796	461	404	0	84	0	0	0	0		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Right	Right	Left	Right		
Median Width(ft)			12	12			12			0			
Link Offset(ft)			0	0			0			0			
Crosswalk Width(ft)			16	16			16			16			
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15	15			9	9	15	9	9	15	9		
Turn Type	custom	custom			Perm								
Protected Phases		1	1 2 3	2			4						3
Permitted Phases	2 3	2 3			2								
Detector Phase	2 3	1	1 2 3	2	2		4						
Switch Phase													
Minimum Initial (s)		5.0		10.0	10.0		5.0						8.0
Minimum Split (s)		9.5		22.0	22.0		9.5						22.0
Total Split (s)	70.0	13.0	83.0	40.0	40.0	0.0	25.0	0.0	0.0	0.0	0.0		30.0
Total Split (%)	64.8%	12.0%	76.9%	37.0%	37.0%	0.0%	23.1%	0.0%	0.0%	0.0%	0.0%		28%
Maximum Green (s)		8.5		35.5	35.5		20.5						25.5
Yellow Time (s)		3.5		3.5	3.5		3.5						3.5
All-Red Time (s)		1.0		1.0	1.0		1.0						1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.0	4.0	4.0	4.0		
Lead/Lag		Lead		Lag	Lag		Lag						Lead
Lead-Lag Optimize?													
Vehicle Extension (s)		3.0		3.0	3.0		3.0						3.0

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

												
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER	ø3
Recall Mode		None		Min	Min		None					None
Walk Time (s)				7.0	7.0							7.0
Flash Dont Walk (s)				10.0	10.0							10.0
Pedestrian Calls (#/hr)				5	5							5
Act Effect Green (s)		74.0	78.5	35.5	35.5		19.8					
Actuated g/C Ratio		0.69	0.73	0.33	0.33		0.18					
v/c Ratio		0.38	0.58	0.75	0.96		0.26					
Control Delay		7.2	10.6	41.0	70.5		36.7					
Queue Delay		0.5	2.2	0.0	0.0		0.0					
Total Delay		7.6	12.7	41.0	70.5		36.7					
LOS		A	B	D	E		D					
Approach Delay			11.7	54.8			36.7					
Approach LOS			B	D			D					
Queue Length 50th (ft)		38	190	192	185		31					
Queue Length 95th (ft)		m40	m185	277	#322		62					
Internal Link Dist (ft)			128	538			59			106		
Turn Bay Length (ft)		75			150							
Base Capacity (vph)		531	1363	616	423		328					
Starvation Cap Reductn		97	407	0	0		0					
Spillback Cap Reductn		0	0	0	0		0					
Storage Cap Reductn		0	0	0	0		0					
Reduced v/c Ratio		0.47	0.83	0.75	0.96		0.26					

### Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 107.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.67

Intersection Signal Delay: 31.9

Intersection LOS: C

Intersection Capacity Utilization 53.4%

ICU Level of Service A









Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















### Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
13 s	40 s	30 s	25 s

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	551	206	89	465	6	166	1	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3364	0	0	3503	0	1681	1668	0	0	1863	0
Flt Permitted		0.945			0.722		0.950	0.950				
Satd. Flow (perm)	0	3183	0	0	2548	0	1681	1655	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			2			6				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		229			537			242			134	
Travel Time (s)		5.2			12.2			5.5			3.0	
Confl. Peds. (#/hr)	2		19	19		2	14		23	23		14
Confl. Bikes (#/hr)			1			4			1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	863	0	0	629	0	99	97	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	37.0	37.0		37.0	37.0		25.0	25.0		18.0	18.0	
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	25.0	25.0	0.0	18.0	18.0	0.0
Total Split (%)	46.3%	46.3%	0.0%	46.3%	46.3%	0.0%	31.3%	31.3%	0.0%	22.5%	22.5%	0.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		20.0	20.0		13.0	13.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		12.0	12.0				
Pedestrian Calls (#/hr)	5	5		5	5		5	5				
Act Effct Green (s)		52.0			52.0		22.0	22.0				

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.65			0.65		0.28	0.28				
v/c Ratio		0.41			0.38		0.21	0.21				
Control Delay		6.7			3.8		23.9	22.4				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		6.7			3.8		23.9	22.4				
LOS		A			A		C	C				
Approach Delay		6.7			3.8			23.2				
Approach LOS		A			A			C				
Queue Length 50th (ft)		57			8		27	25				
Queue Length 95th (ft)		78			12		53	51				
Internal Link Dist (ft)		149			457			162				
Turn Bay Length (ft)											54	
Base Capacity (vph)		2097			1657		462	459				
Starvation Cap Reductn		0			0		0	0				
Spillback Cap Reductn		0			0		0	0				
Storage Cap Reductn		0			0		0	0				
Reduced v/c Ratio		0.41			0.38		0.21	0.21				

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 44 (55%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 7.5

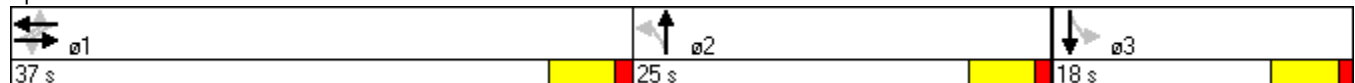
Intersection Capacity Utilization 66.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

### Splits and Phases: 1: JAMES ST & OSWEGO BLVD

























## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	425	55	160	503	169	35	230	40	122	419	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3458	0	0	3497	1583	1770	3450	0	1770	3505	0
Flt Permitted	0.378				0.612		0.478			0.461		
Satd. Flow (perm)	702	3458	0	0	2159	1555	879	3450	0	852	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				184		25			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			288			389			292	
Travel Time (s)		12.2			6.5			8.8			6.6	
Confl. Peds. (#/hr)	7		28	28		7	17		10	10		17
Confl. Bikes (#/hr)			1			4						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	522	0	0	721	184	38	293	0	133	479	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	27.0	27.0		12.0	39.0	
Total Split (s)	27.0	27.0	0.0	14.0	41.0	41.0	27.0	27.0	0.0	12.0	39.0	0.0
Total Split (%)	33.8%	33.8%	0.0%	17.5%	51.3%	51.3%	33.8%	33.8%	0.0%	15.0%	48.8%	0.0%
Maximum Green (s)	22.0	22.0		9.0	36.0	36.0	22.0	22.0		7.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effct Green (s)	24.0	24.0			38.0	38.0	24.0	24.0		36.0	36.0	
Actuated g/C Ratio	0.30	0.30			0.48	0.48	0.30	0.30		0.45	0.45	
v/c Ratio	0.40	0.50			0.60	0.22	0.14	0.28		0.27	0.30	
Control Delay	26.5	21.5			10.4	1.3	22.3	20.3		14.7	14.4	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.5	21.5			10.4	1.3	22.3	20.3		14.7	14.4	
LOS	C	C			B	A	C	C		B	B	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.2			8.6			20.6			14.5	
Approach LOS		C			A			C			B	
Queue Length 50th (ft)	17	52			58	1	9	36		26	51	
Queue Length 95th (ft)	37	77			92	m7	25	57		48	74	
Internal Link Dist (ft)		457			208			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	211	1050			1210	835	264	1053		487	1582	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.40	0.50			0.60	0.22	0.14	0.28		0.27	0.30	

#### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 15.0

Intersection LOS: B







Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

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























#### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
14 s	27 s	12 s	27 s
 ø6		 ø8	
41 s		39 s	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	517	41	74	633	71	169	333	59	26	214	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	105		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1834	0	1770	1826	0	1770	1863	1583	1770	1817	0
Flt Permitted	0.157			0.270			0.487			0.377		
Satd. Flow (perm)	292	1834	0	498	1826	0	889	1863	1521	695	1817	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			11				65		10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		489			459			200			317	
Travel Time (s)		11.1			10.4			4.5			7.2	
Confl. Peds. (#/hr)	14		19	19		14	20		12	12		20
Confl. Bikes (#/hr)			2			1						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	613	0	81	774	0	186	366	65	29	268	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		1.00
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Minimum Split (s)	46.0	46.0		46.0	46.0		34.0	34.0	34.0	34.0	34.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	34.0	34.0	34.0	34.0	34.0	0.0
Total Split (%)	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%
Maximum Green (s)	41.0	41.0		41.0	41.0		29.0	29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effct Green (s)	43.0	43.0		43.0	43.0		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.39	0.39	0.39	0.39	0.39	
v/c Ratio	0.20	0.62		0.30	0.78		0.54	0.51	0.10	0.11	0.38	
Control Delay	12.8	17.5		10.5	13.3		26.2	21.7	4.9	17.1	18.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	12.8	17.5		10.5	13.3		26.2	21.7	4.9	17.1	18.8	
LOS	B	B		B	B		C	C	A	B	B	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		17.2			13.0			21.3			18.7	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	6	198		6	55		48	93	0	6	61	
Queue Length 95th (ft)	m19	274		m16	132		93	146	16	18	103	
Internal Link Dist (ft)		409			379			120			237	
Turn Bay Length (ft)	150			150			105			150		
Base Capacity (vph)	157	989		268	987		344	722	629	269	710	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.20	0.62		0.30	0.78		0.54	0.51	0.10	0.11	0.38	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 70 (88%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 17.0

Intersection LOS: B


Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 15

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



















### Splits and Phases: 3: JAMES ST & TOWNSEND ST

					
ø2			ø4		
46 s			34 s		

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	531	12	17	749	35	16	42	12	16	20	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1854	0	1770	1843	0	0	1789	0	0	1759	0
Flt Permitted	0.194			0.347				0.944			0.919	
Satd. Flow (perm)	361	1854	0	636	1843	0	0	1709	0	0	1638	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			13			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	24		22	22		24	1		4	4		1
Confl. Bikes (#/hr)			1			5						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	597	0	19	861	0	0	77	0	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effect Green (s)	52.0	52.0		52.0	52.0			22.0			22.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.28			0.28	
v/c Ratio	0.28	0.50		0.05	0.72			0.16			0.12	
Control Delay	4.3	2.9		2.1	5.3			19.9			18.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.3	2.9		2.1	5.4			19.9			18.1	
LOS	A	A		A	A			B			B	

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.1			5.3			19.9			18.1	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	2	17		1	42			16			10	
Queue Length 95th (ft)	m4	31		m1	50			39			28	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	235	1206		413	1200			479			461	
Starvation Cap Reductn	0	0		0	5			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.28	0.50		0.05	0.72			0.16			0.12	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 78 (98%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 5.5

Intersection LOS: A



Intersection Capacity Utilization 70.0%

ICU Level of Service C

Analysis Period (min) 15

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



















### Splits and Phases: 4: JAMES ST & MCBRIDE ST

  ø2	   ø4
55 s	25 s

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	502	43	126	718	22	47	79	57	2	127	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1828	0	1770	1851	0	0	1727	0	0	1780	0
Flt Permitted	0.235			0.358				0.902			0.997	
Satd. Flow (perm)	438	1828	0	653	1851	0	0	1566	0	0	1776	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			4			28			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	24		28	28		24	22		19	19		22
Confl. Bikes (#/hr)			1			2			2			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	580	0	134	787	0	0	195	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	52.0	52.0		52.0	52.0			22.0			22.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.28			0.28	
v/c Ratio	0.05	0.49		0.32	0.65			0.43			0.35	
Control Delay	4.0	4.2		4.8	7.7			23.9			23.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.0	4.2		4.8	7.7			23.9			23.3	
LOS	A	A		A	A			C			C	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		4.2			7.2			23.9			23.3	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	0	19		9	124			46			43	
Queue Length 95th (ft)	m3	67		m16	183			87			79	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	285	1192		424	1205			451			501	
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	0.05	0.49		0.32	0.65			0.43			0.35	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 75 (94%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 9.5

Intersection LOS: A






Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

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

### Splits and Phases: 5: JAMES ST & CATHERINE ST



















  ø2	   ø4
55 s	25 s



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	478	53	23	814	64	34	268	53	38	252	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1830	0	1770	1839	0	0	3408	0	0	3475	0
Flt Permitted	0.199			0.395				0.895			0.860	
Satd. Flow (perm)	370	1830	0	734	1839	0	0	3059	0	0	2997	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			5			23			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	13		12	12		13	17		22	22		17
Confl. Bikes (#/hr)			6			1			1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	553	0	24	915	0	0	369	0	0	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Act Effect Green (s)	56.0	56.0		56.0	56.0			18.0			18.0	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.22			0.22	
v/c Ratio	0.12	0.43		0.05	0.71			0.52			0.47	
Control Delay	4.3	5.1		2.0	4.9			28.6			29.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	35%
Maximum Green (s)	25.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	4.3	5.1		2.0	4.9			28.6			29.0	
LOS	A	A		A	A			C			C	
Approach Delay		5.1			4.8			28.6			29.0	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)	1	19		1	55			54			48	
Queue Length 95th (ft)	m6	140		m2	61			83			75	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	259	1283		514	1289			706			680	
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	0.12	0.43		0.05	0.71			0.52			0.47	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 46 (58%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.3

Intersection LOS: B





Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

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

### Splits and Phases: 6: JAMES ST & LODI ST

								
ø1			ø2			ø3		
31 s			21 s			28 s		

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST



















10/7/2011

Lane Group	ø3
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011



















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	424	67	47	750	31	110	173	98	28	88	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1801	0	1770	1847	0	0	1750	0	0	1750	0
Flt Permitted	0.180			0.376				0.847			0.893	
Satd. Flow (perm)	335	1801	0	683	1847	0	0	1489	0	0	1574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			4			24			25	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	19		31	31		19	24		14	14		24
Confl. Bikes (#/hr)			2			1			1			1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	522	0	50	831	0	0	405	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	49.0	49.0	0.0	49.0	49.0	0.0	31.0	31.0	0.0	31.0	31.0	0.0
Total Split (%)	61.3%	61.3%	0.0%	61.3%	61.3%	0.0%	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%
Maximum Green (s)	44.0	44.0		44.0	44.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	48.7	48.7		48.7	48.7			25.3			25.3	
Actuated g/C Ratio	0.61	0.61		0.61	0.61			0.32			0.32	

10/7/2011

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	509	11	0	768	120	7	1	2	179	6	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1855	0	1863	1807	0	0	1723	0	0	1728	0
Flt Permitted	0.144							0.853			0.773	
Satd. Flow (perm)	268	1855	0	1863	1807	0	0	1514	0	0	1310	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			20			2			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	22		16	16		22	8		37	37		8
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	578	0	0	986	0	0	11	0	0	265	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	54.0	54.0			54.0			20.0			20.0	
Actuated g/C Ratio	0.68	0.68			0.68			0.25			0.25	

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.18	0.46			0.80			0.03			0.78	
Control Delay	6.3	4.6			10.1			19.8			42.6	
Queue Delay	0.0	0.1			0.0			0.0			0.0	
Total Delay	6.3	4.7			10.1			19.8			42.6	
LOS	A	A			B			B			D	
Approach Delay		4.8			10.1			19.8			42.6	
Approach LOS		A			B			B			D	
Queue Length 50th (ft)	1	18			54			2			75	
Queue Length 95th (ft)	m6	83			#196			10			#150	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)	150											
Base Capacity (vph)	181	1254			1227			418			373	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	61			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.18	0.48			0.80			0.03			0.71	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 3 (4%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 13.0

Intersection LOS: B

Intersection Capacity Utilization 70.8%

ICU Level of Service C




Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 8: JAMES ST & DEWITT ST











					
ø2			ø4		
55 s			25 s		



# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	574	116	42	769	119	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1797	0	1770	1863	1728	0
Flt Permitted			0.267		0.962	
Satd. Flow (perm)	1797	0	493	1863	1716	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	28				17	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		22	22		4	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	46	845	168	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Minimum Split (s)	42.0		42.0	42.0	23.0	
Total Split (s)	57.0	0.0	57.0	57.0	23.0	0.0
Total Split (%)	71.3%	0.0%	71.3%	71.3%	28.8%	0.0%
Maximum Green (s)	52.0		52.0	52.0	18.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	9.0		9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	54.0		54.0	54.0	20.0	
Actuated g/C Ratio	0.68		0.68	0.68	0.25	
v/c Ratio	0.62		0.14	0.67	0.38	
Control Delay	8.5		2.4	6.8	25.2	
Queue Delay	0.1		0.0	0.0	0.0	
Total Delay	8.6		2.4	6.8	25.2	
LOS	A		A	A	C	

# Lanes, Volumes, Timings 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	8.6			6.5	25.2	
Approach LOS	A			A	C	
Queue Length 50th (ft)	82		4	181	42	
Queue Length 95th (ft)	210		m1	8	79	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)			150			
Base Capacity (vph)	1222		333	1258	445	
Starvation Cap Reductn	33		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.64		0.14	0.67	0.38	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 6 (8%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

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











## Splits and Phases: 9: JAMES ST & SEDGEWICK ST



# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	596	12	16	789	22	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1856	0	1770	1863	1621	0
Flt Permitted			0.348		0.979	
Satd. Flow (perm)	1856	0	646	1863	1621	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3				35	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		7	7			22
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	724	0	19	939	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	40.0		40.0	40.0	25.0	
Total Split (s)	55.0	0.0	55.0	55.0	25.0	0.0
Total Split (%)	68.8%	0.0%	68.8%	68.8%	31.3%	0.0%
Maximum Green (s)	50.0		50.0	50.0	20.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	68.2		68.2	68.2	11.2	
Actuated g/C Ratio	0.85		0.85	0.85	0.14	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.46		0.03	0.59	0.24	
Control Delay	3.9		1.4	4.3	17.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	3.9		1.4	4.3	17.0	
LOS	A		A	A	B	
Approach Delay	3.9			4.3	17.0	
Approach LOS	A			A	B	
Queue Length 50th (ft)	5		0	4	8	
Queue Length 95th (ft)	205		m2	m236	23	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)			150			
Base Capacity (vph)	1584		551	1589	471	
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	0.46		0.03	0.59	0.13	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 52 (65%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 4.6

Intersection LOS: A



Intersection Capacity Utilization 58.9%

ICU Level of Service B

Analysis Period (min) 15

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




















### Splits and Phases: 10: JAMES ST & WILSON ST

	
<p>55 s</p>	<p>25 s</p>

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	432	91	82	442	12	170	354	92	7	446	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		200	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1854	0	0	3395	0	0	3289	0
Flt Permitted	0.950			0.950				0.564			0.947	
Satd. Flow (perm)	1757	1863	1528	1749	1854	0	0	1934	0	0	3118	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101		2			29			80	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	10		16	16		10	29		7	7		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	480	101	91	504	0	0	684	0	0	718	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot		Perm	Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases			6				4			8		
Detector Phase	1	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0	22.0	9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	11.0	36.0	36.0	10.0	35.0	0.0	10.0	34.0	0.0	24.0	24.0	0.0
Total Split (%)	13.8%	45.0%	45.0%	12.5%	43.8%	0.0%	12.5%	42.5%	0.0%	30.0%	30.0%	0.0%
Maximum Green (s)	6.5	31.0	31.0	5.5	30.0		5.0	29.0		19.0	19.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	4.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0	10.0		10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5	5		5			5		5	5	
Act Effect Green (s)	8.5	36.0	35.0	7.5	35.2			30.0			30.0	
Actuated g/C Ratio	0.11	0.45	0.44	0.09	0.44			0.38			0.38	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.60	0.57	0.14	0.55	0.62			0.99dl			0.59	
Control Delay	46.2	16.5	4.6	49.4	15.2			42.3			19.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	46.2	16.5	4.6	49.4	15.2			42.3			19.7	
LOS	D	B	A	D	B			D			B	
Approach Delay		19.7			20.4			42.3			19.7	
Approach LOS		B			C			D			B	
Queue Length 50th (ft)	37	116	9	33	58			107			86	
Queue Length 95th (ft)	#79	219	16	m60	m144			#183			124	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160		200	125								
Base Capacity (vph)	188	837	725	166	816			767			1221	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.60	0.57	0.14	0.55	0.62			0.89			0.59	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 75 (94%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15








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

Queue shown is maximum after two cycles.

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

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


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4	
11 s	35 s	34 s	
 ø5	 ø6	 ø7	 ø8
10 s	36 s	10 s	24 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	501	30	10	422	0	44	0	73	238	43	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1652	0	0	1734	0
Flt Permitted					0.986			0.817			0.713	
Satd. Flow (perm)	0	1863	1530	0	1836	0	0	1369	0	0	1277	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37					90			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	28		13	13		28	14		1	1		14
Confl. Bikes (#/hr)			4									1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	619	37	0	533	0	0	144	0	0	433	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	51.0	51.0	51.0	51.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	0.0%	63.8%	63.8%	63.8%	63.8%	0.0%	36.3%	36.3%	0.0%	36.3%	36.3%	0.0%
Maximum Green (s)							24.5	24.5		24.5	24.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effect Green (s)		46.5	46.5		46.5			24.5			24.5	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011













Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	12.0	29.0	10.0
Total Split (%)	15%	36%	13%
Maximum Green (s)	7.5	24.5	5.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Max	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	
Pedestrian Calls (#/hr)		5	
Act Effect Green (s)			



# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.58	0.58		0.58			0.31			0.31	
v/c Ratio		0.57	0.04		0.50			0.30			1.08	
Control Delay		17.9	8.9		8.4			11.0			95.5	
Queue Delay		0.3	0.0		1.1			0.0			118.8	
Total Delay		18.3	8.9		9.5			11.0			214.3	
LOS		B	A		A			B			F	
Approach Delay		17.7			9.5			11.0			214.3	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		123	1		25			13			~163	
Queue Length 95th (ft)		m214	m8		m44			35			#240	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)			150									
Base Capacity (vph)		1083	905		1067			482			402	
Starvation Cap Reductn		0	0		299			0			83	
Spillback Cap Reductn		121	0		0			6			1	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.64	0.04		0.69			0.30			1.36	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 71 (89%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 62.9

Intersection LOS: E

Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

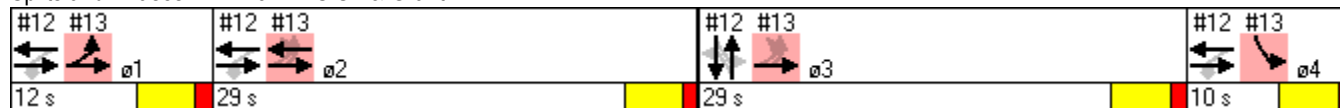
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 12: JAMES ST & Grant



# Lanes, Volumes, Timings 12: JAMES ST & Grant















10/7/2011

Lane Group	ø1	ø2	ø4
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings










## 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Lane Configurations										
Volume (vph)	60	102	650	422	258	6	10	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75			150	0	0	0	0	
Storage Lanes		1			1	1	0	0	0	
Taper Length (ft)		25			25	25	25	25	25	
Satd. Flow (prot)	0	1770	1863	1863	1583	1674	0	0	0	
Flt Permitted		0.312				0.982				
Satd. Flow (perm)	0	581	1863	1863	1449	1548	0	0	0	
Right Turn on Red									Yes	
Satd. Flow (RTOR)										
Link Speed (mph)			30	30		30		30		
Link Distance (ft)			208	618		139		186		
Travel Time (s)			4.7	14.0		3.2		4.2		
Confl. Peds. (#/hr)	28				28	28				
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	200	802	521	319	19	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)			12	12		12		0		
Link Offset(ft)			0	0		0		0		
Crosswalk Width(ft)			16	16		16		16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15			9	15	9	15	9	
Turn Type	custom	custom			Perm					
Protected Phases		1	1 2 3	2		4				3
Permitted Phases	2 3	2 3			2					
Detector Phase	2 3	1	1 2 3	2	2	4				
Switch Phase										
Minimum Initial (s)		5.0		10.0	10.0	5.0				8.0
Minimum Split (s)		9.5		22.0	22.0	9.5				22.0
Total Split (s)	58.0	12.0	70.0	29.0	29.0	10.0	0.0	0.0	0.0	29.0
Total Split (%)	72.5%	15.0%	87.5%	36.3%	36.3%	12.5%	0.0%	0.0%	0.0%	36%
Maximum Green (s)		7.5		24.5	24.5	5.5				24.5
Yellow Time (s)		3.5		3.5	3.5	3.5				3.5
All-Red Time (s)		1.0		1.0	1.0	1.0				1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	
Lead/Lag		Lead		Lag	Lag	Lag				Lead
Lead-Lag Optimize?										
Vehicle Extension (s)		3.0		3.0	3.0	3.0				3.0
Recall Mode		C-Max		Min	Min	None				None
Walk Time (s)				7.0	7.0					7.0
Flash Dont Walk (s)				10.0	10.0					10.0
Pedestrian Calls (#/hr)				5	5					5
Act Effect Green (s)		61.0	65.5	24.5	24.5	5.5				
Actuated g/C Ratio		0.76	0.82	0.31	0.31	0.07				

# Lanes, Volumes, Timings 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
v/c Ratio		0.36	0.53	0.91	0.72	0.17				
Control Delay		3.0	3.8	50.1	35.6	38.6				
Queue Delay		0.1	0.9	0.0	0.0	0.0				
Total Delay		3.1	4.8	50.1	35.6	38.6				
LOS		A	A	D	D	D				
Approach Delay			4.4	44.6		38.6				
Approach LOS			A	D		D				
Queue Length 50th (ft)		5	85	169	96	6				
Queue Length 95th (ft)		m6	m47	#245	137	18				
Internal Link Dist (ft)			128	538		59		106		
Turn Bay Length (ft)		75			150					
Base Capacity (vph)		554	1525	571	444	115				
Starvation Cap Reductn		37	426	0	0	0				
Spillback Cap Reductn		0	0	0	0	0				
Storage Cap Reductn		0	0	0	0	0				
Reduced v/c Ratio		0.39	0.73	0.91	0.72	0.17				

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 71 (89%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 46.6%

ICU Level of Service A













Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















## Splits and Phases: 13: James S & Walgreens

#12 #13    ø1	#12 #13    ø2	#12 #13    ø3	#12 #13    ø4
12 s	29 s	29 s	10 s

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	543	121	34	596	1	329	0	20	5	7	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3409	0	0	3528	0	1681	1661	0	0	1688	0
Flt Permitted					0.785		0.209	0.282			0.875	
Satd. Flow (perm)	0	3409	0	0	2776	0	370	489	0	0	1488	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30						13			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		225			537			242			134	
Travel Time (s)		5.1			12.2			5.5			3.0	
Confl. Peds. (#/hr)	7		35	35		7	4		13	13		4
Confl. Bikes (#/hr)			5			6						1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	699	0	0	664	0	183	184	0	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	27.0	27.0		27.0	27.0		35.0	35.0		12.0	12.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	52.0	52.0	0.0	8.0	8.0	0.0
Total Split (%)	29.4%	29.4%	0.0%	29.4%	29.4%	0.0%	61.2%	61.2%	0.0%	9.4%	9.4%	0.0%
Maximum Green (s)	20.0	20.0		20.0	20.0		47.0	47.0		3.0	3.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0				
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		12.0	12.0				
Pedestrian Calls (#/hr)	5	5		5	5		5	5				
Act Effct Green (s)		26.8			26.8		49.0	49.0			5.0	

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.32			0.32		0.58	0.58			0.06	
v/c Ratio		0.64			0.76		0.86	0.64			0.24	
Control Delay		27.9			17.1		54.1	24.0			32.3	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		27.9			17.1		54.1	24.0			32.3	
LOS		C			B		D	C			C	
Approach Delay		27.9			17.1			39.0			32.3	
Approach LOS		C			B			D			C	
Queue Length 50th (ft)		102			20		53	40			4	
Queue Length 95th (ft)		162			#186		#151	#121			20	
Internal Link Dist (ft)		145			457			162			54	
Turn Bay Length (ft)												
Base Capacity (vph)		1096			875		213	287			99	
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			0.76		0.86	0.64			0.24	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 29 (34%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 64.2%












ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.





















### Splits and Phases: 1: JAMES ST & OSWEGO BLVD

														
25 s			52 s									8 s		

# Lanes, Volumes, Timings

## 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	490	16	97	568	349	38	972	124	119	211	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3512	0	0	3514	1583	1770	3458	0	1770	3471	0
Flt Permitted	0.374				0.690		0.592			0.121		
Satd. Flow (perm)	692	3512	0	0	2435	1547	1087	3458	0	225	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				228		18			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			346			389			292	
Travel Time (s)		12.2			7.9			8.8			6.6	
Confl. Peds. (#/hr)	13		46	46		13	14		46	46		14
Confl. Bikes (#/hr)			1			4			4			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	556	0	0	731	384	42	1204	0	131	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Minimum Split (s)	24.0	24.0		12.0	38.0	38.0	33.0	33.0		12.0	45.0	
Total Split (s)	28.0	28.0	0.0	12.0	40.0	40.0	33.0	33.0	0.0	12.0	45.0	0.0
Total Split (%)	32.9%	32.9%	0.0%	14.1%	47.1%	47.1%	38.8%	38.8%	0.0%	14.1%	52.9%	0.0%
Maximum Green (s)	23.0	23.0		7.0	35.0	35.0	28.0	28.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0									7.0	
Flash Dont Walk (s)	10.0	10.0									10.0	
Pedestrian Calls (#/hr)	5	5									5	
Act Effct Green (s)	25.0	25.0			37.0	37.0	30.0	30.0		42.0	42.0	
Actuated g/C Ratio	0.29	0.29			0.44	0.44	0.35	0.35		0.49	0.49	
v/c Ratio	0.33	0.54			0.62	0.48	0.11	0.98		0.48	0.15	
Control Delay	27.2	21.6			25.1	13.9	19.6	48.8		17.8	11.0	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	27.2	21.6			25.1	13.9	19.6	48.8		17.8	11.0	
LOS	C	C			C	B	B	D		B	B	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.2			21.3			47.9			13.3	
Approach LOS		C			C			D			B	
Queue Length 50th (ft)	6	24			120	61	10	221		25	23	
Queue Length 95th (ft)	m25	88			m140	m82	26	#322		47	37	
Internal Link Dist (ft)		457			266			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	204	1036			1174	802	384	1232		275	1726	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.33	0.54			0.62	0.48	0.11	0.98		0.48	0.15	

#### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 29 (34%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 30.3

Intersection LOS: C

Intersection Capacity Utilization 83.9%

ICU Level of Service E







Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

#### Splits and Phases: 2: JAMES ST & STATE ST























 ø1	 ø2	 ø3	 ø4
12 s	28 s	12 s	33 s
 ø6		 ø8	
40 s		45 s	



# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	616	82	42	705	47	266	486	112	42	291	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	105		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1813	0	1770	1838	0	1770	1863	1583	1770	1816	0
Flt Permitted	0.095			0.136			0.417			0.264		
Satd. Flow (perm)	177	1813	0	253	1838	0	766	1863	1530	490	1816	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			6				119		11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		431			459			200			317	
Travel Time (s)		9.8			10.4			4.5			7.2	
Confl. Peds. (#/hr)	20		25	25		20	16		8	8		16
Confl. Bikes (#/hr)			2			8						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	742	0	45	800	0	283	517	119	45	356	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Minimum Split (s)	45.0	45.0		45.0	45.0		35.0	35.0	35.0	35.0	35.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
Total Split (%)	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	47.1%	47.1%	47.1%	47.1%	47.1%	0.0%
Maximum Green (s)	40.0	40.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0	17.0	17.0	17.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5	5	5	5	
Act Effct Green (s)	42.0	42.0		42.0	42.0		37.0	37.0	37.0	37.0	37.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.44	0.44	0.44	0.44	0.44	
v/c Ratio	0.43	0.82		0.36	0.88		0.85	0.64	0.16	0.21	0.45	
Control Delay	19.8	16.0		15.3	19.6		47.3	23.2	3.6	18.2	18.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	19.8	16.0		15.3	19.6		47.3	23.2	3.6	18.2	18.5	
LOS	B	B		B	B		D	C	A	B	B	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		16.2			19.4			28.1			18.5	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	3	69		4	67		89	142	0	10	85	
Queue Length 95th (ft)	m6	m84		m9	#402		#192	215	20	27	134	
Internal Link Dist (ft)		351			379			120			237	
Turn Bay Length (ft)	150			150			105			150		
Base Capacity (vph)	87	901		125	911		333	811	733	213	797	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.43	0.82		0.36	0.88		0.85	0.64	0.16	0.21	0.45	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 56 (66%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.1

Intersection LOS: C

Intersection Capacity Utilization 84.8%

ICU Level of Service E



Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















### Splits and Phases: 3: JAMES ST & TOWNSEND ST

					
ø2			ø4		
45 s			40 s		

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	695	20	13	720	43	19	65	7	70	78	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1851	0	1770	1836	0	0	1818	0	0	1743	0
Flt Permitted	0.209			0.238				0.930			0.880	
Satd. Flow (perm)	389	1851	0	443	1836	0	0	1703	0	0	1550	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			8			5			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	36		26	26		36	10		10	10		10
Confl. Bikes (#/hr)			6			5						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	803	0	15	857	0	0	102	0	0	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	70.6%	70.6%	0.0%	70.6%	70.6%	0.0%	29.4%	29.4%	0.0%	29.4%	29.4%	0.0%
Maximum Green (s)	55.0	55.0		55.0	55.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	57.0	57.0		57.0	57.0			22.0			22.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.26			0.26	
v/c Ratio	0.24	0.65		0.05	0.69			0.23			0.55	
Control Delay	4.0	4.2		5.5	11.7			25.3			30.4	
Queue Delay	0.0	0.1		0.0	0.2			0.0			0.0	
Total Delay	4.0	4.4		5.5	11.9			25.3			30.4	
LOS	A	A		A	B			C			C	

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		4.4			11.8			25.3			30.4	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	2	33		2	148			28			65	
Queue Length 95th (ft)	m5	m59		m3	m153			55			113	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	261	1243		297	1234			444			417	
Starvation Cap Reductn	0	48		0	7			0			0	
Spillback Cap Reductn	0	0		0	54			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.24	0.67		0.05	0.73			0.23			0.55	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 66 (78%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 11.4

Intersection LOS: B


Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

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



















### Splits and Phases: 4: JAMES ST & MCBRIDE ST

  ø2	   ø4
60 s	25 s

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	696	43	71	598	28	136	214	68	7	136	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1838	0	1770	1844	0	0	1763	0	0	1772	0
Flt Permitted	0.273			0.197				0.801			0.984	
Satd. Flow (perm)	509	1838	0	367	1844	0	0	1420	0	0	1745	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			5			13			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	19		20	20		19	23		38	38		23
Confl. Bikes (#/hr)			6			8						2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	762	0	73	645	0	0	431	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	50.0	50.0		50.0	50.0		26.0	26.0		26.0	26.0	
Total Split (s)	52.0	52.0	0.0	52.0	52.0	0.0	33.0	33.0	0.0	33.0	33.0	0.0
Total Split (%)	61.2%	61.2%	0.0%	61.2%	61.2%	0.0%	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%
Maximum Green (s)	47.0	47.0		47.0	47.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	49.0	49.0		49.0	49.0			30.0			30.0	
Actuated g/C Ratio	0.58	0.58		0.58	0.58			0.35			0.35	
v/c Ratio	0.12	0.72		0.34	0.61			0.85			0.30	
Control Delay	6.2	9.9		19.0	18.1			42.0			19.5	
Queue Delay	0.0	0.1		0.0	0.0			0.0			0.0	
Total Delay	6.2	10.0		19.0	18.1			42.0			19.5	
LOS	A	A		B	B			D			B	

# Lanes, Volumes, Timings

## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		9.8			18.2			42.0			19.5	
Approach LOS		A			B			D			B	
Queue Length 50th (ft)	2	52		15	141			138			44	
Queue Length 95th (ft)	m5	153		m26	m220			#253			79	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	293	1062		212	1065			510			628	
Starvation Cap Reductn	0	16		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	0.12	0.73		0.34	0.61			0.85			0.30	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 68 (80%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 20.0

Intersection LOS: B

Intersection Capacity Utilization 95.9%

ICU Level of Service F





Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















### Splits and Phases: 5: JAMES ST & CATHERINE ST

  2	  4
52 s	33 s

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	745	13	13	589	74	74	510	106	47	224	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1856	0	1770	1825	0	0	3403	0	0	3430	0
Flt Permitted	0.212			0.145				0.842			0.668	
Satd. Flow (perm)	394	1856	0	270	1825	0	0	2874	0	0	2305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			8			26			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	20		14	14		20	23		32	32		23
Confl. Bikes (#/hr)			1			2			1			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	891	0	15	780	0	0	812	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		26.0	26.0		26.0	26.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Act Effect Green (s)	52.0	52.0		52.0	52.0			27.0			27.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61			0.32			0.32	
v/c Ratio	0.06	0.78		0.09	0.70			0.87			0.48	
Control Delay	3.5	8.5		6.3	17.6			38.5			24.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011













Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	29%
Maximum Green (s)	22.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	3.5	8.5		6.3	17.6			38.5			24.8	
LOS	A	A		A	B			D			C	
Approach Delay		8.4			17.4			38.5			24.8	
Approach LOS		A			B			D			C	
Queue Length 50th (ft)	1	52		2	266			141			52	
Queue Length 95th (ft)	m1	71		m2	335			#183			74	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	241	1136		165	1120			931			744	
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	0.06	0.78		0.09	0.70			0.87			0.48	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E










Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 6: JAMES ST & LODI ST

								
ø1			ø2			ø3		
30 s			30 s			25 s		

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST



















10/7/2011

Lane Group                      ø3  
Total Delay  
LOS  
Approach Delay  
Approach LOS  
Queue Length 50th (ft)  
Queue Length 95th (ft)  
Internal Link Dist (ft)  
Turn Bay Length (ft)  
Base Capacity (vph)  
Starvation Cap Reductn  
Spillback Cap Reductn  
Storage Cap Reductn  
Reduced v/c Ratio  
Intersection Summary

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	826	42	66	538	25	74	109	53	30	169	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1842	0	1770	1845	0	0	1757	0	0	1769	0
Flt Permitted	0.338			0.152				0.680			0.939	
Satd. Flow (perm)	625	1842	0	283	1845	0	0	1207	0	0	1667	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			5			18			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	13		23	23		13	14		18	18		14
Confl. Bikes (#/hr)			2			5						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	965	0	73	626	0	0	262	0	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		31.0	31.0		31.0	31.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	64.7%	64.7%	0.0%	64.7%	64.7%	0.0%	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%
Maximum Green (s)	50.0	50.0		50.0	50.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	57.1	57.1		57.1	57.1			21.9			21.9	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.26			0.26	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.08	0.78		0.38	0.50			0.81			0.66	
Control Delay	4.2	9.6		17.0	11.6			46.2			32.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.2	9.6		17.0	11.6			46.2			32.9	
LOS	A	A		B	B			D			C	
Approach Delay		9.4			12.2			46.2			32.9	
Approach LOS		A			B			D			C	
Queue Length 50th (ft)	2	83		16	133			82			87	
Queue Length 95th (ft)	m3	m#323		m39	259			135			134	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	420	1240		190	1242			396			543	
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	0.08	0.78		0.38	0.50			0.66			0.54	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 39 (46%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.6

Intersection LOS: B

Intersection Capacity Utilization 87.9%

ICU Level of Service E



Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



















### Splits and Phases: 7: JAMES ST & OAK ST

 $\phi 2$												 $\phi 4$											
55 s												30 s											

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011











												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	847	8	1	551	136	24	0	6	179	4	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1860	0	1770	1786	0	0	1716	0	0	1728	0
Flt Permitted	0.277			0.181				0.789			0.763	
Satd. Flow (perm)	516	1860	0	337	1786	0	0	1402	0	0	1321	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			31			7			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	14		4	4		14	4		22	22		4
Confl. Bikes (#/hr)			4			2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	930	0	1	747	0	0	33	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Maximum Green (s)	54.0	54.0		54.0	54.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	58.3	58.3		58.3	58.3			20.7			20.7	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.24			0.24	

10/7/2011

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	880	152	29	585	103	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1807	0	1770	1863	1728	0
Flt Permitted			0.159		0.963	
Satd. Flow (perm)	1807	0	296	1863	1684	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	28				15	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		18	18		14	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1053	0	30	597	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Minimum Split (s)	47.0		47.0	47.0	23.0	
Total Split (s)	66.0	0.0	66.0	66.0	19.0	0.0
Total Split (%)	77.6%	0.0%	77.6%	77.6%	22.4%	0.0%
Maximum Green (s)	61.0		61.0	61.0	14.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	9.0		9.0	9.0	11.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	63.0		63.0	63.0	16.0	
Actuated g/C Ratio	0.74		0.74	0.74	0.19	
v/c Ratio	0.78		0.14	0.43	0.40	
Control Delay	5.4		7.6	8.2	31.0	
Queue Delay	0.2		0.0	0.1	0.0	
Total Delay	5.6		7.6	8.2	31.0	
LOS	A		A	A	C	

# Lanes, Volumes, Timings 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	5.6			8.2	31.0	
Approach LOS	A			A	C	
Queue Length 50th (ft)	71		3	82	39	
Queue Length 95th (ft)	107		m18	218	75	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)			150			
Base Capacity (vph)	1347		219	1381	337	
Starvation Cap Reductn	33		0	0	0	
Spillback Cap Reductn	0		0	100	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.80		0.14	0.47	0.40	

## Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 81 (95%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 8.4

Intersection LOS: A

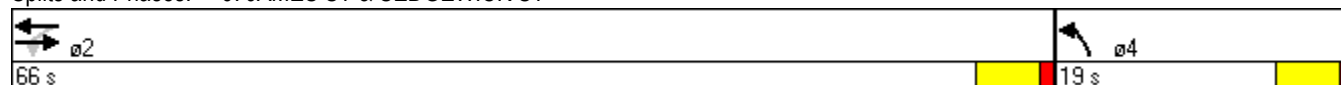
Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

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

## Splits and Phases: 9: JAMES ST & SEDGEWICK ST















# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	902	8	28	595	19	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Satd. Flow (prot)	1860	0	1770	1863	1689	0
Flt Permitted			0.245		0.977	
Satd. Flow (perm)	1860	0	456	1863	1687	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1				24	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		20	20		1	
Confl. Bikes (#/hr)		6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	989	0	30	647	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	45.0		45.0	45.0	25.0	
Total Split (s)	65.0	0.0	65.0	65.0	20.0	0.0
Total Split (%)	76.5%	0.0%	76.5%	76.5%	23.5%	0.0%
Maximum Green (s)	60.0		60.0	60.0	15.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	10.0		10.0	10.0	13.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	74.4		74.4	74.4	10.0	
Actuated g/C Ratio	0.88		0.88	0.88	0.12	

# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.61		0.08	0.40	0.20	
Control Delay	3.4		1.0	2.1	20.9	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	3.4		1.0	2.1	20.9	
LOS	A		A	A	C	
Approach Delay	3.4			2.1	20.9	
Approach LOS	A			A	C	
Queue Length 50th (ft)	47		0	1	7	
Queue Length 95th (ft)	117		m2	m145	25	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)			150			
Base Capacity (vph)	1628		399	1630	357	
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	0.61		0.08	0.40	0.13	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 15 (18%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 3.3

Intersection LOS: A

Intersection Capacity Utilization 58.0%

ICU Level of Service B

Analysis Period (min) 15

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




















### Splits and Phases: 10: JAMES ST & WILSON ST

←	↘	↙	←	↖	↗
ø2				ø4	
65 s				20 s	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	510	176	185	378	34	125	478	101	25	524	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		200	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1836	0	0	3418	0	0	3381	0
Flt Permitted	0.950			0.950				0.610			0.908	
Satd. Flow (perm)	1754	1863	1526	1750	1836	0	0	2104	0	0	3076	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191		6			26			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	11		16	16		11	29		2	2		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	259	554	191	201	448	0	0	766	0	0	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot		Perm	Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases			6				4			8		
Detector Phase	1	6	6	5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0	22.0	9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	19.0	36.0	36.0	14.0	31.0	0.0	13.0	35.0	0.0	22.0	22.0	0.0
Total Split (%)	22.4%	42.4%	42.4%	16.5%	36.5%	0.0%	15.3%	41.2%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	14.5	31.0	31.0	9.5	26.0		8.0	30.0		17.0	17.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	4.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		10.0	10.0		10.0			10.0		10.0	10.0	
Pedestrian Calls (#/hr)		5	5		5			5		5	5	
Act Effct Green (s)	16.0	33.1	32.1	11.5	28.6			31.9			31.9	
Actuated g/C Ratio	0.19	0.39	0.38	0.14	0.34			0.38			0.38	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.78	0.76	0.27	0.84	0.72			0.95			0.62	
Control Delay	52.0	23.3	2.7	68.7	20.1			48.2			23.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	52.0	23.3	2.7	68.7	20.1			48.2			23.5	
LOS	D	C	A	E	C			D			C	
Approach Delay		26.8			35.2			48.2			23.5	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	86	120	2	79	57			135			106	
Queue Length 95th (ft)	#163	#242	20	m#140	m104			#220			146	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160		200	125								
Base Capacity (vph)	344	725	695	239	622			808			1172	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.75	0.76	0.27	0.84	0.72			0.95			0.62	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 31 (36%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 33.0

Intersection LOS: C

Intersection Capacity Utilization 90.0%

ICU Level of Service E








Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4
19 s	31 s	35 s
 ø5	 ø6	 ø7
14 s	36 s	13 s
		 ø8
		22 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	574	62	14	470	0	42	0	77	329	72	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1640	0	0	1714	0
Flt Permitted					0.982			0.852			0.728	
Satd. Flow (perm)	0	1863	1522	0	1829	0	0	1421	0	0	1284	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63					79			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	26		23	23		26	47		4	4		47
Confl. Bikes (#/hr)			1			6						7
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	586	63	0	494	0	0	122	0	0	496	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	57.0	57.0	57.0	57.0	0.0	28.0	28.0	0.0	28.0	28.0	0.0
Total Split (%)	0.0%	67.1%	67.1%	67.1%	67.1%	0.0%	32.9%	32.9%	0.0%	32.9%	32.9%	0.0%
Maximum Green (s)							23.5	23.5		23.5	23.5	
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)							3.0	3.0		3.0	3.0	
Recall Mode							None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							5	5		5	5	
Act Effect Green (s)		52.5	52.5		52.5			23.5			23.5	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	12.0	33.0	12.0
Total Split (%)	14%	39%	14%
Maximum Green (s)	7.5	28.5	7.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	C-Max	Min	None
Walk Time (s)		7.0	
Flash Dont Walk (s)		10.0	
Pedestrian Calls (#/hr)		5	
Act Effect Green (s)			

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.62	0.62		0.62			0.28			0.28	
v/c Ratio		0.51	0.07		0.44			0.27			1.36	
Control Delay		11.4	4.7		3.9			11.9			207.6	
Queue Delay		0.1	0.0		0.7			0.0			101.4	
Total Delay		11.5	4.7		4.6			11.9			309.0	
LOS		B	A		A			B			F	
Approach Delay		10.8			4.6			11.9			309.0	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		87	1		11			12			~240	
Queue Length 95th (ft)		m164	m5		42			40			#369	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)			150									
Base Capacity (vph)		1151	964		1130			450			364	
Starvation Cap Reductn		0	0		320			0			52	
Spillback Cap Reductn		57	0		0			2			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.54	0.07		0.61			0.27			1.59	

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 35 (41%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.36

Intersection Signal Delay: 93.1

Intersection LOS: F

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

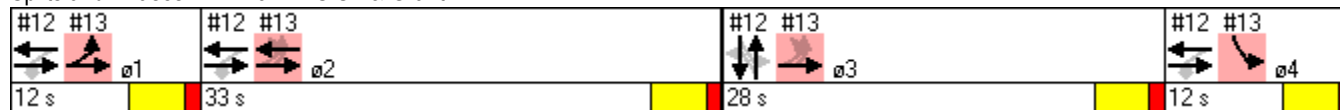
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 12: JAMES ST & Grant



# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011


















Lane Group	ø1	ø2	ø4
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			



# Lanes, Volumes, Timings

## 13: James S & Walgreens












10/7/2011

													
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER		ø3
Lane Configurations													
Volume (vph)	91	109	780	452	386	10	38	32	12	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		75			150		0	0		0	0		
Storage Lanes		1			1		1	0		0	0		
Taper Length (ft)		25			25		25	25		25	25		
Satd. Flow (prot)	0	1770	1863	1863	1583	0	1689	0	0	0	0		
Flt Permitted		0.366					0.977						
Satd. Flow (perm)	0	669	1863	1863	1332	0	1573	0	0	0	0		
Right Turn on Red						Yes			Yes		Yes		
Satd. Flow (RTOR)					2		8						
Link Speed (mph)			30	30			30			30			
Link Distance (ft)			208	618			139			186			
Travel Time (s)			4.7	14.0			3.2			4.2			
Confl. Peds. (#/hr)	26				26	26	26						
Confl. Bikes (#/hr)					6	6							
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	204	796	461	404	0	84	0	0	0	0		
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No		
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Right	Right	Left	Right		
Median Width(ft)			12	12			12			0			
Link Offset(ft)			0	0			0			0			
Crosswalk Width(ft)			16	16			16			16			
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15	15			9	9	15	9	9	15	9		
Turn Type	custom	custom			Perm								
Protected Phases		1	1 2 3	2			4						3
Permitted Phases	2 3	2 3			2								
Detector Phase	2 3	1	1 2 3	2	2		4						
Switch Phase													
Minimum Initial (s)		5.0		10.0	10.0		5.0						8.0
Minimum Split (s)		9.5		22.0	22.0		9.5						22.0
Total Split (s)	61.0	12.0	73.0	33.0	33.0	0.0	12.0	0.0	0.0	0.0	0.0		28.0
Total Split (%)	71.8%	14.1%	85.9%	38.8%	38.8%	0.0%	14.1%	0.0%	0.0%	0.0%	0.0%		33%
Maximum Green (s)		7.5		28.5	28.5		7.5						23.5
Yellow Time (s)		3.5		3.5	3.5		3.5						3.5
All-Red Time (s)		1.0		1.0	1.0		1.0						1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.0	4.0	4.0	4.0		
Lead/Lag		Lead		Lag	Lag		Lag						Lead
Lead-Lag Optimize?													
Vehicle Extension (s)		3.0		3.0	3.0		3.0						3.0
Recall Mode		C-Max		Min	Min		None						None
Walk Time (s)				7.0	7.0								7.0
Flash Dont Walk (s)				10.0	10.0								10.0
Pedestrian Calls (#/hr)				5	5								5
Act Effect Green (s)		64.0	68.5	28.5	28.5		7.5						

# Lanes, Volumes, Timings

## 13: James S & Walgreens

10/7/2011

												
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER	ø3
Actuated g/C Ratio		0.75	0.81	0.34	0.34		0.09					
v/c Ratio		0.34	0.53	0.74	0.90		0.54					
Control Delay		2.9	4.2	33.4	52.9		47.1					
Queue Delay		0.2	1.0	0.0	0.2		0.0					
Total Delay		3.1	5.1	33.4	53.1		47.1					
LOS		A	A	C	D		D					
Approach Delay			4.7	42.6			47.1					
Approach LOS			A	D			D					
Queue Length 50th (ft)		11	105	146	138		27					
Queue Length 95th (ft)		m13	m93	223	#256		#63					
Internal Link Dist (ft)			128	538			59			106		
Turn Bay Length (ft)		75			150							
Base Capacity (vph)		601	1501	625	448		156					
Starvation Cap Reductn		85	418	0	0		0					
Spillback Cap Reductn		0	0	0	1		0					
Storage Cap Reductn		0	0	0	0		0					
Reduced v/c Ratio		0.40	0.73	0.74	0.90		0.54					

### Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 35 (41%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.36

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 53.4%

ICU Level of Service A


Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















### Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
12 s	33 s	28 s	12 s

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	551	206	89	465	6	166	1	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3364	0	0	3503	0	1681	1668	0	0	1863	0
Flt Permitted		0.945			0.722		0.950	0.950				
Satd. Flow (perm)	0	3183	0	0	2548	0	1681	1655	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			2			6				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		170			537			242			134	
Travel Time (s)		3.9			12.2			5.5			3.0	
Confl. Peds. (#/hr)	2		19	19		2	14		23	23		14
Confl. Bikes (#/hr)			1			4			1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	0	863	0	0	629	0	99	97	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	37.0	37.0		37.0	37.0		25.0	25.0		18.0	18.0	
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	25.0	25.0	0.0	18.0	18.0	0.0
Total Split (%)	46.3%	46.3%	0.0%	46.3%	46.3%	0.0%	31.3%	31.3%	0.0%	22.5%	22.5%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Act Effct Green (s)		52.0			52.0		22.0	22.0				
Actuated g/C Ratio		0.65			0.65		0.28	0.28				
v/c Ratio		0.41			0.38		0.21	0.21				
Control Delay		6.7			2.1		23.9	22.4				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		6.7			2.1		23.9	22.4				
LOS		A			A		C	C				
Approach Delay		6.7			2.1			23.2				
Approach LOS		A			A			C				

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		57			9		27	25				
Queue Length 95th (ft)		78			12		53	51				
Internal Link Dist (ft)		90			457			162			54	
Turn Bay Length (ft)												
Base Capacity (vph)		2097			1657		462	459				
Starvation Cap Reductn		0			0		0	0				
Spillback Cap Reductn		0			0		0	0				
Storage Cap Reductn		0			0		0	0				
Reduced v/c Ratio		0.41			0.38		0.21	0.21				

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 17 (21%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 6.9

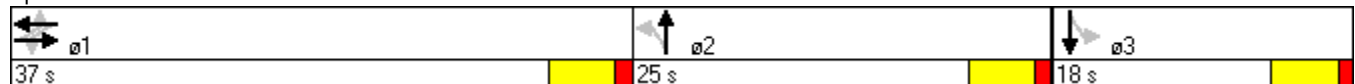
Intersection Capacity Utilization 66.8%

Analysis Period (min) 15

Intersection LOS: A





















ICU Level of Service C

### Splits and Phases: 1: JAMES ST & OSWEGO BLVD



## Lanes, Volumes, Timings 2: JAMES ST & STATE ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	425	55	160	503	169	35	230	40	122	419	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		150	120		0	120		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3458	0	0	3497	1583	1770	3450	0	1770	3505	0
Flt Permitted	0.378				0.589		0.478			0.467		
Satd. Flow (perm)	702	3458	0	0	2078	1554	879	3450	0	863	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				184		25			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		537			777			389			292	
Travel Time (s)		12.2			17.7			8.8			6.6	
Confl. Peds. (#/hr)	7		28	28		7	17		10	10		17
Confl. Bikes (#/hr)			1			4						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	522	0	0	721	184	38	293	0	133	479	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	28.0	28.0		14.0	42.0	
Total Split (s)	24.0	24.0	0.0	14.0	38.0	38.0	28.0	28.0	0.0	14.0	42.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	17.5%	47.5%	47.5%	35.0%	35.0%	0.0%	17.5%	52.5%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Act Effct Green (s)	21.0	21.0			35.0	35.0	25.0	25.0		39.0	39.0	
Actuated g/C Ratio	0.26	0.26			0.44	0.44	0.31	0.31		0.49	0.49	
v/c Ratio	0.46	0.57			0.65	0.23	0.14	0.27		0.24	0.28	
Control Delay	28.8	22.5			15.4	3.4	21.5	19.6		12.7	12.5	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.8	22.5			15.4	3.4	21.5	19.6		12.7	12.5	
LOS	C	C			B	A	C	B		B	B	
Approach Delay		23.4			13.0			19.8			12.5	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	16	50			53	1	9	35		24	47	
Queue Length 95th (ft)	32	67			107	25	25	56		45	68	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	184	920			1104	783	275	1095		545	1713	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.46	0.57			0.65	0.23	0.14	0.27		0.24	0.28	

#### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 71 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.4







Intersection Capacity Utilization 66.1%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C




















#### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
14 s	24 s	14 s	28 s
 ø6		 ø8	
38 s		42 s	

# Lanes, Volumes, Timings













## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	517	41	74	633	71	169	333	59	26	214	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	105		0	150		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3483	0	0	3457	0	1770	1863	1583	1770	1822	0
Flt Permitted		0.888			0.827		0.487			0.377		
Satd. Flow (perm)	0	3098	0	0	2870	0	896	1863	1546	698	1822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			20				65		10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		777			459			200			317	
Travel Time (s)		17.7			10.4			4.5			7.2	
Confl. Peds. (#/hr)	14		19	19		14	20		12	12		20
Confl. Bikes (#/hr)			2			1						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	645	0	0	855	0	186	366	65	29	268	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Minimum Split (s)	46.0	46.0		46.0	46.0		34.0	34.0	34.0	34.0	34.0	
Total Split (s)	46.0	46.0	0.0	46.0	46.0	0.0	34.0	34.0	34.0	34.0	34.0	0.0
Total Split (%)	57.5%	57.5%	0.0%	57.5%	57.5%	0.0%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		43.0			43.0		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio		0.54			0.54		0.39	0.39	0.39	0.39	0.39	
v/c Ratio		0.39			0.55		0.54	0.51	0.10	0.11	0.38	
Control Delay		20.3			4.1		25.9	21.7	4.9	17.1	18.8	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.3			4.1		25.9	21.7	4.9	17.1	18.8	
LOS		C			A		C	C	A	B	B	
Approach Delay		20.3			4.1			21.2			18.6	
Approach LOS		C			A			C			B	
Queue Length 50th (ft)		84			13		48	93	0	6	61	
Queue Length 95th (ft)		125			35		93	146	16	18	103	

# Lanes, Volumes, Timings 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)							105			150		
Base Capacity (vph)		1672			1552		347	722	639	270	712	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.39			0.55		0.54	0.51	0.10	0.11	0.38	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 72 (90%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 14.6






Intersection Capacity Utilization 81.4%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service D

## Splits and Phases: 3: JAMES ST & TOWNSEND ST

















					
ø2			ø4		
46 s			34 s		



# Lanes, Volumes, Timings













## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	531	12	17	749	35	16	42	12	16	20	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3506	0	0	3503	0	0	1793	0	0	1763	0
Flt Permitted		0.801			0.936			0.944			0.919	
Satd. Flow (perm)	0	2819	0	0	3280	0	0	1713	0	0	1644	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			11			13			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		459			455			383			324	
Travel Time (s)		10.4			10.3			8.7			7.4	
Confl. Peds. (#/hr)	24		22	22		24	1		4	4		1
Confl. Bikes (#/hr)			1			5						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	662	0	0	880	0	0	77	0	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)		52.0			52.0			22.0			22.0	
Actuated g/C Ratio		0.65			0.65			0.28			0.28	
v/c Ratio		0.36			0.41			0.16			0.12	
Control Delay		7.7			2.9			19.9			18.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.7			2.9			19.9			18.1	
LOS		A			A			B			B	
Approach Delay		7.7			2.9			19.9			18.1	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		38			17			16			10	
Queue Length 95th (ft)		43			22			39			28	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)												
Base Capacity (vph)		1834			2136			481			462	

# Lanes, Volumes, Timings 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		0.36			0.41			0.16			0.12	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 76 (95%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 6.0

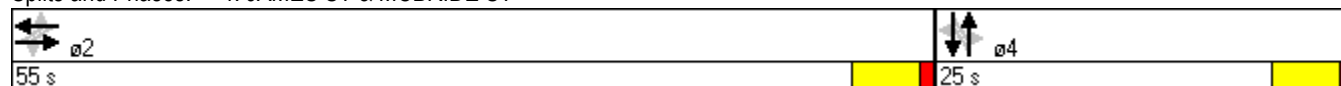
Intersection Capacity Utilization 64.2%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

















## Splits and Phases: 4: JAMES ST & MCBRIDE ST



# Lanes, Volumes, Timings













## 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	502	43	126	718	22	47	79	57	2	127	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3470	0	0	3494	0	0	1741	0	0	1791	0
Flt Permitted		0.928			0.768			0.902			0.997	
Satd. Flow (perm)	0	3223	0	0	2692	0	0	1584	0	0	1787	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6			28			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			884			352			335	
Travel Time (s)		10.3			20.1			8.0			7.6	
Confl. Peds. (#/hr)	24		28	28		24	22		19	19		22
Confl. Bikes (#/hr)			1			2			2			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	595	0	0	921	0	0	195	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	55.0	55.0		55.0	55.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Total Split (%)	68.8%	68.8%	0.0%	68.8%	68.8%	0.0%	31.3%	31.3%	0.0%	31.3%	31.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)		52.0			52.0			22.0			22.0	
Actuated g/C Ratio		0.65			0.65			0.28			0.28	
v/c Ratio		0.28			0.53			0.43			0.35	
Control Delay		1.8			9.7			23.7			23.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		1.8			9.7			23.7			23.3	
LOS		A			A			C			C	
Approach Delay		1.8			9.7			23.7			23.3	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		4			114			46			43	
Queue Length 95th (ft)		15			9			87			79	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)												
Base Capacity (vph)		2103			1752			456			504	

# Lanes, Volumes, Timings 5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		0.28			0.53			0.43			0.35	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 65 (81%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 9.9

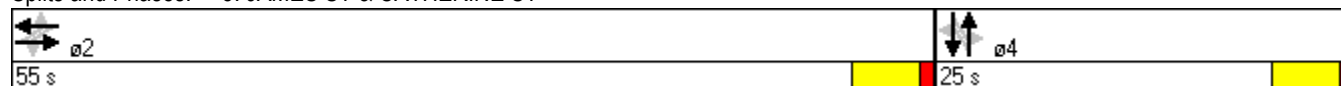
Intersection Capacity Utilization 85.1%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service E

















## Splits and Phases: 5: JAMES ST & CATHERINE ST



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	478	53	23	814	64	34	268	53	38	252	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3471	0	0	3491	0	0	3423	0	0	3479	0
Flt Permitted		0.880			0.933			0.895			0.860	
Satd. Flow (perm)	0	3063	0	0	3260	0	0	3075	0	0	3004	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			11			23			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		884			1883			1359			423	
Travel Time (s)		20.1			42.8			30.9			9.6	
Confl. Peds. (#/hr)	13		12	12		13	17		22	22		17
Confl. Bikes (#/hr)			6			1			1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	584	0	0	939	0	0	369	0	0	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Act Effct Green (s)		51.0			51.0			18.0			18.0	
Actuated g/C Ratio		0.64			0.64			0.22			0.22	
v/c Ratio		0.30			0.45			0.52			0.47	
Control Delay		7.1			7.3			28.5			29.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.1			7.3			28.5			29.0	
LOS		A			A			C			C	
Approach Delay		7.1			7.3			28.5			29.0	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		8			16			54			48	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST













10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	35%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		135			210			83			75	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)												
Base Capacity (vph)		1958			2082			710			681	
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		0.30			0.45			0.52			0.47	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 34 (43%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 13.9







Intersection Capacity Utilization 78.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service D

### Splits and Phases: 6: JAMES ST & LODI ST

								
ø1			ø2			ø3		
31 s			21 s			28 s		

## Lanes, Volumes, Timings

### 6: JAMES ST & LODI ST

10/7/2011

















Lane Group	ø3
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	



# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	424	67	47	750	31	110	173	98	28	88	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3412	0	0	3499	0	0	1759	0	0	1762	0
Flt Permitted		0.749			0.890			0.855			0.901	
Satd. Flow (perm)	0	2570	0	0	3118	0	0	1517	0	0	1600	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			7			26			27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1883			1028			495			602	
Travel Time (s)		42.8			23.4			11.3			13.7	
Confl. Peds. (#/hr)	19		31	31		19	24		14	14		24
Confl. Bikes (#/hr)			2			1			1			1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	605	0	0	881	0	0	405	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	44.0	44.0	0.0	44.0	44.0	0.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	55.0%	55.0%	0.0%	55.0%	55.0%	0.0%	45.0%	45.0%	0.0%	45.0%	45.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Act Effct Green (s)		47.4			47.4			26.6			26.6	
Actuated g/C Ratio		0.59			0.59			0.33			0.33	
v/c Ratio		0.39			0.48			0.77			0.30	
Control Delay		7.8			9.2			32.4			16.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.8			9.2			32.4			16.6	
LOS		A			A			C			B	
Approach Delay		7.8			9.2			32.4			16.6	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		20			50			113			34	

# Lanes, Volumes, Timings

## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		88			86			165			58	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)												
Base Capacity (vph)		1532			1849			641			676	
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			0.48			0.63			0.25	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 56 (70%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 14.0

Intersection Capacity Utilization 84.5%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service E

















### Splits and Phases: 7: JAMES ST & OAK ST

					
44 s			36 s		

# Lanes, Volumes, Timings

## 8: JAMES ST & DEWITT ST

10/7/2011










												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	509	11	0	768	120	7	1	2	179	6	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3514	0	0	3433	0	0	1735	0	0	1734	0
Flt Permitted		0.873						0.829			0.773	
Satd. Flow (perm)	0	3075	0	0	3433	0	0	1485	0	0	1344	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			35			2			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1028			271			427			658	
Travel Time (s)		23.4			6.2			9.7			15.0	
Confl. Peds. (#/hr)	22		16	16		22	8		37	37		8
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	611	0	0	986	0	0	11	0	0	265	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (s)	48.0	48.0	0.0	48.0	48.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Act Effct Green (s)		52.2			52.2			21.8			21.8	
Actuated g/C Ratio		0.65			0.65			0.27			0.27	
v/c Ratio		0.30			0.44			0.03			0.70	
Control Delay		5.1			3.4			16.6			33.3	
Queue Delay		0.0			0.1			0.0			0.0	
Total Delay		5.1			3.5			16.6			33.3	
LOS		A			A			B			C	
Approach Delay		5.1			3.5			16.6			33.3	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		20			21			2			74	

10/7/2011

# Lanes, Volumes, Timings

## 9: JAMES ST & SEDGEWICK ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	574	116	42	769	119	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3407	0	0	3529	1732	0
Flt Permitted				0.883	0.962	
Satd. Flow (perm)	3407	0	0	3123	1725	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	58				18	
Link Speed (mph)	30			30	30	
Link Distance (ft)	271			1437	521	
Travel Time (s)	6.2			32.7	11.8	
Confl. Peds. (#/hr)		22	22		4	2
Confl. Bikes (#/hr)		2				1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	0	891	168	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Minimum Split (s)	42.0		42.0	42.0	23.0	
Total Split (s)	54.0	0.0	54.0	54.0	26.0	0.0
Total Split (%)	67.5%	0.0%	67.5%	67.5%	32.5%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	51.0			51.0	23.0	
Actuated g/C Ratio	0.64			0.64	0.29	
v/c Ratio	0.35			0.45	0.33	
Control Delay	4.6			5.3	22.1	
Queue Delay	0.2			0.0	0.0	
Total Delay	4.7			5.3	22.1	
LOS	A			A	C	
Approach Delay	4.7			5.3	22.1	
Approach LOS	A			A	C	
Queue Length 50th (ft)	38			64	40	
Queue Length 95th (ft)	34			48	75	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)						
Base Capacity (vph)	2193			1991	511	

# Lanes, Volumes, Timings 9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Starvation Cap Reductn	556			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.46			0.45	0.33	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 58 (73%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 6.6

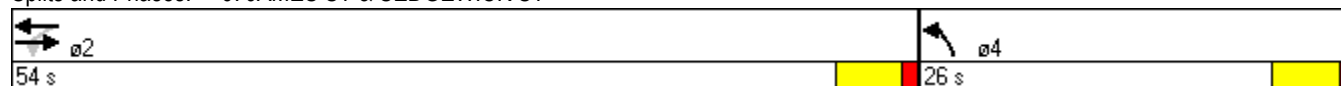
Intersection Capacity Utilization 67.4%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

## Splits and Phases: 9: JAMES ST & SEDGEWICK ST



# Lanes, Volumes, Timings

## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	596	12	16	789	22	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	3526	0	0	3536	1646	0
Flt Permitted				0.937	0.979	
Satd. Flow (perm)	3526	0	0	3316	1646	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5				35	
Link Speed (mph)	30			30	30	
Link Distance (ft)	1437			1093	701	
Travel Time (s)	32.7			24.8	15.9	
Confl. Peds. (#/hr)		7	7			22
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	724	0	0	958	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	40.0		40.0	40.0	25.0	
Total Split (s)	54.0	0.0	54.0	54.0	26.0	0.0
Total Split (%)	67.5%	0.0%	67.5%	67.5%	32.5%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	
Act Effct Green (s)	68.3			68.3	11.1	
Actuated g/C Ratio	0.85			0.85	0.14	
v/c Ratio	0.24			0.34	0.24	
Control Delay	1.2			1.9	17.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	1.2			1.9	17.0	
LOS	A			A	B	
Approach Delay	1.2			1.9	17.0	
Approach LOS	A			A	B	
Queue Length 50th (ft)	6			15	8	

# Lanes, Volumes, Timings 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (ft)	13			45	23	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)						
Base Capacity (vph)	3009			2829	498	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.24			0.34	0.12	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 15 (19%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 2.1

Intersection Capacity Utilization 50.6%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

Splits and Phases: 10: JAMES ST & WILSON ST























# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE













10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	432	91	82	442	12	170	354	92	7	446	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3426	0	1770	3523	0	0	3402	0	0	3324	0
Flt Permitted	0.950			0.950				0.577			0.947	
Satd. Flow (perm)	1757	3426	0	1752	3523	0	0	1986	0	0	3151	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			3			34			90	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1093			2248			180			188	
Travel Time (s)		24.8			51.1			4.1			4.3	
Confl. Peds. (#/hr)	10		16	16		10	29		7	7		29
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	581	0	91	504	0	0	684	0	0	718	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	15.0	26.8	0.0	12.2	24.0	0.0	10.0	41.0	0.0	31.0	31.0	0.0
Total Split (%)	18.8%	33.5%	0.0%	15.3%	30.0%	0.0%	12.5%	51.3%	0.0%	38.8%	38.8%	0.0%
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	11.3	30.2		9.3	28.3			34.1			34.1	
Actuated g/C Ratio	0.14	0.38		0.12	0.35			0.43			0.43	
v/c Ratio	0.45	0.44		0.44	0.40			0.79			0.52	
Control Delay	33.8	23.7		47.0	13.4			25.9			15.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	33.8	23.7		47.0	13.4			25.9			15.5	
LOS	C	C		D	B			C			B	

# Lanes, Volumes, Timings

## 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		25.4			18.5			25.9			15.5	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	35	100		32	30			93			75	
Queue Length 95th (ft)	68	141		m60	m86			134			102	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	277	1312		215	1248			961			1405	
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	0.41	0.44		0.42	0.40			0.71			0.51	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 52 (65%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 21.3

Intersection LOS: C








Intersection Capacity Utilization 70.4%

ICU Level of Service C

Analysis Period (min) 15

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


















### Splits and Phases: 11: JAMES ST & TEALL AVE

 ø1	 ø2	 ø4	
15 s	24 s	41 s	
 ø5	 ø6	 ø7	 ø8
12.2 s	26.8 s	10 s	31 s

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	501	30	10	422	0	44	0	73	238	43	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1652	0	0	1742	0
Flt Permitted					0.986			0.804			0.719	
Satd. Flow (perm)	0	1863	1528	0	1836	0	0	1349	0	0	1293	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37					90			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2248			208			239			142	
Travel Time (s)		51.1			4.7			5.4			3.2	
Confl. Peds. (#/hr)	28		13	13		28	14		1	1		14
Confl. Bikes (#/hr)			4									1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	619	37	0	533	0	0	144	0	0	433	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	47.0	47.0	47.0	47.0	0.0	33.0	33.0	0.0	33.0	33.0	0.0
Total Split (%)	0.0%	58.8%	58.8%	58.8%	58.8%	0.0%	41.3%	41.3%	0.0%	41.3%	41.3%	0.0%
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode							None	None		None	None	
Act Effct Green (s)		42.9	42.9		42.9			28.1			28.1	
Actuated g/C Ratio		0.54	0.54		0.54			0.35			0.35	
v/c Ratio		0.62	0.04		0.54			0.27			0.93	
Control Delay		28.8	14.3		9.3			9.3			53.4	
Queue Delay		0.2	0.0		0.9			0.0			82.4	
Total Delay		28.9	14.3		10.2			9.3			135.8	
LOS		C	B		B			A			F	
Approach Delay		28.1			10.2			9.3			135.8	
Approach LOS		C			B			A			F	

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant













10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	10.0	29.0	8.0
Total Split (%)	13%	36%	10%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Recall Mode	C-Max	Min	None
Act Effect Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		185	2		25			12			134	
Queue Length 95th (ft)		260	m15		m44			32			#213	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)												
Base Capacity (vph)		999	836		984			539			472	
Starvation Cap Reductn		0	0		207			0			107	
Spillback Cap Reductn		52	0		0			2			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.65	0.04		0.69			0.27			1.19	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 50 (63%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 47.6

Intersection LOS: D

Intersection Capacity Utilization 67.3%

ICU Level of Service C









Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 12: JAMES ST & Grant

#12 #13	#12 #13	#12 #13	#12 #13
 	 	 	 
ø4	ø1	ø2	ø3
10 s	29 s	33 s	8 s

## Lanes, Volumes, Timings

### 12: JAMES ST & Grant















10/7/2011

Lane Group	ø1	ø2	ø4
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings










## 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Lane Configurations										
Volume (vph)	60	102	650	422	258	6	10	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75			150	0	0	0	0	
Storage Lanes		1			1	1	0	0	0	
Taper Length (ft)		25			25	25	25	25	25	
Satd. Flow (prot)	0	1770	1863	1863	1583	1674	0	0	0	
Flt Permitted		0.322				0.982				
Satd. Flow (perm)	0	600	1863	1863	1449	1476	0	0	0	
Right Turn on Red									Yes	
Satd. Flow (RTOR)										
Link Speed (mph)			30	30		30		30		
Link Distance (ft)			208	618		139		186		
Travel Time (s)			4.7	14.0		3.2		4.2		
Confl. Peds. (#/hr)	28				28	28				
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	200	802	521	319	19	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)			12	12		12		0		
Link Offset(ft)			0	0		0		0		
Crosswalk Width(ft)			16	16		16		16		
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15			9	15	9	15	9	
Turn Type	custom	custom			Perm					
Protected Phases		1	1 2 3	2		4				3
Permitted Phases	2 3	2 3			2					
Detector Phase	2 3	1	1 2 3	2	2	4				
Switch Phase										
Minimum Initial (s)		5.0		10.0	10.0	5.0				8.0
Minimum Split (s)		9.5		22.0	22.0	9.5				22.0
Total Split (s)	62.0	10.0	72.0	29.0	29.0	8.0	0.0	0.0	0.0	33.0
Total Split (%)	77.5%	12.5%	90.0%	36.3%	36.3%	10.0%	0.0%	0.0%	0.0%	41%
Yellow Time (s)		3.5		3.5	3.5	3.5				3.5
All-Red Time (s)		1.0		1.0	1.0	1.0				1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	
Lead/Lag		Lead		Lag	Lag	Lag				Lead
Lead-Lag Optimize?										
Recall Mode		C-Max		Min	Min	None				None
Act Effct Green (s)		62.6	67.1	24.5	24.5	3.9				
Actuated g/C Ratio		0.78	0.84	0.31	0.31	0.05				
v/c Ratio		0.36	0.51	0.91	0.72	0.23				
Control Delay		2.7	2.8	50.1	35.6	44.1				
Queue Delay		0.2	0.9	0.0	0.0	0.0				
Total Delay		2.9	3.7	50.1	35.6	44.1				
LOS		A	A	D	D	D				

# Lanes, Volumes, Timings 13: James S & Walgreens

10/7/2011

										
Lane Group	EBL2	EBL	EBT	WBT	WBR	SBL	SBR	SEL	SER	ø3
Approach Delay			3.5	44.6		44.1				
Approach LOS			A	D		D				
Queue Length 50th (ft)		2	10	169	96	6				
Queue Length 95th (ft)		m5	m18	#245	137	19				
Internal Link Dist (ft)			128	538		59		106		
Turn Bay Length (ft)		75			150					
Base Capacity (vph)		550	1572	571	444	81				
Starvation Cap Reductn		63	470	0	0	0				
Spillback Cap Reductn		0	0	0	0	0				
Storage Cap Reductn		0	0	0	0	0				
Reduced v/c Ratio		0.41	0.73	0.91	0.72	0.23				

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 50 (63%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 46.6%

ICU Level of Service A









Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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


















## Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
 	 	 	 
ø4	ø1	ø2	ø3
10 s	29 s	33 s	8 s



Lanes, Volumes, Timings  
1: JAMES ST & OSWEGO BLVD






10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	543	121	34	596	1	329	0	20	5	7	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			1.00			0.98	
Frt		0.973						0.983			0.932	
Flt Protected					0.997		0.950	0.958			0.990	
Satd. Flow (prot)	0	3409	0	0	3528	0	1681	1661	0	0	1694	0
Flt Permitted					0.804		0.209	0.280			0.875	
Satd. Flow (perm)	0	3409	0	0	2844	0	370	485	0	0	1493	0
Satd. Flow (RTOR)		30						12			12	
Adj. Flow (vph)	0	572	127	36	627	1	346	0	21	5	7	12
Lane Group Flow (vph)	0	699	0	0	664	0	183	184	0	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			3	
Permitted Phases	1			1			2			3		
Detector Phase	1	1		1	1		2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		35.0	35.0		18.0	18.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	50.0	50.0	0.0	10.0	10.0	0.0
Total Split (%)	29.4%	29.4%	0.0%	29.4%	29.4%	0.0%	58.8%	58.8%	0.0%	11.8%	11.8%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		None	None	
Act Effct Green (s)		28.0			28.0		47.0	47.0			7.0	
Actuated g/C Ratio		0.33			0.33		0.55	0.55			0.08	
v/c Ratio		0.61			0.71		0.89	0.67			0.18	
Control Delay		26.8			26.1		62.2	27.7			28.1	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		26.8			26.1		62.2	27.7			28.1	
LOS		C			C		E	C			C	
Approach Delay		26.8			26.1			44.9			28.1	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)		97			57		57	43			4	
Queue Length 95th (ft)		162			#183		#155	#126			20	
Internal Link Dist (ft)		90			457			162			54	
Turn Bay Length (ft)												

# Lanes, Volumes, Timings

## 1: JAMES ST & OSWEGO BLVD

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1143			937		205	274			134	
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			0.71		0.89	0.67			0.18	

### Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 40 (47%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 30.4

Intersection LOS: C

Intersection Capacity Utilization 64.2%

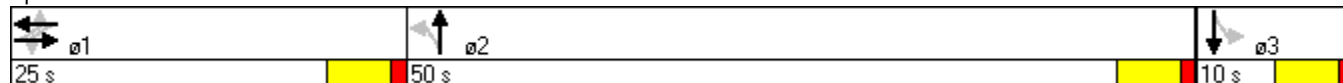
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.





















### Splits and Phases: 1: JAMES ST & OSWEGO BLVD



# Lanes, Volumes, Timings

## 2: JAMES ST & STATE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	490	16	97	568	349	38	972	124	119	211	25
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00			1.00	0.98	0.99	0.99			1.00	
Frt		0.995				0.850		0.983			0.984	
Flt Protected	0.950				0.993		0.950			0.950		
Satd. Flow (prot)	1770	3512	0	0	3514	1583	1770	3459	0	1770	3471	0
Flt Permitted	0.374				0.673		0.592			0.114		
Satd. Flow (perm)	692	3512	0	0	2375	1546	1087	3459	0	212	3471	0
Satd. Flow (RTOR)		4				219		19			22	
Adj. Flow (vph)	68	538	18	107	624	384	42	1068	136	131	232	27
Lane Group Flow (vph)	68	556	0	0	731	384	42	1204	0	131	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			pm+pt		Perm	Perm			pm+pt		
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Minimum Split (s)	24.0	24.0		14.0	38.0	38.0	33.0	33.0		14.0	47.0	
Total Split (s)	26.0	26.0	0.0	12.0	38.0	38.0	35.0	35.0	0.0	12.0	47.0	0.0
Total Split (%)	30.6%	30.6%	0.0%	14.1%	44.7%	44.7%	41.2%	41.2%	0.0%	14.1%	55.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Act Effect Green (s)	23.0	23.0			35.0	35.0	32.0	32.0		44.0	44.0	
Actuated g/C Ratio	0.27	0.27			0.41	0.41	0.38	0.38		0.52	0.52	
v/c Ratio	0.36	0.58			0.67	0.50	0.10	0.92		0.48	0.14	
Control Delay	23.4	18.5			21.1	10.3	18.2	37.3		17.3	10.0	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.4	18.5			21.1	10.3	18.2	37.3		17.3	10.0	
LOS	C	B			C	B	B	D		B	A	
Approach Delay		19.0			17.4			36.6			12.4	
Approach LOS		B			B			D			B	
Queue Length 50th (ft)	5	21			83	26	10	212		23	22	
Queue Length 95th (ft)	m21	70			m119	m71	24	#305		47	35	
Internal Link Dist (ft)		457			697			309			212	
Turn Bay Length (ft)	150					150	120			120		
Base Capacity (vph)	187	953			1099	765	409	1314		275	1807	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.36	0.58			0.67	0.50	0.10	0.92		0.48	0.14	

## Lanes, Volumes, Timings

### 2: JAMES ST & STATE ST

10/7/2011

#### Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 43 (51%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 24.2

Intersection LOS: C

Intersection Capacity Utilization 83.9%

ICU Level of Service E







Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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




















#### Splits and Phases: 2: JAMES ST & STATE ST

 ø1	 ø2	 ø3	 ø4
12 s	26 s	12 s	35 s
 ø6	 ø8		
38 s	47 s		

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	616	82	42	705	47	266	486	112	42	291	43
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.99		0.98	1.00	1.00	
Frt		0.983			0.991				0.850		0.981	
Flt Protected		0.998			0.997		0.950			0.950		
Satd. Flow (prot)	0	3444	0	0	3483	0	1770	1863	1583	1770	1821	0
Flt Permitted		0.884			0.876		0.417			0.264		
Satd. Flow (perm)	0	3049	0	0	3058	0	770	1863	1551	490	1821	0
Satd. Flow (RTOR)		23			11				119		11	
Adj. Flow (vph)	37	655	87	45	750	50	283	517	119	45	310	46
Lane Group Flow (vph)	0	779	0	0	845	0	283	517	119	45	356	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm		Perm	Perm		1.00
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4		4	4		
Minimum Split (s)	50.0	50.0		50.0	50.0		35.0	35.0	35.0	35.0	35.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	40.0	40.0	40.0	40.0	40.0	0.0
Total Split (%)	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	47.1%	47.1%	47.1%	47.1%	47.1%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)		42.0			42.0		37.0	37.0	37.0	37.0	37.0	
Actuated g/C Ratio		0.49			0.49		0.44	0.44	0.44	0.44	0.44	
v/c Ratio		0.51			0.56		0.84	0.64	0.16	0.21	0.45	
Control Delay		12.0			6.8		46.5	23.2	3.5	18.2	18.5	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		12.0			6.8		46.5	23.2	3.5	18.2	18.5	
LOS		B			A		D	C	A	B	B	
Approach Delay		12.0			6.8			27.8			18.5	
Approach LOS		B			A			C			B	
Queue Length 50th (ft)		50			31		89	142	0	10	85	
Queue Length 95th (ft)		m90			42		#191	215	20	27	134	
Internal Link Dist (ft)		697			379			120			237	
Turn Bay Length (ft)							105			150		
Base Capacity (vph)		1518			1517		335	811	742	213	799	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.51			0.56		0.84	0.64	0.16	0.21	0.45	

# Lanes, Volumes, Timings

## 3: JAMES ST & TOWNSEND ST

10/7/2011

### Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 55 (65%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 91.3%

ICU Level of Service F

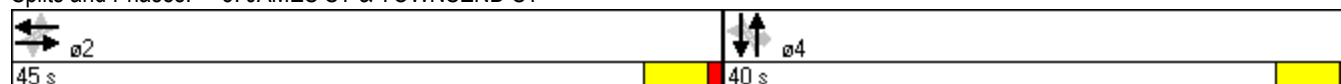
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 3: JAMES ST & TOWNSEND ST



# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	695	20	13	720	43	19	65	7	70	78	55
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			1.00			0.99	
Frt		0.996			0.992			0.989			0.963	
Flt Protected		0.996			0.999			0.990			0.983	
Satd. Flow (prot)	0	3503	0	0	3486	0	0	1820	0	0	1751	0
Flt Permitted		0.830			0.937			0.928			0.879	
Satd. Flow (perm)	0	2915	0	0	3269	0	0	1704	0	0	1560	0
Satd. Flow (RTOR)		6			14			5			22	
Adj. Flow (vph)	62	781	22	15	809	48	21	73	8	79	88	62
Lane Group Flow (vph)	0	865	0	0	872	0	0	102	0	0	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0	0.0	59.0	59.0	0.0	26.0	26.0	0.0	26.0	26.0	0.0
Total Split (%)	69.4%	69.4%	0.0%	69.4%	69.4%	0.0%	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)		56.0			56.0			23.0			23.0	
Actuated g/C Ratio		0.66			0.66			0.27			0.27	
v/c Ratio		0.45			0.40			0.22			0.52	
Control Delay		4.3			11.1			24.4			28.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.3			11.1			24.4			28.8	
LOS		A			B			C			C	
Approach Delay		4.3			11.1			24.4			28.8	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)		22			72			27			63	
Queue Length 95th (ft)		47			168			54			110	
Internal Link Dist (ft)		379			375			303			244	
Turn Bay Length (ft)												
Base Capacity (vph)		1923			2158			465			438	
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		0.45			0.40			0.22			0.52	

# Lanes, Volumes, Timings

## 4: JAMES ST & MCBRIDE ST

10/7/2011

### Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 62 (73%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 10.9

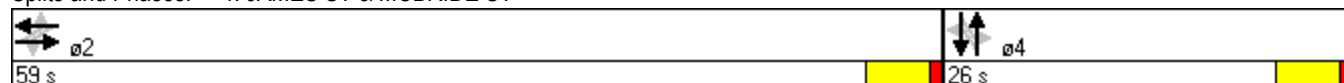
Intersection Capacity Utilization 71.6%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

















Splits and Phases: 4: JAMES ST & MCBRIDE ST





Lanes, Volumes, Timings  
5: JAMES ST & CATHERINE ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	696	43	71	598	28	136	214	68	7	136	42
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.99	
Frt		0.992			0.994			0.978			0.969	
Flt Protected		0.998			0.995			0.984			0.998	
Satd. Flow (prot)	0	3490	0	0	3490	0	0	1775	0	0	1784	0
Flt Permitted		0.903			0.798			0.815			0.984	
Satd. Flow (perm)	0	3156	0	0	2796	0	0	1460	0	0	1758	0
Satd. Flow (RTOR)		11			8			13			20	
Adj. Flow (vph)	34	718	44	73	616	29	140	221	70	7	140	43
Lane Group Flow (vph)	0	796	0	0	718	0	0	431	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	58.8%	58.8%	0.0%	41.2%	41.2%	0.0%	41.2%	41.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effect Green (s)		47.0			47.0			32.0			32.0	
Actuated g/C Ratio		0.55			0.55			0.38			0.38	
v/c Ratio		0.45			0.46			0.77			0.28	
Control Delay		14.8			13.2			33.9			17.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.8			13.2			33.9			17.8	
LOS		B			B			C			B	
Approach Delay		14.8			13.2			33.9			17.8	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		73			61			131			42	
Queue Length 95th (ft)		172			m181			#234			76	
Internal Link Dist (ft)		375			804			272			255	
Turn Bay Length (ft)												
Base Capacity (vph)		1750			1550			558			674	
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		0.45			0.46			0.77			0.28	

# Lanes, Volumes, Timings 5: JAMES ST & CATHERINE ST

10/7/2011

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 19 (22%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.4

Intersection LOS: B

Intersection Capacity Utilization 93.8%

ICU Level of Service F

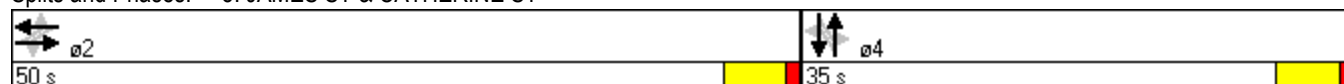
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

















Splits and Phases: 5: JAMES ST & CATHERINE ST



# Lanes, Volumes, Timings

## 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	745	13	13	589	74	74	510	106	47	224	34
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.998			0.984			0.977			0.983	
Flt Protected		0.999			0.999			0.995			0.992	
Satd. Flow (prot)	0	3527	0	0	3467	0	0	3418	0	0	3438	0
Flt Permitted		0.938			0.933			0.842			0.668	
Satd. Flow (perm)	0	3311	0	0	3238	0	0	2889	0	0	2313	0
Satd. Flow (RTOR)		2			16			26			17	
Adj. Flow (vph)	15	876	15	15	693	87	87	600	125	55	264	40
Lane Group Flow (vph)	0	906	0	0	795	0	0	812	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	19.0	19.0		19.0	19.0		26.0	26.0		26.0	26.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%	35.3%	35.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		Max	Max		Max	Max	
Act Effct Green (s)		47.0			47.0			27.0			27.0	
Actuated g/C Ratio		0.55			0.55			0.32			0.32	
v/c Ratio		0.49			0.44			0.87			0.48	
Control Delay		11.1			11.7			38.2			24.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.1			11.7			38.2			24.8	
LOS		B			B			D			C	
Approach Delay		11.1			11.7			38.2			24.8	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)		37			35			141			52	
Queue Length 95th (ft)		216			146			#181			74	
Internal Link Dist (ft)		804			1803			1279			343	
Turn Bay Length (ft)												
Base Capacity (vph)		1831			1797			935			746	

# Lanes, Volumes, Timings













## 6: JAMES ST & LODI ST

10/7/2011

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	29%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	

# Lanes, Volumes, Timings 6: JAMES ST & LODI ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		0.49			0.44			0.87			0.48	

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 35 (41%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 20.6

Intersection LOS: C

Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

## Splits and Phases: 6: JAMES ST & LODI ST



## Lanes, Volumes, Timings 6: JAMES ST & LODI ST

















10/7/2011

Lane Group                      ø3  
Starvation Cap Reductn  
Spillback Cap Reductn  
Storage Cap Reductn  
Reduced v/c Ratio  
Intersection Summary

# Lanes, Volumes, Timings













## 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	826	42	66	538	25	74	109	53	30	169	64
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.993			0.994			0.970			0.967	
Flt Protected		0.998			0.995			0.985			0.994	
Satd. Flow (prot)	0	3494	0	0	3492	0	0	1766	0	0	1778	0
Flt Permitted		0.916			0.764			0.674			0.937	
Satd. Flow (perm)	0	3206	0	0	2679	0	0	1205	0	0	1673	0
Satd. Flow (RTOR)		8			7			22			24	
Adj. Flow (vph)	33	918	47	73	598	28	82	121	59	33	188	71
Lane Group Flow (vph)	0	998	0	0	699	0	0	262	0	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		31.0	31.0		31.0	31.0	
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	47.1%	47.1%	0.0%	47.1%	47.1%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Act Effct Green (s)		57.4			57.4			21.6			21.6	
Actuated g/C Ratio		0.68			0.68			0.25			0.25	
v/c Ratio		0.46			0.39			0.81			0.66	
Control Delay		4.1			5.8			45.8			32.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.1			5.8			45.8			32.4	
LOS		A			A			D			C	
Approach Delay		4.1			5.8			45.8			32.4	
Approach LOS		A			A			D			C	
Queue Length 50th (ft)		32			56			83			87	
Queue Length 95th (ft)		m39			80			126			125	
Internal Link Dist (ft)		1803			948			415			522	
Turn Bay Length (ft)												
Base Capacity (vph)		2167			1811			537			742	

# Lanes, Volumes, Timings 7: JAMES ST & OAK ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		0.46			0.39			0.49			0.39	

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 82 (96%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.2

Intersection LOS: B

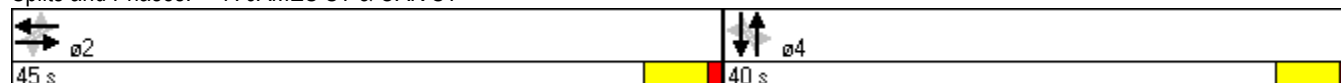
Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 15

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

## Splits and Phases: 7: JAMES ST & OAK ST





















# Lanes, Volumes, Timings













## 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	847	8	1	551	136	24	0	6	179	4	54
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.98	
Frt		0.999			0.970			0.971			0.969	
Flt Protected		0.997						0.962			0.964	
Satd. Flow (prot)	0	3524	0	0	3394	0	0	1725	0	0	1733	0
Flt Permitted		0.863			0.954			0.785			0.757	
Satd. Flow (perm)	0	3049	0	0	3238	0	0	1405	0	0	1333	0
Satd. Flow (RTOR)		2			57			7			20	
Adj. Flow (vph)	59	921	9	1	599	148	26	0	7	195	4	59
Lane Group Flow (vph)	0	989	0	0	748	0	0	33	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	58.8%	58.8%	0.0%	58.8%	58.8%	0.0%	41.2%	41.2%	0.0%	41.2%	41.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Act Effct Green (s)		56.3			56.3			22.7			22.7	
Actuated g/C Ratio		0.66			0.66			0.27			0.27	
v/c Ratio		0.49			0.35			0.09			0.70	
Control Delay		4.6			5.5			17.5			35.2	
Queue Delay		0.0			0.1			0.0			0.0	
Total Delay		4.6			5.6			17.5			35.2	
LOS		A			A			B			D	
Approach Delay		4.6			5.6			17.5			35.2	
Approach LOS		A			A			B			D	
Queue Length 50th (ft)		16			19			7			78	
Queue Length 95th (ft)		84			122			19			117	
Internal Link Dist (ft)		948			191			347			578	
Turn Bay Length (ft)												
Base Capacity (vph)		2022			2165			533			514	

# Lanes, Volumes, Timings 8: JAMES ST & DEWITT ST

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn		0			487			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.49			0.45			0.06			0.50	

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 8 (9%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 9.0

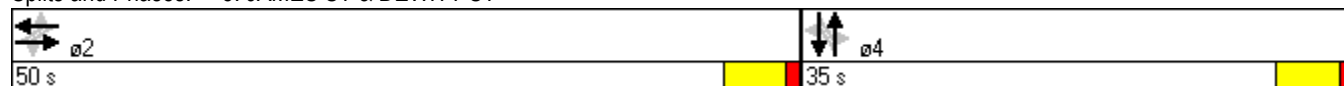
Intersection Capacity Utilization 69.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

## Splits and Phases: 8: JAMES ST & DEWITT ST



Lanes, Volumes, Timings  
9: JAMES ST & SEDGEWICK ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	880	152	29	585	103	30
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99			1.00	0.98	
Frt	0.978				0.969	
Flt Protected				0.998	0.963	
Satd. Flow (prot)	3427	0	0	3532	1732	0
Flt Permitted				0.876	0.963	
Satd. Flow (perm)	3427	0	0	3099	1706	0
Satd. Flow (RTOR)	48				17	
Adj. Flow (vph)	898	155	30	597	105	31
Lane Group Flow (vph)	1053	0	0	627	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Minimum Split (s)	47.0		47.0	47.0	23.0	
Total Split (s)	59.0	0.0	59.0	59.0	26.0	0.0
Total Split (%)	69.4%	0.0%	69.4%	69.4%	30.6%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effect Green (s)	56.0			56.0	23.0	
Actuated g/C Ratio	0.66			0.66	0.27	
v/c Ratio	0.46			0.31	0.28	
Control Delay	5.8			9.4	23.2	
Queue Delay	0.1			0.0	0.0	
Total Delay	5.9			9.4	23.2	
LOS	A			A	C	
Approach Delay	5.9			9.4	23.2	
Approach LOS	A			A	C	
Queue Length 50th (ft)	45			61	34	
Queue Length 95th (ft)	114			82	66	
Internal Link Dist (ft)	191			1357	441	
Turn Bay Length (ft)						
Base Capacity (vph)	2274			2042	481	
Starvation Cap Reductn	304			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.53			0.31	0.28	

# Lanes, Volumes, Timings 9: JAMES ST & SEDGEWICK ST

10/7/2011

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 1 (1%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 8.4

Intersection Capacity Utilization 59.3%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

## Splits and Phases: 9: JAMES ST & SEDGEWICK ST



# Lanes, Volumes, Timings







## 10: JAMES ST & WILSON ST

10/7/2011

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↖↗	
Volume (vph)	902	8	28	595	19	22
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00			1.00	1.00	
Frt	0.999				0.928	
Flt Protected				0.998	0.977	
Satd. Flow (prot)	3533	0	0	3532	1689	0
Flt Permitted				0.887	0.977	
Satd. Flow (perm)	3533	0	0	3138	1688	0
Satd. Flow (RTOR)	2				24	
Adj. Flow (vph)	980	9	30	647	21	24
Lane Group Flow (vph)	989	0	0	677	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type			Perm			
Protected Phases	2			2	4	
Permitted Phases			2			
Detector Phase	2		2	2	4	
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	45.0		45.0	45.0	25.0	
Total Split (s)	60.0	0.0	60.0	60.0	25.0	0.0
Total Split (%)	70.6%	0.0%	70.6%	70.6%	29.4%	0.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	
Act Effct Green (s)	73.4			73.4	11.0	
Actuated g/C Ratio	0.86			0.86	0.13	
v/c Ratio	0.32			0.25	0.19	
Control Delay	2.0			0.8	19.2	
Queue Delay	0.0			0.0	0.0	
Total Delay	2.0			0.8	19.2	
LOS	A			A	B	
Approach Delay	2.0			0.8	19.2	
Approach LOS	A			A	B	
Queue Length 50th (ft)	27			1	7	
Queue Length 95th (ft)	39			m4	23	
Internal Link Dist (ft)	1357			1013	621	
Turn Bay Length (ft)						
Base Capacity (vph)	3050			2709	455	

# Lanes, Volumes, Timings 10: JAMES ST & WILSON ST

10/7/2011

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.32			0.25	0.10	

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 16 (19%), Referenced to phase 2:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 2.0

Intersection LOS: A

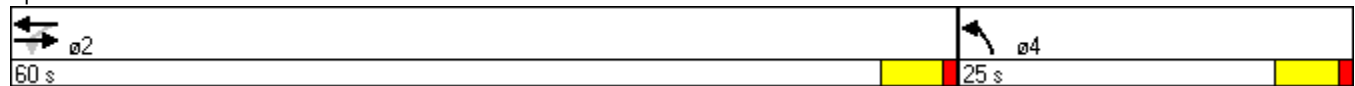
Intersection Capacity Utilization 47.1%

ICU Level of Service A

Analysis Period (min) 15



















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

## Splits and Phases: 10: JAMES ST & WILSON ST















Lanes, Volumes, Timings  
11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	510	176	185	378	34	125	478	101	25	524	120
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00			1.00			0.99	
Frt		0.962			0.988			0.978			0.973	
Flt Protected	0.950			0.950				0.991			0.998	
Satd. Flow (prot)	1770	3373	0	1770	3488	0	0	3423	0	0	3403	0
Flt Permitted	0.950			0.950				0.627			0.909	
Satd. Flow (perm)	1754	3373	0	1755	3488	0	0	2162	0	0	3100	0
Satd. Flow (RTOR)		58			11			28			31	
Adj. Flow (vph)	259	554	191	201	411	37	136	520	110	27	570	130
Lane Group Flow (vph)	259	745	0	201	448	0	0	766	0	0	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turn Type	Prot			Prot			pm+pt			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.0		9.5	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	20.0	29.0	0.0	17.0	26.0	0.0	10.0	39.0	0.0	29.0	29.0	0.0
Total Split (%)	23.5%	34.1%	0.0%	20.0%	30.6%	0.0%	11.8%	45.9%	0.0%	34.1%	34.1%	0.0%
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effect Green (s)	16.7	28.0		13.9	25.3			34.6			34.6	
Actuated g/C Ratio	0.20	0.33		0.16	0.30			0.41			0.41	
v/c Ratio	0.75	0.65		0.70	0.43			0.85			0.57	
Control Delay	47.0	17.7		52.1	21.5			32.9			20.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	47.0	17.7		52.1	21.5			32.9			20.3	
LOS	D	B		D	C			C			C	
Approach Delay		25.3			31.0			32.9			20.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	77	74		76	42			121			96	
Queue Length 95th (ft)	#162	137		m117	m66			#194			133	
Internal Link Dist (ft)		1013			2168			100			108	
Turn Bay Length (ft)	160			125								
Base Capacity (vph)	364	1152		302	1044			932			1279	

# Lanes, Volumes, Timings 11: JAMES ST & TEALL AVE

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.65		0.67	0.43			0.82			0.57	

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 40 (47%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 83.3%

ICU Level of Service E








Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

## Splits and Phases: 11: JAMES ST & TEALL AVE


















 ø1	 ø2	 ø4
20 s	26 s	39 s
 ø5	 ø6	 ø7
17 s	29 s	10 s
		 ø8
		29 s



# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	574	62	14	470	0	42	0	77	329	72	85
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96		1.00			0.98			0.98	
Frt			0.850					0.913			0.976	
Flt Protected					0.999			0.983			0.967	
Satd. Flow (prot)	0	1863	1583	0	1861	0	0	1640	0	0	1732	0
Flt Permitted					0.982			0.849			0.729	
Satd. Flow (perm)	0	1863	1522	0	1829	0	0	1416	0	0	1299	0
Satd. Flow (RTOR)			63					79			13	
Adj. Flow (vph)	0	586	63	14	480	0	43	0	79	336	73	87
Lane Group Flow (vph)	0	586	63	0	494	0	0	122	0	0	496	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type			Perm	Perm			Perm			Perm		
Protected Phases		1 2 4			1 2 4			3			3	
Permitted Phases			1 2 4	1 2 4			3			3		
Detector Phase		1 2 4	1 2 4	1 2 4	1 2 4		3	3		3	3	
Switch Phase												
Minimum Initial (s)							8.0	8.0		8.0	8.0	
Minimum Split (s)							22.0	22.0		22.0	22.0	
Total Split (s)	0.0	56.5	56.5	56.5	56.5	0.0	28.5	28.5	0.0	28.5	28.5	0.0
Total Split (%)	0.0%	66.5%	66.5%	66.5%	66.5%	0.0%	33.5%	33.5%	0.0%	33.5%	33.5%	0.0%
Yellow Time (s)							3.5	3.5		3.5	3.5	
All-Red Time (s)							1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	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 Lost Time (s)	4.0	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag							Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode							None	None		None	None	
Act Effct Green (s)		52.0	52.0		52.0			24.0			24.0	
Actuated g/C Ratio		0.61	0.61		0.61			0.28			0.28	
v/c Ratio		0.51	0.07		0.44			0.27			1.32	
Control Delay		12.0	3.3		4.0			11.7			189.0	
Queue Delay		0.1	0.0		0.7			0.0			102.8	
Total Delay		12.1	3.3		4.7			11.7			291.9	
LOS		B	A		A			B			F	
Approach Delay		11.2			4.7			11.7			291.9	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		71	0		11			12			~234	
Queue Length 95th (ft)		m159	m5		42			39			#364	
Internal Link Dist (ft)		2168			128			159			62	
Turn Bay Length (ft)												

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant












10/7/2011

Lane Group	ø1	ø2	ø4
Lane Configurations			
Volume (vph)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Satd. Flow (RTOR)			
Adj. Flow (vph)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	10.0	5.0
Minimum Split (s)	9.5	22.0	9.5
Total Split (s)	12.0	33.0	11.5
Total Split (%)	14%	39%	14%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?			
Recall Mode	C-Max	Min	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			

# Lanes, Volumes, Timings

## 12: JAMES ST & Grant

10/7/2011

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1140	956		1119			457			376	
Starvation Cap Reductn		0	0		309			0			56	
Spillback Cap Reductn		53	0		0			2			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.54	0.07		0.61			0.27			1.55	

### Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 49 (58%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 88.5

Intersection LOS: F

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

### Splits and Phases: 12: JAMES ST & Grant

#12 #13	#12 #13	#12 #13	#12 #13
 	 	 	 
ø1	ø2	ø3	ø4
12 s	33 s	28.5 s	11.5 s

## Lanes, Volumes, Timings

### 12: JAMES ST & Grant

















10/7/2011

Lane Group	ø1	ø2	ø4
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

# Lanes, Volumes, Timings












## 13: James S & Walgreens

10/7/2011

												ø3
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER	
Lane Configurations												
Volume (vph)	91	109	780	452	386	10	38	32	12	0	0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.98			0.84		0.93					
Frt					0.850		0.928					
Flt Protected		0.950					0.977					
Satd. Flow (prot)	0	1770	1863	1863	1583	0	1689	0	0	0	0	
Flt Permitted		0.367					0.977					
Satd. Flow (perm)	0	671	1863	1863	1332	0	1565	0	0	0	0	
Satd. Flow (RTOR)					2		8					
Adj. Flow (vph)	93	111	796	461	394	10	39	33	12	0	0	
Lane Group Flow (vph)	0	204	796	461	404	0	84	0	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Right	Right	Left	Right	
Median Width(ft)			12	12			12			0		
Link Offset(ft)			0	0			0			0		
Crosswalk Width(ft)			16	16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15			9	9	15	9	9	15	9	
Turn Type	custom	custom			Perm							
Protected Phases		1	1 2 3	2			4					3
Permitted Phases	2 3	2 3			2							
Detector Phase	2 3	1	1 2 3	2	2		4					
Switch Phase												
Minimum Initial (s)		5.0		10.0	10.0		5.0					8.0
Minimum Split (s)		9.5		22.0	22.0		9.5					22.0
Total Split (s)	61.5	12.0	73.5	33.0	33.0	0.0	11.5	0.0	0.0	0.0	0.0	28.5
Total Split (%)	72.4%	14.1%	86.5%	38.8%	38.8%	0.0%	13.5%	0.0%	0.0%	0.0%	0.0%	34%
Yellow Time (s)		3.5		3.5	3.5		3.5					3.5
All-Red Time (s)		1.0		1.0	1.0		1.0					1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.0	4.0	4.0	4.0	
Lead/Lag		Lead		Lag	Lag		Lag					Lead
Lead-Lag Optimize?												
Recall Mode		C-Max		Min	Min		None					None
Act Effct Green (s)		64.5	69.0	28.5	28.5		7.0					
Actuated g/C Ratio		0.76	0.81	0.34	0.34		0.08					
v/c Ratio		0.34	0.53	0.74	0.90		0.58					
Control Delay		2.8	3.8	33.4	52.9		50.7					
Queue Delay		0.2	0.9	0.0	0.2		0.0					
Total Delay		3.0	4.7	33.4	53.1		50.7					
LOS		A	A	C	D		D					
Approach Delay			4.4	42.6			50.7					
Approach LOS			A	D			D					
Queue Length 50th (ft)		9	88	146	138		27					
Queue Length 95th (ft)		m11	m85	223	#256		#67					
Internal Link Dist (ft)			128	538			59			106		
Turn Bay Length (ft)		75			150							

# Lanes, Volumes, Timings 13: James S & Walgreens

10/7/2011

												
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL	SER	ø3
Base Capacity (vph)		606	1512	625	448		146					
Starvation Cap Reductn		88	422	0	0		0					
Spillback Cap Reductn		0	0	0	1		0					
Storage Cap Reductn		0	0	0	0		0					
Reduced v/c Ratio		0.39	0.73	0.74	0.90		0.58					

## Intersection Summary

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 49 (58%), Referenced to phase 1:EBWB, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 53.4%

ICU Level of Service A


Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

## Splits and Phases: 13: James S & Walgreens

#12 #13	#12 #13	#12 #13	#12 #13
  ø1	  ø2	  ø3	  ø4
12 s	33 s	28.5 s	11.5 s

## Arterial Level of Service

10/7/2011

### Arterial Level of Service: EB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
OSWEGO BLVD	III	30	5.0	6.7	11.7	0.03	9.9	F
STATE ST	III	30	14.3	21.6	35.9	0.10	10.2	E
TOWNSEND ST	III	30	19.7	4.6	24.3	0.15	21.8	C
MCBRIDE ST	III	30	12.3	2.2	14.5	0.09	21.6	C
CATHERINE ST	III	30	12.2	1.4	13.6	0.09	22.8	C
LODI ST	III	30	22.4	11.0	33.4	0.17	18.0	C
OAK ST	III	30	45.3	7.7	53.0	0.36	24.2	B
DEWITT ST	III	30	24.7	11.1	35.8	0.19	19.6	C
SEDGEWICK ST	III	30	8.0	3.5	11.5	0.05	16.1	D
WILSON ST	III	30	34.6	6.0	40.6	0.27	24.1	B
TEALL AVE	III	30	26.3	29.7	56.0	0.21	13.3	E
Shotwell	III	30	54.1	9.9	64.0	0.43	23.9	C
Total	III		278.9	115.4	394.3	2.13	19.4	C

### Arterial Level of Service: WB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
TEALL AVE	III	30	54.1	32.2	86.3	0.43	17.8	D
WILSON ST	III	30	26.3	4.0	30.3	0.21	24.6	B
SEDGEWICK ST	III	30	34.6	10.9	45.5	0.27	21.5	C
DEWITT ST	III	30	8.0	4.8	12.8	0.05	14.4	D
OAK ST	III	30	24.7	4.5	29.2	0.19	24.0	B
LODI ST	III	30	45.3	10.4	55.7	0.36	23.0	C
CATHERINE ST	III	30	22.4	7.5	29.9	0.17	20.2	C
MCBRIDE ST	III	30	12.2	7.3	19.5	0.09	15.9	D
TOWNSEND ST	III	30	12.3	8.0	20.3	0.09	15.4	D
STATE ST	III	30	19.7	16.1	35.8	0.15	14.8	D
OSWEGO BLVD	III	30	14.3	5.9	20.2	0.10	18.1	C
Total	III		273.9	111.6	385.5	2.10	19.6	C

### Network Totals

Number of Intersections	14
Total Delay (hr)	151
Stops (#)	11715
Average Speed (mph)	13
Total Travel Time (hr)	269
Distance Traveled (mi)	3537
Fuel Consumed (gal)	321
Fuel Economy (mpg)	11.0
Unserved Vehicles (#)	113
Vehicles in dilemma zone (#)	0
Performance Index	183.5



## Arterial Level of Service

10/7/2011

### Arterial Level of Service: EB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
OSWEGO BLVD	III	30	5.0	15.0	20.0	0.03	5.8	F
STATE ST	III	30	14.3	26.7	41.0	0.10	8.9	F
TOWNSEND ST	III	30	19.7	6.4	26.1	0.15	20.3	C
MCBRIDE ST	III	30	12.3	3.0	15.3	0.09	20.5	C
CATHERINE ST	III	30	12.2	3.5	15.7	0.09	19.8	C
LODI ST	III	30	22.4	17.3	39.7	0.17	15.2	D
OAK ST	III	30	45.3	13.6	58.9	0.36	21.8	C
DEWITT ST	III	30	24.7	4.2	28.9	0.19	24.3	B
SEDGEWICK ST	III	30	8.0	8.3	16.3	0.05	11.3	E
WILSON ST	III	30	34.6	10.6	45.2	0.27	21.7	C
TEALL AVE	III	30	26.3	41.3	67.6	0.21	11.0	E
Shotwell	III	30	54.1	9.5	63.6	0.43	24.1	B
Total	III		278.9	159.4	438.3	2.13	17.5	D

### Arterial Level of Service: WB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
TEALL AVE	III	30	54.1	37.0	91.1	0.43	16.8	D
WILSON ST	III	30	26.3	3.2	29.5	0.21	25.3	B
SEDGEWICK ST	III	30	34.6	5.9	40.5	0.27	24.2	B
DEWITT ST	III	30	8.0	7.3	15.3	0.05	12.1	E
OAK ST	III	30	24.7	11.2	35.9	0.19	19.5	C
LODI ST	III	30	45.3	23.2	68.5	0.36	18.7	C
CATHERINE ST	III	30	22.4	7.3	29.7	0.17	20.3	C
MCBRIDE ST	III	30	12.2	5.3	17.5	0.09	17.7	D
TOWNSEND ST	III	30	12.3	6.5	18.8	0.09	16.6	D
STATE ST	III	30	19.7	27.9	47.6	0.15	11.1	E
OSWEGO BLVD	III	30	14.3	35.5	49.8	0.10	7.4	F
Total	III		273.9	170.3	444.2	2.10	17.0	D

## Measures of Effectiveness

10/7/2011

### Network Totals

Number of Intersections	14
Total Delay (hr)	275
Stops (#)	16373
Average Speed (mph)	10
Total Travel Time (hr)	412
Distance Traveled (mi)	4083
Fuel Consumed (gal)	460
Fuel Economy (mpg)	8.9
Unserved Vehicles (#)	326
Vehicles in dilemma zone (#)	0
Performance Index	320.9

## Arterial Level of Service

10/7/2011

### Arterial Level of Service: EB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
OSWEGO BLVD	III	30	6.7	6.7	13.4	0.04	11.7	E
STATE ST	III	30	14.3	21.5	35.8	0.10	10.2	E
TOWNSEND ST	III	30	19.7	17.5	37.2	0.15	14.2	D
MCBRIDE ST	III	30	12.3	2.9	15.2	0.09	20.6	C
CATHERINE ST	III	30	12.2	4.2	16.4	0.09	18.9	C
LODI ST	III	30	22.4	5.1	27.5	0.17	21.9	C
OAK ST	III	30	45.3	12.0	57.3	0.36	22.4	C
DEWITT ST	III	30	24.7	4.6	29.3	0.19	23.9	C
SEDGEWICK ST	III	30	8.0	8.5	16.5	0.05	11.2	E
WILSON ST	III	30	34.6	3.9	38.5	0.27	25.4	B
TEALL AVE	III	30	26.3	16.5	42.8	0.21	17.4	D
Shotwell	III	30	54.1	17.9	72.0	0.43	21.3	C
Total	III		280.6	121.3	401.9	2.14	19.2	C

### Arterial Level of Service: WB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
TEALL AVE	III	30	54.1	15.2	69.3	0.43	22.1	C
WILSON ST	III	30	26.3	4.3	30.6	0.21	24.4	B
SEDGEWICK ST	III	30	34.6	6.8	41.4	0.27	23.7	C
DEWITT ST	III	30	8.0	10.1	18.1	0.05	10.2	E
OAK ST	III	30	24.7	13.5	38.2	0.19	18.3	C
LODI ST	III	30	45.3	4.9	50.2	0.36	25.6	B
CATHERINE ST	III	30	22.4	7.7	30.1	0.17	20.0	C
MCBRIDE ST	III	30	12.2	5.3	17.5	0.09	17.7	D
TOWNSEND ST	III	30	12.3	13.3	25.6	0.09	12.2	E
STATE ST	III	30	19.7	10.4	30.1	0.15	17.6	D
OSWEGO BLVD	III	30	14.3	3.8	18.1	0.10	20.2	C
Total	III		273.9	95.3	369.2	2.10	20.4	C

### Network Totals

Number of Intersections	14
Total Delay (hr)	111
Stops (#)	11690
Average Speed (mph)	15
Total Travel Time (hr)	229
Distance Traveled (mi)	3546
Fuel Consumed (gal)	292
Fuel Economy (mpg)	12.1
Unserved Vehicles (#)	25
Vehicles in dilemma zone (#)	0
Performance Index	143.8

## Arterial Level of Service

10/7/2011

### Arterial Level of Service: EB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
OSWEGO BLVD	III	30	6.6	27.9	34.5	0.04	4.4	F
STATE ST	III	30	14.3	21.6	35.9	0.10	10.2	E
TOWNSEND ST	III	30	19.7	16.0	35.7	0.15	14.8	D
MCBRIDE ST	III	30	12.3	4.2	16.5	0.09	19.0	C
CATHERINE ST	III	30	12.2	9.9	22.1	0.09	14.0	D
LODI ST	III	30	22.4	8.5	30.9	0.17	19.5	C
OAK ST	III	30	45.3	9.6	54.9	0.36	23.4	C
DEWITT ST	III	30	24.7	15.1	39.8	0.19	17.6	D
SEDGEWICK ST	III	30	8.0	5.4	13.4	0.05	13.8	E
WILSON ST	III	30	34.6	3.4	38.0	0.27	25.8	B
TEALL AVE	III	30	26.3	23.3	49.6	0.21	15.0	D
Shotwell	III	30	54.1	11.4	65.5	0.43	23.4	C
Total	III		280.5	156.3	436.8	2.14	17.6	D

### Arterial Level of Service: WB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
TEALL AVE	III	30	54.1	20.1	74.2	0.43	20.7	C
WILSON ST	III	30	26.3	2.1	28.4	0.21	26.2	B
SEDGEWICK ST	III	30	34.6	8.2	42.8	0.27	22.9	C
DEWITT ST	III	30	8.0	11.2	19.2	0.05	9.6	F
OAK ST	III	30	24.7	11.6	36.3	0.19	19.3	C
LODI ST	III	30	45.3	17.6	62.9	0.36	20.4	C
CATHERINE ST	III	30	22.4	18.1	40.5	0.17	14.9	D
MCBRIDE ST	III	30	12.2	11.7	23.9	0.09	13.0	E
TOWNSEND ST	III	30	12.3	19.6	31.9	0.09	9.8	F
STATE ST	III	30	19.7	25.1	44.8	0.15	11.8	E
OSWEGO BLVD	III	30	14.3	17.1	31.4	0.10	11.7	E
Total	III		273.9	162.4	436.3	2.10	17.3	D

### Network Totals

Number of Intersections	14
Total Delay (hr)	194
Stops (#)	15507
Average Speed (mph)	12
Total Travel Time (hr)	331
Distance Traveled (mi)	4090
Fuel Consumed (gal)	397
Fuel Economy (mpg)	10.3
Unserved Vehicles (#)	129
Vehicles in dilemma zone (#)	0
Performance Index	237.5

## Arterial Level of Service

10/7/2011

### Arterial Level of Service: EB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
OSWEGO BLVD	III	30	5.0	6.7	11.7	0.03	9.9	F
STATE ST	III	30	14.3	22.5	36.8	0.10	9.9	F
TOWNSEND ST	III	30	19.7	20.3	40.0	0.15	13.2	E
MCBRIDE ST	III	30	12.3	7.7	20.0	0.09	15.6	D
CATHERINE ST	III	30	12.2	1.8	14.0	0.09	22.2	C
LODI ST	III	30	22.4	7.1	29.5	0.17	20.4	C
OAK ST	III	30	45.3	7.8	53.1	0.36	24.2	B
DEWITT ST	III	30	24.7	5.1	29.8	0.19	23.5	C
SEDGEWICK ST	III	30	8.0	4.6	12.6	0.05	14.7	D
WILSON ST	III	30	34.6	1.2	35.8	0.27	27.4	B
TEALL AVE	III	30	26.3	23.7	50.0	0.21	14.9	D
Shotwell	III	30	54.1	28.8	82.9	0.43	18.5	C
Total	III		278.9	137.3	416.2	2.13	18.4	C

### Arterial Level of Service: WB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
TEALL AVE	III	30	54.1	13.4	67.5	0.43	22.7	C
WILSON ST	III	30	26.3	1.9	28.2	0.21	26.4	B
SEDGEWICK ST	III	30	34.6	5.3	39.9	0.27	24.6	B
DEWITT ST	III	30	8.0	3.4	11.4	0.05	16.2	D
OAK ST	III	30	24.7	9.2	33.9	0.19	20.7	C
LODI ST	III	30	45.3	7.3	52.6	0.36	24.4	B
CATHERINE ST	III	30	22.4	9.7	32.1	0.17	18.8	C
MCBRIDE ST	III	30	12.2	2.9	15.1	0.09	20.5	C
TOWNSEND ST	III	30	12.3	4.1	16.4	0.09	19.1	C
STATE ST	III	30	19.7	15.4	35.1	0.15	15.1	D
OSWEGO BLVD	III	30	14.3	2.1	16.4	0.10	22.3	C
Total	III		273.9	74.7	348.6	2.10	21.7	C

### Network Totals

Number of Intersections	14
Total Delay (hr)	96
Stops (#)	10505
Average Speed (mph)	17
Total Travel Time (hr)	214
Distance Traveled (mi)	3537
Fuel Consumed (gal)	274
Fuel Economy (mpg)	12.9
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	125.0



## Arterial Level of Service

10/7/2011

### Arterial Level of Service: EB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
OSWEGO BLVD	III	30	5.0	26.8	31.8	0.03	3.6	F
STATE ST	III	30	14.3	18.5	32.8	0.10	11.2	E
TOWNSEND ST	III	30	19.7	12.0	31.7	0.15	16.7	D
MCBRIDE ST	III	30	12.3	4.3	16.6	0.09	18.9	C
CATHERINE ST	III	30	12.2	14.8	27.0	0.09	11.5	E
LODI ST	III	30	22.4	11.1	33.5	0.17	18.0	D
OAK ST	III	30	45.3	4.1	49.4	0.36	26.0	B
DEWITT ST	III	30	24.7	4.6	29.3	0.19	23.9	C
SEDGEWICK ST	III	30	8.0	5.8	13.8	0.05	13.4	E
WILSON ST	III	30	34.6	2.0	36.6	0.27	26.8	B
TEALL AVE	III	30	26.3	17.7	44.0	0.21	16.9	D
Shotwell	III	30	54.1	12.0	66.1	0.43	23.2	C
Total	III		278.9	133.7	412.6	2.13	18.6	C

### Arterial Level of Service: WB JAMES ST

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
TEALL AVE	III	30	54.1	21.5	75.6	0.43	20.3	C
WILSON ST	III	30	26.3	0.8	27.1	0.21	27.5	B
SEDGEWICK ST	III	30	34.6	9.4	44.0	0.27	22.3	C
DEWITT ST	III	30	8.0	5.5	13.5	0.05	13.7	E
OAK ST	III	30	24.7	5.8	30.5	0.19	23.0	C
LODI ST	III	30	45.3	11.7	57.0	0.36	22.5	C
CATHERINE ST	III	30	22.4	13.2	35.6	0.17	16.9	D
MCBRIDE ST	III	30	12.2	11.1	23.3	0.09	13.3	E
TOWNSEND ST	III	30	12.3	6.8	19.1	0.09	16.4	D
STATE ST	III	30	19.7	21.1	40.8	0.15	13.0	E
OSWEGO BLVD	III	30	14.3	26.1	40.4	0.10	9.1	F
Total	III		273.9	133.0	406.9	2.10	18.6	C

### Zone 1 Totals

Number of Intersections	13
Total Delay (hr)	171
Stops (#)	14493
Average Speed (mph)	13
Total Travel Time (hr)	305
Distance Traveled (mi)	4022
Fuel Consumed (gal)	371
Fuel Economy (mpg)	10.8
Unserved Vehicles (#)	118
Vehicles in dilemma zone (#)	0
Performance Index	211.4

## **APPENDIX E: SAMPLE ACCESS MANAGEMENT ORDINANCE**

# **Model Access Management Ordinance**

**DRAFT**  
**June, 1998**

## **Acknowledgments**

This Model Access Management Ordinance was made possible, in part, by a grant award from the New York Planning Federation to the towns of Canandaigua and Farmington, under the Rural New York Grant Program. It evolved from access management ordinances that were developed by and for the Towns of Canandaigua and Farmington, through a cooperative “team” process involving local planning and economic development officials and staff from the New York State Department of Transportation’s offices in Rochester (Region 4) and Albany --as part of the Department’s Rt. 332 corridor improvement project and Arterial Access Management initiative.

Realistically, this Ordinance is the product of many contributors and we’d particularly like to thank Pat Reece, Chair of the Town Planning Board in Canandaigua, Dick Twardokus and Rick Burgwardt of the NYSDOT design team, Steve Ferranti of SRF & Associates, Don Nims of Clark Patterson Associates, Greg Barbour of the MRB Group, and Brad Oswald and Lynne Webb of the NYSDOT Corridor Management Group for their insight into and many comments on the evolving Model. We would also like to thank Harry Willis of the New York State Department of State, Diane Carlton of the Otsego County Planning Department and Steve Somlo of the New York State Department of Transportation’s Office of Legal Affairs for their review and thoughtful critiques. It has also benefited from questions and comments received during reviews of early drafts at the Genesee Transportation Council’s Access Management Seminar, the 1997 New York State Association of Towns’ annual meeting, and the 1997 New York Planning Federation’s Annual Institute.

Although many individuals obviously helped shape this Model its final form reflects our determination as to the better path to follow given differing views and objectives. Even reasonable people can disagree ... so the Model must be evaluated carefully and adapted to the objectives and characteristics of each community. If there are questions regarding how this might be accomplished, or comments as to how the Model might be refined, please don’t hesitate to contact us.

Steve Munson  
New York State Department of Transportation  
Mobility Management Section  
(518) 457-3429

Ron Brand,  
Director of Development  
Town of Farmington  
(315) 986-8189

Aaron Gagne  
Deputy Director of Economic Development, Livingston County  
(716) 243-7126

Ken Carlson  
New York State Department of Transportation  
Corridor Management Group  
(518) 457-3429

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## **Introduction**

A high quality road system is one of a handful of major assets which determine the vitality and character of a municipality. And, as with other assets, planning, management and protection are necessary to ensure that this system is used to its best overall local advantage. Many local governments have, however, generally ceded these responsibilities to the State; particularly for the most heavily used and developed roads --intervening only when traffic problems generate substantial popular pressure for resolution or when the State proposes a project. Yet it is clear that local land-use planning, management and control can significantly reduce the transportation problems resulting from development, while promoting growth that is consistent with overall municipal objectives.

The Model Access Management Ordinance provided in this report is based on the premise that “local land-use management can better balance full development and the safe and efficient movement of traffic”. It addresses those elements of development which are primarily culpable in the deterioration of local transportation systems. In determining how to apply this Model six general characteristics should be recognized.

First, it is planning oriented. It generally encourages and authorizes a Planning Board to require a number of actions by developers. The net result of this is to increase pressure to plan and evaluate development proposals on an integrated rather than single-site basis.

Second, it is neither proscriptive nor detailed. Specifications for many of the elements addressed in this Model vary significantly depending on the functions of the roadways it covers, the specific type of development proposed and the characteristics, needs and objectives of a community. In such cases the Model generally establishes a “goal” and defines how it is to be achieved.

Third, it is oriented towards environments which are lightly to moderately development. It can be applied in heavily developed areas but must be adapted to the specific circumstances -- particularly as regards spacing standards and methods of implementation.

Fourth, it is generally organized to be consistent with the structure of local zoning, subdivision and site-plan approval codes.

Fifth, it addresses the basic elements of access management. Other elements which are frequently included in local zoning, subdivision, and site-plan approval ordinances should be reviewed to ensure consistency with the Model Ordinance, these include:

frontage requirements --must allow the location of driveways within the minimum driveway spacing standards, else the minimum standards may not be enforceable.

setback requirements -- reasonable setbacks provide for the development of pedestrian and transit facilities as well as potential widening of the road.

lot depths requirements -- consistent lot depths in commercial areas provide an opportunity to develop rear service or access roads. These can be important in providing access between retail or commercial facilities as full build-out occurs.

buffer requirements -- many local ordinances require the construction of “impenetrable” buffer areas between retail and commercial facilities. These need to be reviewed and, if

necessary, revised to reflect the cross-access driveway and inter-connected parking requirements of the Model Ordinance.

sign and lighting standards -- Lighting and signs are necessary to provide drivers with advance warning of businesses and a clear view of how they are to enter, exit or move between parking areas. Inadequate sign regulations can create visual clutter that is both unattractive and distracting --creating unsafe driving conditions.

Finally, it is an extension of the matters addressed by municipal zoning and, thus, can be adapted and applied to its greatest effect only in communities which have zoning.

It should also be noted that in many areas access management plans have included elements that are specifically intended to enhance the aesthetic development of commercial areas, and specifically pedestrian facilities (sidewalks, rest areas, seating, and the like), landscaping and architectural standards.

This is a only a model and it must be adapted to meet the needs and objectives of a community. Regardless of the specific application (e.g. community-wide or within an overlay zone) or process followed, a detailed review of existing zoning, subdivision, and site-plan approval ordinances must be conducted. This review has 3 general objectives: (i) to assist in determining the best method of implementation; (ii) to eliminate conflicts and ensure conformity between the language and requirements of the Model and those contained in existing ordinances; and (iii) to eliminate redundancy --and thereby reduce complexity and the effort and costs potentially associated with adaptation.

Finally, additional information and discussion of a number of issues that might be used to expand or adapt the Model Ordinance are provided, *in italicized print*, in the appropriate sections.



## **Model Access Management Ordinance**

Local Law Number XX of 199X  
TOWN OF XX Access Management Law

### **Section I. Purpose**

The purpose of this Ordinance is to provide for safe and efficient travel along public roads, prevent the adverse social and aesthetic impacts associated with strip road frontage development, and promote development which harmonizes with the objectives of the TOWN OF XX by providing clear and consistent access management standards to the development of properties abutting public roads.

*(Cite the section of State Law providing implementation authorization.)*

### **Section II. Applicability**

This Ordinance shall apply to all properties abutting public roads or with direct access or common connections to public roads within the boundaries of the INSERT SPECIAL DISTRICT NAME created by LOCAL LAW OR RESOLUTION --TITLE, NUMBER AND DATE.

*A variety of approaches might be used to implement or adapt this Model Ordinance. Ideally, access management requirements would flow from a Comprehensive Plan which addresses transportation needs and land-use planning and management on a broad basis. In practice, however, the majority of municipalities addressing access management have focused on specific corridors and/or discrete areas and the imposition of zoning, subdivision and site-plan requirements within an overlay zone, as was the case in the draft ordinance prepared for the Town of Farmington. This is anticipated to be the most common approach and so the Model has followed it. Nonetheless, it has drawbacks, specifically in that it can create undesirable pressure outside of the overlay zone and fails to address overall transportation needs and objectives --which are best considered at a “systems” level.*

*An alternative approach is to incorporate access management within existing zoning, subdivision and site-plan approval requirements, as was done for the draft code prepared for the Town of Canandaigua. In this case, specific elements from this Model were rolled into the zoning provisions for retail, commercial and industrial districts; the subdivision requirements were placed into the subdivision chapter and applied to all non-minor subdivisions; and, general access requirements were incorporated within existing subsections of the zoning code which addressed related issues including parking requirements, street layout and the like.*

*Other types of application are also possible. The Town of Penfield, for example, has applied access management on a property-by-property basis within a relatively small overlay zone. Alternatively, it appears that the Town of Pittsford will incorporate access management as “design guidelines” applicable to the short commercial stretch of Monroe Ave.*

### Section III. Conformance

The location and design of driveways and other site layout, parking and access management conditions shall conform to all Federal, State and local requirements, including and not limited to those established in this Ordinance. Further, the requirements of this Ordinance are not to be substituted for the zoning, subdivision and site plan approval provisions provided in CHAPTERS XX, XX AND XX OF THE TOWN OF XX but are to be superimposed over such provisions and should be considered as additional requirements.

### Section IV. Definitions

*The definitions contained in this Model Ordinance do not include those that are generally already included in Municipal codes. They must be compared with the definitions within municipal codes and any differences need to be reconciled.*

**Access** - A way or means of approach to provide vehicular or pedestrian entrance or exit to a property.

**Access Connection** - Any driveway, street, turnout or other means of providing for the movement of vehicles to or from the public road system or between abutting sites.

**Access Management** - The process of providing and managing reasonable access to land development while preserving the flow of traffic in terms of safety, capacity, and speed.

**Corner Clearance** - The distance from an intersection of a public or private road to the nearest access connection, measured from the closest edge of the driveway pavement to the closest edge of the road pavement.

**Cross Access** - A service road or driveway providing vehicular access between two or more contiguous sites so the driver need not enter the public road system.

**Driveway** - Any entrance or exit used by vehicular traffic to or from land or buildings abutting a road.

**Driveway, Shared** - A driveway connecting two or more contiguous properties to the public road system.

**Functional Area (Intersection)** - The area beyond the physical intersection of two roads that comprises decision and maneuver distance plus any required vehicle storage length.

**Functional Classification** - A system used to group public roads into classes according to their purpose in moving vehicles and providing access to abutting properties.

**Nonconforming Access** - Features of the access system of a property that existed prior to the effective date of this Ordinance and that do not conform with the requirements of this Ordinance.

**Peak Hour Trips (PHT)** - A weighted average vehicle trip generation rate during the hour of highest volume of traffic entering and exiting the site in the morning (a.m.) or the afternoon (p.m.).

Reasonable Access: The minimum number of access connections, direct or indirect, necessary to provide safe access to and from a public road, as consistent with the purpose and intent of this Ordinance and any other applicable plans and policies of the TOWN.

Restrictive Medians - A physical barrier in the roadway that separates traffic traveling in the opposite directions, such as a concrete barrier or landscaped island.

Road - A way for vehicular traffic, whether designated as a “street”, “highway”, “thoroughfare”, “parkway”, “through-way”, “avenue”, “boulevard”, “lane”, “cul-de-sac”, “place”, or otherwise designated, and includes the entire area within the right-of-way.

Road, Arterial - Roads serving comparatively large volumes of high speed (45 miles per hour or greater), long-distance or through traffic and which also provide access to abutting properties.

Road, Collector - Roads which provide access to abutting properties and which link development roads, collector roads, or other local roads to major traffic roads.

Roads, Development - Roads which are specifically constructed or intended to provide access to abutting properties for residential purposes or other high density uses as determined by the underlying zoning.

Road, Service (also Access Road) - A public or private road, auxiliary to and normally located parallel to a controlled access facility, that maintains local road continuity and provides access to properties adjacent to the controlled access facility.

Temporary Access - Provision of direct access to a road until that time when adjacent properties develop, in accordance with a joint access agreement or frontage road plan.

## Section V. Standards and Requirements

*One of the most important objectives of access management is reducing conflicts, particularly along the most heavily traveled roadways. The best methods of achieving a reduction in conflicts is by reducing the number of conflict points and separating through from local traffic. The State accomplishes this by purchasing access rights along higher functional class facilities (e.g. the interstate highways).*

*Municipal governments can bring land-use development and transportation into balance, and also reduce conflict points, through appropriate limitations to the number of driveways to individual properties and driveway spacing requirements. Conflicts can be further reduced along the most heavily traveled roads by ensuring that access is provided to the lowest functional class road serving the proposed development as well as establishing provisions for vehicles to move between parking areas to access abutting properties --rather than along the road.*

A. Access Requirements

1. General

- a. The site layout, location and design of driveways, parking, and other access management requirements should be based on full permissible development of a property.
- b. Driveways should be limited to one per property. More than one driveway may be permitted if:
  - i. the additional driveway(s) does not degrade traffic operations and safety on State or local roads; and
  - ii. the additional driveway(s) will improve the safe and efficient movement of traffic between the property and the road.
- c. Driveways to properties with frontage on two or more roads shall be provided to the road with the lowest functional classification serving the proposed use of the property.
- d. Properties with frontage on two or more roads do not have the right to driveways to all roads.
- e. Driveways may be required to be located so as to provide shared driveways and/or cross access driveways with an abutting property or properties.
  - i. Shared driveways and/or cross access driveways shall be of sufficient width (minimum 20 feet, 6.0 meters) to accommodate two way travel for automobiles and service and loading vehicles. Wider driveways may be required to serve traffic to major generators and/or large vehicles.
  - ii. Shared driveways, cross access driveways, interconnected parking, and private roads constructed to provide access to properties internal to a subdivision shall be recorded as an easement and shall constitute a covenant running with the land. Operating and maintenance agreements for these facilities shall be recorded with the deed.

2. Driveway Spacing Standards

- a. Driveway spacing standards shall apply to driveways located on the same side of a road.

- b. Driveway spacing is to be measured along the road from the closest edge or curbline of the driveway pavement to the closest edge or curbline of the next driveway.
- c. Driveways shall be located so as to meet or exceed the driveway spacing standards shown in Table 1.

<b>Table 1: Minimum Driveway Spacing Standards</b>			
	<u>Development Size in Peak Hour Trips, PHT</u>		
<u>Road Classification</u>	<u>Small 0-150 PHT</u>	<u>Moderate 151-300 PHT</u>	<u>Large &gt;300 PHT</u>
Arterial	330 feet	440 feet	550 feet
Collector	220 feet	330 feet	440 feet
Access or Development	60 percent of the minimum frontage requirement		

- i. PHT, Peak Hour Trips, will be determined through application of the most current Institute of Transportation Engineers Trip Generation methods and statistics. In general, the determination of Peak Hour Trips is obtained by multiplying the average vehicle trip end rate for the proposed development during the p.m. peak hour of the proposed development or the p.m. peak hour of adjacent road traffic, whichever is greater, times the appropriate multiplier for the development as determined by the type and scale of development. Another methodology or other statistics for determination of Peak Hour Trips may be used with permission from the TOWN Planning Board,.
- ii. PHT, Peak Hour Trips, should be based on full build-out of the property.
- iii. The larger of the minimum driveway spacing standards for the proposed development or for existing developments at abutting properties will apply. Driveways for in-fill development must meet the driveway spacing standards to abutting properties on both sides.

*Driving spacing is one of the fundamental elements of access management. There are four factors which determine generally appropriate driveway spacing: the functional class of the road, traffic speed and volume, and trip generation by the proposed development. Application of all four factors results in a highly complex system of driveway spacing and most states have based driveway spacing standards on speed or a simple combination of speed and functional class (the latter include Florida and Oregon), as shown in Table 2.*

*Although the standards provided in other states may be simpler to apply than the standards proposed in this Ordinance they do not discriminate between small and large traffic generators and, thus, may penalize small developers or shift land-use “demand” away from areas that are targeted for development. Speed is, nonetheless, a principal determinant of driveway spacing and the standards provided elsewhere are alternatives to the system provided in this Model. Those used in Colorado and Iowa are based on stopping sight distance and provide a particularly good alternative.*

<b>Table 2: Comparison of Driveway Spacing Recommendations</b>					
Summary of Access Spacing for Various Technical Criteria, in feet (1)					
Criteria /// Speed (MPH)	30	35	40	45	50
Stopping Sight Distance	200	250	325	400	475
Sight Distance, Turning	375		460	575	700
Sight Distance, Crossing	290	340	390	440	480
Min. Right Turn Conflict Overlap	100	150	200	300	400
Maximize Egress Capacity	320	450	620	860	1,125
Existing, Proposed or Recommended Driveway Spacing Standards (feet)					
State /// Speed (MPH)	30	35	40	45	50
New Jersey	125	150	185	230	275
South Carolina	100	150	200	250	300
Colorado	200	250	325	400	475
Iowa	200	250	325	400	475
Florida	245	245	440	440	660
Oregon	Regional Facilities: Urban 300, Rural 500 District Facilities: Urban 150, Rural 300				

Source: "Driveway and Intersection Spacing" Transportation Research Board Circular #456, March 1996, TRB/NRC.

*In order to accommodate safe and efficient movement of traffic in balance with the rights of developers this Model Ordinance proposes minimum spacing standards based on the functional class of the road and the size of a proposed development in terms of peak hour trip generation. Larger minimum spacings are provided for higher functional class roads --which have been constructed principally to serve through traffic and are intended to function at higher speeds. Larger spacings are, similarly, required for larger developments --and these are likely to be capable of absorbing large frontage requirements. Conversely, lower minimums have been proposed for lower functional class roads --which are designed principally to accommodate development and often function at lower speeds. Similarly, smaller standards have been set for smaller developments, which are often incapable of absorbing the cost of large frontages. (At the same time, developments which require a small lot but generate a large volume of traffic may be accommodated by combined development or through shared driveways or cross access systems.) To make this type of structure work planners must:*

- \* ensure that the spacings can be accommodated within existing or proposed frontage requirements along each functional class of road, and*
- \* require developers to evaluate how their driveway location will affect opportunities to develop upstream and downstream properties.*

*Desirably, minimum frontage requirements (established only through zoning) would meet or exceed the lowest minimum driveway spacing requirement, else in areas that are fully developed the minimum spacing standard might well be unenforceable. In practice, properties in areas that are lightly developed or undeveloped generally have relatively large frontages and are capable of meeting minimum spacing requirements; or, as required in Section V. E., must have an access plan that meets the requirements of the Model Ordinance before a subdivision is approved.*

*The driveway spacing standards proposed in the Ordinance may be difficult to apply in areas that are heavily developed as lot frontage and existing driveway spacing are generally less than the standards proposed in this Model. Where the spacing of existing driveways is below the proposed minimums, two general approaches are possible:*

- \* spacing standards can be maintained at relatively high levels and requirements for retrofit can be applied to developed properties,*
- \* standards can be based on obtaining the maximum available spacing between existing driveways at developed properties and new driveways at infill properties.*

*As a general rule, however, redevelopment provides the best opportunity to improve access management, generally, in highly developed areas. Those localities addressing access management in highly developed areas generally establish a plan which identifies desirable access improvements, and then links implementation of the plan to specific permit actions --such as may be required for redevelopment or a change or upgrade of use at a site.*

### 3. Corner Clearance

- a. Corner clearance is to be measured along the road from the closest edge or curbline of the driveway pavement to the closest edge or curbline of the road pavement.

Where road widening is planned or anticipated corner clearance should be increased to provide for the width of the additional lane or lanes.

- b. Driveways for corner properties shall meet or exceed the minimum corner clearance requirements, as specified in Table 3:

*Corner properties present special problems because they are extremely attractive to high volume peak-hour traffic businesses (e.g. gas stations, mini-marts and fast food franchises) whose designs often create conflict areas that overlap with the conflict area of the intersection. The standards proposed in the Model Ordinance are consistent with those enacted in other states. In practice, however, traffic safety alone would dictate larger spacing. In evaluating site development plans for corner properties Planners should be guided by the following principles:*

- \* driveways should be located outside the functional area of the intersection or, if this is not possible, driveways should be placed as far as possible from the intersection.*

**Table 3: Minimum Corner Clearance Requirements**

Type of Driveway, and driveway movements	Partial access: right turns in and/or out only	Full access: all directional movements
Minimum Clearance	110 feet <sup>9</sup>	220 feet

- \* *driveways which allow left turns in and out should not be allowed where left-turn vehicles must cross three or more lanes or two lanes and a center-left-turn-lane.*
- \* *cross access should be available to abutting properties.*

#### 4. Driveway Location

- |    |  |
|----|--|
| a. | Driveway location will be based on a site plan which has been approved by the TOWN Planning Board in consultation with the TOWN Engineer and/or the TOWN Highway Superintendent.   |
| b. | For the purpose of driveway locations, median openings shall be treated as intersections and driveways to properties opposing a median opening shall be located so as to exceed the minimum corner clearance standards. This requirement shall be waived where the median opening is specifically constructed or reconstructed to provide vehicular access to such properties. |
- c. Driveways shall be located so as to meet or exceed the minimum driveway spacing standards and the minimum corner clearance standards.
  - d. The TOWN Planning Board may allow the location of driveways at less than the minimum driveway spacing standards or corner clearance standards, if:
    - i. a dual-driveway system, cross-access driveway system or shared driveway is proposed and this improves the safe and efficient movement of traffic between the property and the road; or,
    - ii. a driveway or driveways could be located so as to meet the minimum driveway spacing standards and corner clearance standards, but the characteristics of the property or the physical or operational characteristics of the road are such that a change of location will improve the safe and efficient movement of traffic between the property and the road; or,
    - iii. conformance with the driveway spacing standards or corner clearance standards imposes undue and exceptional hardship on the property owner.

*The safe and efficient movement of traffic along a road and between the road and a development are the dominant considerations in driveway location. Minimum driveway spacing standards are designed to achieve a general reduction in the number and density of driveways along a road. In practice, however, the location of a driveway or driveways at a specific site is affected by many other factors, and these may dictate locations which are less than or exceed the proposed minimum spacing. These might include factors that make it undesirable to place a driveway so as to meet the spacing standards, including sight distance, road grade and geometry, and environmental or historical amenities. They might also include alternative access designs which contribute to the safe and*



*efficient movement of traffic above and beyond what might be achieved by spacing alone, including development of a dual-drive system or locating a driveway so as to enable the interconnection of abutting or rear properties.*

- e. For properties unable to meet the minimum driveway spacing standards or corner clearance standards, a temporary driveway may be granted.

*The granting of a temporary driveway would normally be conditioned on obtaining access to a planned access road or through a shared driveway, cross-access driveway or unified circulation system with an abutting property, in the future. Specific conditions for closure of the temporary driveway should be attached to the site plan approval, including a target date.*

- f. For properties unable to meet the minimum corner clearance requirements, driveways shall be located as far as practicable from the intersection. In such cases, driveway movements may be restricted and only one driveway will be permitted along the road frontage not meeting the minimum corner clearance requirement.

## 5. 5. Driveway Design

- a. Driveways shall be designed so as to provide for the safe and efficient movement of traffic between the roadway and the site, and to eliminate the potential for the queuing of vehicles along the roadway due to congestion in or at the driveway.
- b. Vehicle circulation systems on the site shall be designed so as to provide for the safe and efficient movement of traffic between the driveway and the site.
- c. Driveway width, radii, flare, throat length, internal circulation systems, and other design elements for driveways to developments generating more than 150 peak hour trips shall be based upon traffic, engineering and design data provided by a traffic engineer/consultant who is recognized and accepted by the TOWN Planning Board. In the event that a traffic engineer/consultant is not provided the TOWN shall have the right to retain such traffic engineer/consultant at the cost of the applicant.

*Inadequate driveway design is commonly implicated in traffic safety problems, often manifested by the development of queues along the road behind a driveway. Appropriate driveway designs vary substantially, however, depending on the scale of development, the volume and type of vehicles using the driveway, site and road conditions, and other factors. The Model Ordinance has opted for a simple approach by providing an objective, defining responsibility, and stating how the appropriate design is to be determined.*

*More specific approaches are possible. The Florida Department of Transportation Standard Index's design recommendations, for example, shown in Table 4, provide guidelines for driveway width, flare, radii, angle, and divisional islands that can applied to a broad range of situations and are relatively easy to incorporate to an access management ordinance. Virgil Stover has provided similar guidance for connection depths, throat length, as shown in Table 5. (Additional assistance in establishing*

appropriate driveway designs can also generally be provided by the County Highway Department and the Traffic and Safety Division of the New York State Department of Transportation.)

<b>Table 4: Suggested Access Connection Design</b> <b>FLADOT, Standard Index, Roadway and Design Standards, 1992</b>						
Trips per Day Trips per Hour	1 - 20 1 - 5		21- 600 6 - 60		601 - 4,000 61 - 400	
	Urban Section	Rural Section	Urban Section	Rural Section	Urban Section	Rural Section
Connection Width (two-way)	12' min 24' max	12' min 24' max	24' min 36' max	24' min 36' max	24' min 36' max	24' min 36' max
Flare (Curb Drop)	10' min	N/A	10' min	N/A	N/A	N/A
Returns (Radius)	N/A	15' min 25' std 50 max	small radii may be used	25' min 50 std 75 max	25' min 50' std 75' max	25' min 50' std 75' max
Angle of Drive			60° - 90°	60° - 90°	60° - 90°	60° - 90°
Divisional Island			4' - 22'	4' - 22'	4' - 22'	4' - 22'

<b>Table 5: Generally Adequate Connections Depths for Major Facilities</b>	
<b>Facility Type</b>	<b>Depth (feet)</b>
Regional Shopping Centers (malls)	250
Community Shopping Center	80
Small Strip Shopping Center	30
Regional Office Complex	250
Office Center	80
Smaller Commercial Developments	30

6. Driveway Movements
  - a. Driveway movements (cross, left turn in, left turn out, right turn in, and right turn out) may be restricted so as to provide for the safe and efficient movement of traffic between the road and the property.
  - b. Each driveway is to be designed and constructed to provide only the allowable movements and physically discourage prohibited movements.
7. Interconnection of Parking Areas

- a. Adjacent properties may be required to provide a cross access driveway and pedestrian access to facilitate circulation between sites.
- b. Shared parking is encouraged. Shared parking shall be permitted a reduction in required parking spaces if peak parking demand periods at interconnected developments do not occur at the same time.
- c. On site vehicular circulation systems shall be designed so as to facilitate use of cross access driveways.
- d. Cross access driveways shall be recorded as an easement and shall constitute a covenant running with the land. Operating and maintenance agreements for these facilities shall be recorded with the deed.

**B. Intersection Spacing**

1. Intersection spacing shall be measured from the centerline of the proposed connecting roadway to the centerline of the next connecting roadway or to the centerline of a signalized driveway, whichever is closest.
2. Minimum intersection spacing standards are established so as to provide for the efficient movement of traffic. Minimum intersection spacing shall be as set out in Table 6:

<b>Table 6: Minimum Intersection Spacing Standards</b>		
<b><u>Road Type</u></b>	<b><u>Signalized Intersection</u></b>	<b><u>Unsignalized Intersection</u></b>
Major Traffic Road	2,640 feet	1,320 feet
Collector Road	2,640 feet	1,320 feet
Development Road	1,320 feet	660 feet

*Large minimum intersection spacing standards contribute primarily to the efficient flow of traffic and reduce travel time. The minimums proposed in this Model Ordinance also reflects the need to provide safe and expeditious access to properties abutting public roads.*

3. Maximum intersection spacing standards are provided to ensure an orderly pattern of land-use development and the creation of a safe and efficient traffic circulation system serving development.
  - a) The establishment of intersections at locations at less than the maximum spacing standard shall be applied as an element of the site plan review process, or as part of the subdivision approval process, or prior to subdivision or site plan approval on the TOWN/COUNTY official map.
  - b) Maximum intersection spacing shall be as set out in Table 7:

<b>Table 7: Maximum Intersection Spacing Standards</b>	
<b><u>Road Type</u></b>	<b><u>Approximate Spacing</u></b>
Arterial	5,280 feet
Collector	2,640 feet
Access and Development	1,320 feet

*An efficient road network provides for both efficient traffic circulation and development. Ideally, the development of a local road network would evolve from the transportation element of a local Comprehensive Plan: which identifies the location of roads and intersections, the functional purpose of each road to be developed, and the circumstances or phasing under which such roads or intersections would actually be built. All too often, however, residential and commercial development preempts such plans and displaces the logical location of roads and intersections. The results of such displacement can be unfortunate and may include land-locked properties and overly expensive fixes to local traffic circulation and safety problems. Maximum intersection standards can be applied (even in the absence of a local transportation plan) to guide the development of a logical and efficient local road network.*

C. Medians and Median Openings

1. The type, location and length of medians on public roads shall be determined by the entity having jurisdiction over such roads. This determination will be made in consultation with the TOWN Planning Board and will be based on existing and projected traffic conditions; the type, size, and extent of development and traffic generated by development; traffic control needs; and other factors.
2. The minimum spacing between median openings shall be as shown in Table 8:

<b>Table 8: Minimum Median Opening Spacing Standards</b>		
<b><u>Type of Median opening // Posted Speed</u></b>	<b><u>Restrictive, does not allow all directional movements</u></b>	<b><u>Non-Restrictive, allows all directional movements</u></b>
Less than 45 MPH	660 feet	1,320 feet
45 MPH or more	1,320 feet	2,640 feet

3. Median openings intended to serve development must meet or exceed the minimum median opening spacing standards and must also be justified by a traffic impact analysis approved by the entity having jurisdiction over such roads, in consultation with the TOWN Planning Board, or the TOWN Planning Board where driveways are proposed to connect to TOWN roads. The cost for preparation of the traffic impact analysis and construction of the median opening or openings, including installation and operation of signals and other improvements where warranted, shall be born by the applicant.

D. Large Developments

1. Large Developments are developments which generate more than 300 Peak Hour Trips. For purposes of this subsection Large Developments shall include residential and mixed

used subdivisions whose combined trip generation from all properties exceeds 150 Peak Hour Trips and such other uses as will, in the opinion of a qualified transportation engineer, detrimentally impact the safe and efficient movement of traffic.

2. Large developments shall be required to mitigate the traffic impacts of their development. Required mitigation may include but is not limited to the construction of signals, turning lanes, medians, combined and shared driveways, and service or access roads as well as implementation of transit improvements and/or traffic demand management strategies.
3. Required mitigation will be established by the TOWN Planning Board through a SEQRA review and/or Transportation Impact Study (TIS) as determined by the TOWN Planning Board.
4. It shall be the developer's responsibility to provide the SEQRA review or Transportation Impact Study, as directed by the Town Planning Board.
5. It shall be the developer's responsibility to provide the required mitigation.
6. Phased mitigation may be allowed where phased development is proposed.

*Individual small- to moderate-sized developments seldom generate traffic impacts which warrant immediate mitigation. Over time, however, the cumulative impacts of such developments place tremendous stress on the transportation environment, and often inhibit solutions to relieve this stress. By-and-large, this Model Ordinance addresses cumulative development.*

*Large developments, however, require specific and individual attention because their traffic demands, alone, may actually exceed the capacity of some road local road systems but often reduce the level of service --even on major roads. The Model Ordinance simply reinforces existing practices in many municipalities by requiring that such developments evaluate and mitigate any impacts that they may cause.*

#### E. Subdivisions

1. Planned access shall be provided for properties which are the result of subdivisions occurring after the effective date of this Ordinance.
2. Planned access shall address the provisions of this Ordinance, other State and Local requirements, and the following:
  - i. Properties which are the result of a subdivision do not have the right of individual and exclusive access to State and local roads. The number of driveways or other connections shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for the frontage.
  - ii. Access shall be provided to the road with the lowest functional classification serving the proposed development.

- iii. Access should be internalized. Access to properties within a subdivision should be obtained from an access road or interior road.
  - iv. If the property which is proposed to be subdivided has frontage on two or more roads, internal properties should share access to such roads.
  - v. The access system for the proposed subdivision should be coordinated with existing, proposed and planned streets outside the subdivision.
3. Shared driveways, cross access driveways, interconnected parking, and private roads constructed to provide access to properties internal to a subdivision shall be recorded as an easement and shall constitute a covenant running with the land. Operating and maintenance agreements for these facilities should be recorded with the deed.

*In lightly to moderately developed areas property sizes are likely to be large and, hence, property owners may be attracted to subdivide their properties in order to maximize real estate income. Planned access as a requirement for subdivision approval is one of the best methods of reducing the impacts of subdivision traffic on the local road system while ensuring orderly development. Three general principles should guide the development of subdivision access plans:*

- \* *reduce the number of direct connections to higher functional class roads (perhaps collectors but certainly arterials) by providing internal roads and requiring driveways to these roads;*
- \* *where potential subdivisions abut 2 or more roads, distribute traffic by requiring connections to all roads and developing a circulation system that provide all properties with reasonable access to such roads; and,*
- \* *where potential subdivisions abut other undeveloped properties provide easements linking the internal circulation system to the abutting property. This allows for the connection of "future" roads (or parking areas).*

#### F. Changes in Access

- 1. Conditional Requirements. For developments taking place after the effective date of this Ordinance:
  - a. The TOWN Planning Board may establish provisions for and require future alteration of the property layout, the location and design of driveways, parking, and other access features based on phased development, additional development or a change in use of a property, or development of or a change in use at an abutting property.
  - b. On completion of a side, access or service road abutting a property with a driveway connection to a Major Traffic Road, the TOWN Planning Board may

require a driveway or driveways to the side, access or service road and closure of the driveway connection to the Major Traffic Road.

The TOWN Planning Board may waive this requirement if:

- i. the property shares a driveway or dual-driveway system to the Major Traffic Road with an adjacent property or properties; and/or
  - ii. driveway movements from the driveway to the Major Traffic Road are restricted or the TOWN Planning Board determines that road improvements are warranted and the property owner agrees to construct such improvements.
- c. For any change or upgrade of use of a property which requires a TOWN permit or approval and increases Peak Hour Trips, the TOWN Planning Board may:
- i. require the closure and relocation or consolidation of driveways so as to meet the minimum driveway spacing standard for the new level of Peak Hour Trips;
  - ii. require shared driveways and cross-access driveways with abutting properties; and,
  - iii. impose property-layout and parking requirements which allow for the circulation of traffic between abutting properties.

*The Model Ordinance contains requirements that may not be immediately necessary but will be desirable and may be necessary once development approaches full build-out. The short-term costs of such requirements may be difficult to justify in respect to immediate benefits and may actually inhibit development. To get around such problems the Model Ordinance enables local governments to incorporate provisional requirements, generally to the site-plan approval. These changes would then be implemented once certain threshold conditions occur; for example, once traffic volumes reach a certain level, or development occurs at an abutting site, or a rear access or service road is constructed.*

## 2. Non-Conforming Access

- a. When a property owner of a property with an existing, non-conforming driveway or driveways, as of the effective date of this Ordinance, applies for a permit to upgrade or change the use of the property, the TOWN Planning Board will determine whether it is necessary and appropriate to retrofit the existing driveway or driveways.
- b. The property owner may be required to establish a retrofit plan. The objectives of the retrofit plan will be to minimize the traffic and safety impacts of development by bringing the number, spacing, location, and design of driveways into conformance with the standards and requirements of this Ordinance, to the

extent possible without imposing undue or inequitable hardship on the property owner. The retrofit plan may include:

- i. elimination of driveways,
  - ii. realignment or relocation of driveways,
  - iii. provision of shared driveways and/or cross access driveways,
  - iv. reversal of access (e.g. installation of a driveway to a rear access road),
  - v. restriction of vehicle movements (e.g. elimination of left turns in and out),
  - vi. relocation of parking,
  - vii. traffic demand management (e.g. a reduction in peak hour trips),
  - viii. signalization, or
  - ix. such other changes as may enhance traffic safety.
- b. The requirements of the retrofit plan will be incorporated as conditions to the permit for the change or upgrade of use and the property owner will be responsible for the retrofit.

*As noted in the Introduction the Model Ordinance generally applies in lightly to moderately developed areas. Pre-existing developments within these areas almost always have access features which are inconsistent with the requirements of the Model. It is generally unreasonable and difficult to impose immediate and potentially expensive access retrofits on such developments --unless that is the specific intent of an access management plan which has been implemented by popular mandate. The Model resolves this problem by authorizing the Planning Board to work with the property owner or developer to identify and implement (or require) necessary access changes. Four potential triggers are generally possible:*

- \* when the property owner or developer applies for a permit to enlarge, upgrade or change the property use;*
- \* when the property owner or developer applies for a new access or highway permit;*
- \* when an abutting property is developed or changes in use and the property owner or developer of the abutting property wishes or is willing to share a driveway and/or interconnect parking areas; and*
- \* when a service or access road is constructed or the front road is reconstructed.*

## G. Incentives



1. In order to ensure the safe and efficient movement of traffic along a road and between the road and properties abutting the road, shared driveways, cross access driveways, access and service roads, internal circulation systems, and interconnected parking are encouraged.
2. The TOWN Planning Board may grant a property owner adjustments to the permissible bulk, area and coverage requirements including setbacks, density, area, height, or open space otherwise required in the zoning district when such property owner elects to provide and maintain shared driveways, cross access driveways, access and service roads, internal circulation systems, or interconnected parking.
3. The TOWN Planning Board reserves the authority to determine, in its discretion, the adequacy of the access management amenities to be accepted and the particular bonus or incentive to be provided to a property owner.

#### H. Variance Standards

1. The granting of a variance shall be in harmony with the purpose and intent of this Ordinance and shall not be considered until every reasonable option for meeting the provisions of this Ordinance is explored or unless the variance is in the public interest.
2. Applicants for a variance must provide proof of unique or special conditions that make strict application of the provisions of this Ordinance impractical. This shall include proof that:
  - i. indirect or restricted access cannot be obtained; and,
  - ii. no reasonable engineering or construction solution can be applied to mitigate the condition; and,
  - iii. no reasonable alternative access is available from a road with a lower functional classification than the primary road; or,
  - iv. the variance is in the public interest.
3. Under no circumstances shall a variance be granted unless not granting the variance would deny all reasonable access, endanger public health, welfare or safety, or cause an exceptional and undue hardship on the applicant. No variance shall be granted where such hardship is self-created.

## **FARMINGTON**

§ 165-34. MTOD Major Thoroughfare Overlay District. [Added 3-24-1987 by L.L. No. 1-1987; amended 8-9-1988 by L.L. No. 8-1988; 8-11-1998 by L.L. No. 4-1998]

A. Intent. It is intended, by the provisions of these regulations, to accomplish the following:

- (1) To restrict or control site access along Route 332 and those mapped portions of State Route 96 in the Town of Farmington in order to prevent the creation of strip commercial development as well as potentially significant traffic congestion problems and vehicular and pedestrian conflict areas with the Major Thoroughfare Corridor. The Major Thoroughfare Overlay District is designed to permit appropriate commercial, industrial, and business uses along the corridor and to ensure consistency with the Route 96 and Route 332 Corridor Development Plan Official Map, as adopted and amended by the Town of Farmington. [Amended 5-25-1999 by L.L. No. 3-1999]
- (2) The regulations contained within this Major Thoroughfare Overlay District are not intended to be substituted for other general zoning district provisions but can be superimposed over such district provisions and should be considered as additional requirements to be met by the applicant or developer, prior to final project approval. This Major Thoroughfare Overlay District is intended to provide the Town of Farmington with an additional level of review and regulation that will control how land development permitted by the Town's primary zoning districts will take access to and will impact the major transportation routes within the Town.

B. Delineation of Major Thoroughfare Overlay District (MTOD) boundaries. The MTOD is hereby established as a mapped overlay zone on the Official Zoning Map of the Town of Farmington. The basis for amending the Town Official Zoning Map is the adoption of the Route 96 and Route 332 Corridor Development Official Maps hereby established by the Town Board and entitled "Route 96 and Route 332 Corridor Development Plan," which consists of a total of four sheets and identified as Project No. 061142. Any property or parcel of land which contains frontage on New York State Route 332, or on any parcel frontage on New York State Route 96 as shown on the "Route 96 and Route 332 Corridor Development Official Map" shall be considered to be within the boundary of the MTOD. Any use of land lying within the boundary of the MTOD shall first be subject to provisions and restrictions of the underlying zoning district and the provisions of this section of the Town Code. [Amended 5-25-1999 by L.L. No. 3-1999]

C. Permitted principal uses. Permitted principal uses within the Major Thoroughfare Overlay District shall be those allowed with the underlying or base zoning district within which the property lies and shall be subject to the appropriate principal use provisions and restrictions of that district.

D. Permitted accessory uses. Permitted accessory uses within the Major Thoroughfare

Overlay District shall be those allowed within the underlying or base zoning district within which the property lies and shall be subject to the appropriate accessory use provisions and restrictions of that district.

- E. Special permit uses. Uses within the Major Thoroughfare Overlay District which are permitted subject to special permit review and approval by the Town Planning Board shall be those subject to such permit within the underlying or base zone district within which the property lies and shall also be subject to the appropriate special permit provisions and restrictions of that district, as well as of § 165-99 of this chapter.
- F. Dimensional requirements. Dimensional requirements for development within the Major Thoroughfare Overlay District shall be those setbacks, lot size and lot coverage provisions of the underlying or base zoning district within which the subject property lies, as outlined in Schedule I of this Zoning Chapter, Editor's Note: Schedule I is included at the end of this chapter. unless otherwise provided by this chapter.
- G. Setbacks. Properties located in the Major Thoroughfare Overlay District shall be governed by the following setbacks:
  - (1) Side yard: 30 feet.
  - (2) Setback from an access road: 50 feet.
  - (3) Setback from Route 332 or Route 96: 100 feet.
- H. Additional site plan and special use permit provisions and requirements. The requirements of §§ 165-44, 165-57B, 165-60C, 165-99C and 165-100 shall apply in the review and approval of any site development plan or special use permit required for property within the Major Thoroughfare Overlay District.
- I. General access management requirements.
  - (1) Regulations applicable to all zoning districts within the MTOD Overlay District:
    - (a) The location and design of driveways and other site layout, parking and access management conditions shall conform to all state and local requirements, including and not limited to those established in this section.
    - (b) The site layout, location and design of driveways, parking and other access management conditions should be based on full development of a lot.
    - (c) Driveways should be limited to one per lot. More than one driveway may be permitted if:
      - [1] The additional driveway(s) does not degrade traffic operations and safety on the public road system; and
      - [2] The additional driveway(s) will improve the safe and efficient movement of traffic between the lot and the abutting public road.

- (d) Driveways to properties with frontage on two or more roads shall be provided to the road with the lowest functional classification serving the proposed development.
- (e) Driveways may be required to be located so as to provide shared driveways and/or cross-access driveways with an abutting lot or lots.
  - [1] Shared driveways and/or cross-access driveways shall be of sufficient width (minimum 20 feet, 6.0 meters) to accommodate two-way travel for automobiles and emergency service and loading vehicles. Wider driveways may be required to serve traffic to major developments or large vehicles.
  - [2] Shared driveways, cross-access driveways, interconnected parking and private roads constructed to provide access to properties internal to a subdivision shall be recorded as an easement and shall constitute a covenant running with the land. Operating and maintenance agreements for these facilities should be recorded with the deed.
- (f) Except when located at a signalized intersection, a motor vehicle service station, convenience store/petroleum station and petroleum station located in the MTOD district must meet both the spacing standards detailed in § 165-77D as well as all the spacing standards detailed in this § 165-34. A motor vehicle service station, convenience store/petroleum station and petroleum station located at a signalized intersection need only meet the spacing standards detailed in this § 165-34. [Added 12-12-2000 by L.L. No. 1-2000]

**J. Driveway standards.**

- (1) Spacing standards. Regulations relate to the required separation, location and standards for driveways providing access to and from roads listed in the MTOD Overlay District. Each driveway constructed within the MTOD shall comply with the following:
  - (a) Driveways shall be located so as to meet or exceed the driveway spacing standards shown in Table 1.

**Table 1**  
**Minimum Driveway Spacing Standards**

<b>Type of Development/ Type of Road</b>	<b>Small Development (0 - 150 PHT)</b>	<b>Moderate Development (151 - 300 PHT)</b>	<b>Large Development (301 PHT or more)</b>
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All state roads	220 feet	330 feet	550 feet
Local collectors and arterials	150 feet	250 feet	400 feet
Access and Development	50% of the required frontage	65% of the required frontage	80% of the required frontage

[1] PHT, peak hour trips, will be determined through application of the Institute of Transportation Engineers trip generation methods and statistics. With permission from the Town Planning Board, another methodology or other statistics for determination of peak hour trips may be used.

[2] PHT, peak hour trips, should be based on full build-out of the lot.

[3] The larger of the minimum driveway spacing standards for the proposed subdivision or development or existing developments at abutting properties will apply. Driveways for in-fill development must meet the minimum driveway spacing standards to driveways at abutting properties on both sides.

(b) Driveway spacing standards shall apply to driveways located on the same side of a road.

(c) Driveway spacing is to be measured along the road from the center line of the driveway to the center line of the next driveway.

(2) Corner clearance.

(a) Corner clearance is to be measured along the road from the center line of the driveway to the closest edge of the road determined by the State Department of Transportation, unless otherwise specified elsewhere in this chapter.

(b) Driveways for corner properties where there is no traffic light, either existing or planned, shall meet or exceed the minimum corner clearance requirements as follows:

[1] Full access (all driveway movements) where there is no median barrier involved: 220 feet; or

[2] Partial access (restricted driveway movements) where there is a median barrier involved: spacing shall be as required in Table 1 of these regulations. Editor's Note: See Subsection J(1) above.

(c) Driveways for corner properties where there is a traffic light, either existing or planned, shall meet or exceed the minimum corner clearance requirements set

forth in Subsection J(2)(b) above, unless said driveway is located within the functional boundary of the intersection as delineated on the Town of Farmington Routes 96 and 332 Corridor Development Plan Map, adopted by the Town Board. Editor's Note: Said map is on file in the Town offices. In those instances, said driveway is to be located based upon the results of a traffic impact statement and permit issued by the appropriate regional office of the State Department of Transportation.

(3) Driveway location.

- (a) Driveway location will be based on a site plan which has been approved by the Town Planning Board in consultation with the New York State Department of Transportation or the Town Engineer/Town Highway Superintendent.
- (b) For the purpose of driveway locations, median openings shall be treated as intersections, and driveways to properties opposing a median opening shall be located so as to meet or exceed the minimum corner clearance standards, except where a median opening is specifically constructed or reconstructed to provide vehicular access to such properties.
- (c) Driveways shall be located so as to meet or exceed the minimum driveway spacing standards and the minimum corner clearance standards.
- (d) The Town Planning Board may allow the location of driveways at less than the minimum driveway spacing standards and corner clearance standards if:
  - [1] A dual-driveway system, cross-access driveway system or shared driveway is proposed and this improves the safe and efficient movement of traffic between the lot and the road; or
  - [2] A driveway or driveways could be located so as to meet the minimum driveway spacing standards and corner clearance standards, but the characteristics of the lot or the physical or operational characteristics of the road are such that a change of location will improve the safe and efficient movement of traffic between the lot and the road; or
  - [3] Conformance with the driveway spacing standards or corner clearance standards imposes undue hardship on the lot owner.
- (e) For properties unable to meet the minimum driveway spacing standards or corner clearance standards, a temporary driveway may be granted. The granting of a temporary driveway will be conditioned on obtaining a shared driveway, cross-access driveway or unified parking and circulation with an abutting lot, and closure of the temporary driveway, in the future.

- (f) For properties unable to meet the minimum corner clearance requirements, driveways shall be located as far as practicable from the intersection. In such cases, driveway movements may be restricted and only one driveway will be permitted along the road frontage not meeting the minimum corner clearance requirement.
- (4) Driveway design.
- (a) Driveways shall be designed so as to provide for the safe and efficient movement of traffic between the public road and the lot and to eliminate the potential for the queuing of vehicles along the public road due to congestion in or at the driveway.
  - (b) Vehicle circulation systems on the lot shall be designed so as to provide for the safe and efficient movement of traffic between the driveway and the parking area.
  - (c) Driveway width, radii, flare, throat length, internal circulation systems and other design elements for driveways to developments generating more than 150 peak hour trips shall be based upon traffic, engineering and design data provided by a traffic engineer/consultant who is recognized and accepted by the Town Planning Board. In the event that a traffic engineer/consultant is not provided, the Town shall have the right to retain such traffic engineer/consultant at the cost of the applicant.
- (5) Driveway movements.
- (a) Driveway movements (cross, left turn in, left turn out, right turn in and right turn out) may be restricted so as to provide for the safe and efficient movement of traffic between the road and the lot.
  - (b) Driveways shall be designed and constructed to provide only the allowable movements.
- (6) Changes in access.
- (a) The Town Planning Board may establish provisions for and require future alteration of the lot layout, the location and design of driveways, parking and other access features based on phased development, additional development or a change in use of a lot, or development of or a change in use at an abutting lot.
  - (b) On completion of a side, access or service road abutting a lot with a driveway connection to a public road, the Town Planning Board may require a driveway or driveways to the side, access or service road and closure of the driveway connection to the public road.



(c) For any change or use of a lot which requires a Town permit or approval and increases peak hour trips, the Town Planning Board may:

[1] Require the closure or relocation or consolidation of driveways so as to meet the minimum driveway spacing standard for the new level of peak hour trips.

[2] Require shared driveways and cross-access driveways with abutting lots.

[3] Require alteration of the lot-layout and parking which allow for the circulation of traffic between abutting properties.

(7) Medians.

(a) The type, location and length of medians on state roads will be determined by the New York State Department of Transportation. This determination will be made in consultation with the Town Planning Board and will be based on existing and projected traffic conditions; the type, size and extent of development and traffic generated by development; traffic control needs; and other factors.

(b) The minimum spacing between median openings will be 1,320 feet for median openings which restrict the directional movements of vehicles using the opening and 2,640 feet for median openings which do not restrict the directional movements of vehicles using the opening.

(c) The minimum spacing between median openings may be waived with the mutual agreement of the Town Planning Board and the New York State Department of Transportation.

(d) Median openings intended to serve a driveway or driveways to a development or developments must meet or exceed the minimum spacing standards between median openings and must also be justified by a traffic impact analysis approved by the New York State Department of Transportation in consultation with the Town Planning Board when driveways are proposed to connect to state roads, or the Town Planning Board when driveways are proposed to connect to local roads. The cost for preparation of the traffic impact analysis and construction of the median opening or openings, including installation and operation of signals and other improvements where warranted, shall be born by the applicant.

K. Classification of large development within the MTOD Overlay District. Development within the MTOD is classified as either small development, medium development, or large development. Table I of these regulations establishes the standards for all three types of development. Editor's Note: See Subsection J(1) above. Large developments are



likely to have the potential for significant adverse impacts on the environment and, therefore, are further subject to the following criteria:

- (1) For purposes of this section, large developments shall include residential developments and mixed-use subdivisions whose combined trip generation from all lots exceeds 150 peak hour trips; commercial, retail and industrial developments whose trip generation exceeds 300 peak hour trips; and any use which will, in the opinion of a qualified traffic engineer, detrimentally impact the safe and efficient movement of traffic along public roads.
  - (2) Large developments may be required to mitigate the traffic impacts of their development. Required mitigation may include but is not limited to the construction or signals, turning lanes, medians, combined and shared driveways, internal service or access roads and implementation of transit improvements and/or traffic demand management strategies. This requirement may be waived with:
    - (a) New York State Department of Transportation approval for mitigation required on or along a state road.
    - (b) Town approval for mitigation required on or along a local road.
  - (3) Required mitigation will be identified through a SEQRA review or transportation impact study.
- L. Land subdivision criteria. All proposed development of land located within the MTOD, which involves the subdivision of a parcel of land not in effect as of the effective date of the adoption of these regulations, shall be subject to the following criteria in addition to that set forth in Chapter 144, Subdivision of Land, of the Code of the Town of Farmington.
- (1) Planned access shall be provided for lots which are the result of subdivisions occurring after the effective date of this section.
  - (2) Planned access shall address the provisions of this section and the following:
    - (a) Lots which are the result of a subdivision do not have the right of individual access to public roads. The number of driveways or other connections shall be the minimum number necessary to provide reasonable access to these lots, not the maximum available for the frontage.
    - (b) Driveways shall be provided to the road with the lowest functional classification serving the proposed land use.
    - (c) Access should be internalized. Access to lots within a subdivision should be obtained from an access road or interior road.
    - (d) The access system for the proposed subdivision should be coordinated with existing, proposed and planned streets outside the subdivision.

- (3) Shared driveways, cross-access driveways, interconnected parking and private roads constructed to provide access to lots internal to a subdivision shall be recorded as an easement and shall constitute a covenant running with the land. Operating and maintenance agreements for these facilities should be recorded with the deed.
- M. Incentives for land development within the MTOD. In accordance with the provisions of § 261-b of New York State Town Law, the Town Board, upon recommendation from the Town Planning Board, may grant incentives to proposed development occurring within the MTOD area when the following conditions are found to exist:
- (1) In order to ensure the safe and efficient movement of traffic along a road and between the road and properties abutting the road, shared driveways, cross-access driveways, access and service roads, internal circulation systems and interconnected parking are encouraged.
  - (2) The Town Board, based upon a Town Planning Board recommendation which is first based upon approval of a preliminary site and/or subdivision plan, may grant adjustments to the permissible density, area, height or open space otherwise required in the zoning district when such lot owner elects to provide and maintain shared driveways, cross-access driveways, access and service roads, internal circulation systems, or interconnected parking.
  - (3) The Town Planning Board reserves the authority to determine the adequacy of the access management amenities to be accepted and the particular bonus or incentive to be provided to a lot owner.
- N. Variance standards for development within the MTOD Overlay District.
- (1) In addition to the standards and criteria for development set forth elsewhere in the Town of Farmington Code, the Town Board hereby enacts the following additional standards for the granting of variances associated with development within the MTOD Overlay District:
    - (a) The granting of an area variance shall be in harmony with the purpose and intent of this section and shall not be considered until every reasonable option for meeting the provisions of this section is explored.
    - (b) Applicants for an area variance must demonstrate unique or special conditions that make strict application of the provisions of this section impractical. This shall include a showing that:
      - [1] Indirect or restricted access cannot be obtained;
      - [2] No reasonable engineering or construction solutions can be applied to mitigate the condition; and

- [3] No reasonable alternative access is available from a road with a lower functional classification than the primary road.
- (c) Under no circumstances shall an area variance be granted unless not granting the variance would deny all reasonable access, endanger public health, welfare or safety or cause an exceptional and undue hardship on the applicant. No area variance shall be granted where such hardship is self-created.
- (2) Additional provisions and requirements.
  - (a) Lot area, bulk and coverage requirements.
    - [1] Lot area, bulk and coverage requirements shall be as defined in the Town of Farmington, Schedule I, Lot Area, Bulk and Coverage Requirements, Editor's Note: Schedule I is included at the end of this chapter. except as otherwise provided for in this chapter.
    - [2] Lots within the MTOD Major Thoroughfare Overlay District which take access to state roads shall have a minimum width which allows the placement of driveways within the minimum driveway spacing standards as defined in Chapter 165, Article IV, § 165-34J. Such width may be reduced, at the discretion of the Town Planning Board, where the lot obtains access through a shared driveway or a cross-access driveway or provides a separate driveway to another road.
    - [3] Lots within the MTOD Major Thoroughfare Overlay District which take access exclusively from a local collector, local arterial, access road or development road shall have a width which allows the placement of driveways within the minimum driveway spacing standards for such roads as defined in Chapter 165, Article IV, § 165-34J. In such cases the minimum lot width required along State Route 332 and State Route 96 shall be as defined in the Town of Farmington, Schedule I, Lot Area, Bulk and Coverage Requirements. Editor's Note: Schedule I is included at the end of this chapter.

§ 165-50. Access control.

In order to encourage the sound development of street frontage, the following special regulations shall apply to all uses permitted within the business and industrial districts:

A. Access barrier. Access to streets shall be controlled in the interest of public safety. Each

building or group of buildings and its parking or service areas shall be physically separated from the highway line by a curb and planting strip or other suitable barrier to control motor vehicle access, except for access points authorized herein.

- B. Access points. Insofar as practical, the use of common access points by two or more permitted uses shall be provided in order to reduce the number and closeness of access points along the streets and to encourage the fronting of business and industrial structures upon a parallel access street and not directly upon a public road. Access points for uses generating more than 150 peak hour trips shall not be less than 24 feet nor more than 50 feet in width. All other access points shall not be less than 20 feet nor more than 40 feet in width. [Amended 8-11-1998 by L.L. No. 4-1998]

(2) In addition to the information submission requirements of § 165-100, the Town Planning Board may require an application for special use permit review and approval to be accompanied, in the following cases, by a transportation impact analysis, to be prepared by the applicant, and reviewed by the Town Planning Board: [Amended 8-11-1998 by L.L. No. 4-1998]

- (a) Any retail, commercial or industrial development which proposes direct access to a collector or arterial road outside of the boundaries of the MTOD Major Thoroughfare Overlay District.
- (b) Any large development to be located on property within the boundaries of the MTOD Major Thoroughfare Overlay District, as defined by Article IV, § 165-34K.
- (c) Any residential development which proposes to have more than 25 dwelling units.
- (d) Any other use which may, in the opinion of a qualified traffic engineer, detrimentally impact the safe and efficient movement of traffic along public roads.

**LIVONIA**

**LIVONIA ACCESS MANAGEMENT CODE**

NOTE: Section references as printed are based on the Town chapter numbering (zoning is Chapter 150, subdivision is Chapter 125). Article and section numbers in the zoning and subdivision chapters are the same for the town and village code. For Village regulations, zoning is Chapter 155 and subdivision is Chapter 130.

**Article XV Access Management**

**§ 150-124. Intent.**

The purpose of these access management standards is to provide safe and efficient travel along public streets. These standards are based on the goals and strategies of the Livonia Transportation and Access Management Plan. The standards balance public and private interests. Implementation of these access management standards is intended to reduce confusion, congestion, and accidents by limiting conflict points. These standards are also intended to guide development of a street network with sufficient linkages between uses. The standards will contribute to the long-term accommodation of growth and development while providing safe and convenient access to properties and preserving the visual character of area streets.

**§ 150-125. Definitions.**

ACCESS- A way or means of approach to provide vehicular or pedestrian entrance or exit to a parcel.

ACCESS CONNECTION, VEHICULAR - Any driveway, private street, turnout, or other means of providing for the movement of vehicles to or from a public street.

**ACCESS MANAGEMENT** - The process of locating and designing vehicular access connections to land development to preserve the flow of traffic in terms of safety, capacity and speed.

**CORNER CLEARANCE** - The distance from an intersection of two or more streets to the nearest access connection.

**CROSS ACCESS** - The layout of circulation patterns and recording of a permanent enforceable right of access to allow travel between two or more contiguous parcels without traveling on a public street.

**DRIVEWAY** - Any entrance or exit used by vehicular traffic to or from land or building to an abutting street.

**DRIVEWAY, SHARED** - A driveway in common ownership or subject to a permanent enforceable right of access by those traveling to or from a use on another parcel.

**FUNCTIONAL AREA (INTERSECTION)** - The area adjacent to the intersection of two or more streets that encompasses required vehicle queuing areas and the decision and maneuvering area for vehicles using the intersection.

**FUNCTIONAL CLASSIFICATION** - A system used to group public streets into classes according to their purpose in moving vehicles and providing access to abutting properties.

**NONCONFORMING ACCESS** - An access connection existing prior to the date of adoption of these regulations which in its design or location does not conform with the requirements of this Chapter.

**PARCEL** - A division of land comprised of one or more contiguous lots in common ownership.

**PEAK HOUR TRIP (PHI) GENERATION** - a weighted average vehicle trip generation rate during the hour of highest volume of traffic entering and exiting the site or the highest volume of the adjacent street.

**REASONABLE ACCESS** - The minimum number and type of access connections, direct or indirect, necessary to provide safe access to and from a public street, as consistent with these regulations and other relevant plans and policies of the Town or Village of Livonia.

**RESTRICTIVE MEDIAN** - A physical barrier such as a metal or concrete structure or a grass or landscaped island within the street right-of-way that separates traffic by direction of travel.

**STREETS, ACCESS and DEVELOPMENT** - Streets not otherwise classified. The primary function of such streets is to move traffic within subdivisions and large developments and to provide access to individual lots.

**STREET, COLLECTOR** - Those portions of the Livonia transportation system providing important links between major streets or serving large residential or non-residential developments. Collector streets must balance the desirability of the free flow of traffic and access needs. Additional collector streets may be designated by resolution of the municipal board and an up-to-date list shall be available in the Building and Zoning Department office. Collector streets currently include the following streets which are under the jurisdiction of the Livingston County Highway Department.

Bronson Hill Road  
East Lake Road  
Federal Road  
Livonia Center Road  
Poplar Hill Road  
Richmond Mills Road (NYS 15A to Richmond town line)  
South Lima Road

These regulations also designate as collector streets the following streets under town jurisdiction:

Stone Hill Road (from NYS 15 to Poplar Hill Road)  
Proposed New Road  
Big Tree Street/Road

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Cleary Road

Summer Street

Pennemite Road

Portions of these streets within the Village of Livonia are designated as local streets.

STREET, LOCAL - The primary functions of such streets is to move traffic between subdivisions as well as to provide access to individual lots.

STREET, MAJOR - Those portions of the Livonia transportation system under State or Federal jurisdiction or designated as a major street by a local municipal board A major street typically moves larger volumes of traffic over greater distances compared to other street types. This function of mobility or the free flow of traffic must be considered when defining reasonable access to such streets. Access is a secondary functions of such streets. The following lists the route numbers and names of streets wholly or partially under State or Federal jurisdiction.

Route Number	Location
NYS 15	Rochester Road, Big Tree Road, Big Tree Street, Main Street, Commercial Street, Conesus-South Livonia Road
NYS 15A	Plank Road and Bald Hill Road
NYS 256	West Lake Road
US 20A	Big Tree Road, Big Tree Street, Main Street, Richmond Mills Road, Plank Road, US 20A

TEMPORARY ACCESS - Provision of direct access to a street until such time as adjacent parcels are developed and planned access via a shared driveway or access development street can be implemented.



**§ 150-126. Applicability.**

These access management standards shall apply to all uses in all districts. More specifically:

- A. All land subdivisions receiving preliminary approval after the date of adoption of these regulations and all lots created by such subdivisions shall demonstrate conformance to the maximum extent practicable with the requirements and objectives of these regulations.
- B. Any construction, alteration, or change of use on a lot existing prior to the date of adoption of these regulations which requires site plan approval, shall demonstrate conformance to the maximum extent practicable with the requirements and objectives of these regulations.

**§ 150-27. General Requirements.**

- A. Access and circulation shown on subdivision and site plans developed under these regulations shall also conform to the requirements of other federal, state, and local agencies responsible for transportation system elements proposed for modification. This includes but is not limited to transportation agency standards for stopping and intersection sight distances, signal warrants and, if applicable, the subdivision regulations of Chapter 125 and other portions of this Chapter especially the district regulations of Article VI, the off-street parking and loading regulations of Article X and the site plan review regulations of Article XIV,
- B. Deviations from the standards outlined in this Article for developments generating more than 150 peak hour trips must be based on documentation from a qualified traffic engineer that an alternative access arrangement provides equal or greater safety and mobility and comparable or lower adverse environmental impacts. All such deviation must be in accordance with the procedures and requirements for obtaining an area variance as specified in § 150-17 of this Chapter. The Joint Planning Board has discretion for approving deviation from the standards for uses generating less than 150 peak hour trips and reserves the right to require professional

- justification of deviation from standards for projects generating less than 150 peak hour trips.
- C. Parcels created after the effective date of these regulations do not have the right of individual access to existing abutting public streets. The number of planned access connections is to be the minimum necessary to provide safe and reasonable access. This may be less than the number of access connections which would be allowed based solely on minimum property width requirements.
  - D. New public or private streets, shared driveways or cross access may be necessary to meet the requirements of these regulations. If access is to be provided by means other than direct access to a public street, a permanent recorded easement, which runs with the land, shall be executed. In addition, operating and maintenance agreements for all such facilities shall be recorded with the deed.
  - E. Subdivision of a parcel with frontage on two or more streets may be required to provide access from all lots which result from the proposed subdivision to all such streets without traveling on the existing street network. In most cases, even if a vehicle connection is not provided, a pedestrian connection shall be provided.
  - F. Parcels with frontage on more than one street may be limited to one access connection to the lowest class of street serving the proposed development.
  - G. Unless otherwise specified, all distances shall be measured from centerline to centerline along the edge of the street right-of-way. Where street or intersection modifications are planned, all distances shall be from the proposed centerline along the edge of the proposed right-of-way.

**§ 158-128. Access to subdivided lands and phased, full build-out and multi-owner development plans.**

- A. Prior to subdivision or site plan approval or approval of a zoning permit for any new or modified access or intersection, the applicant must provide a concept plan. The concept plan shall show the location of buildings, parking, and circulation including connections to preexisting streets, and alignments of any new streets necessary to accommodate full build-out as allowed by current zoning for all lands under single ownership as of the date of adoption of these regulations.

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- B. Access to individual residential driveways within a subdivision should be obtained from an access or development street.
- C. Access to other uses in a proposed subdivision should be coordinated with existing, proposed and planned streets and driveways outside the subdivision, and should consider providing cross access connections to abutting developed or undeveloped properties.
- D. When the concept plan for access to lands planned jointly or under common ownership as of the date of adoption of these regulations shows development of a an access or development street as part of eventual full build-out, the Joint Planning Board may allow temporary access directly to a public street while requiring that parcel layout be designed to provide future access only from the proposed access or development street. Furthermore, the Joint Planning Board may establish square footage or peak hour trip generation thresholds which govern when construction of the access or development street must take place.

### § 158-129. Driveway Spacing Standards.

- A. Minimum recommended spacing between driveways on the same side of the street are as follows:

Street Type	Recommended Driveway Separation (in feet)
Major Street	330
Collector Street	220
Local Street	80 percent of lot width
Access or Development Street	80 percent of lot width

- B. Access connections on opposite sides of the street not separated by a restrictive median shall be aligned or off set so as to eliminate left-turn overlap conflicts between vehicles traveling in the opposite direction

- C. Access connections to development on opposite sides of the street with peak hour trip generation of 150 or more may be required to be aligned to enable installation of a traffic signal to serve both developments.
- D. On the advice of the municipal engineer, the Joint Planning Board may raise or lower the required driveway spacing standard based on the volume of site generated traffic, the impact of site generated traffic on the operation of the adjacent street. or posted or operational speeds in the vicinity of the proposed site.
- E. The Joint Planning Board as part of site plan review will evaluate how proposed driveway location impacts opportunities to develop abutting properties. At a minimum such evaluation shall identify any sight distance and alignment/offset constraints and indicate whether compliance with the recommended spacing standards is practicable for abutting properties based on applicant's proposed driveway location.

**§ 150-130. Corner Clearance.**

The following standards shall guide approval of driveway access on corner parcels:

- A. A .Generally no driveways shall be allowed within the functional area of the intersection. If parcel boundaries or topography preclude location outside the functional area of the intersection, access may be limited to right turns in and/or right turns out and/or left turns in. As determined by the municipal engineer and, the driveway shall generally be located as far from the intersection as possible and in the safest possible location.
- B. Development on corner parcels should be linked by cross access to abutting properties of the same type (i.e, residential or non-residential).
- C. Driveways for corner parcels with frontage along a major or collector street shall be located no closer than 220 feet from the intersection.
- D. If no alternative reasonable access exists, partial (right-in/right-out) access that does not create safety or operation problems may be allowed if located a minimum of 110 feet from the nearest edge of existing or proposed pavement.

Driveways for corner parcels with frontage solely along local streets or access or development streets shall be located no closer than 60 percent of the minimum lot width.

- E. Corner clearance is to be measured along the street right-of-way from the centerline of the driveway pavement to the closest edge of the existing or proposed street pavement.

**§ 150-131. Street and Signal Spacing.**

Intersection spacing standards shall be applied, as development occurs, to preserve desirable location and alignment of streets to serve future growth and provide an efficient overall transportation system.

- A. The following presents recommended cross street and signal spacing standards.

**Recommended Street, Intersection and Signal Spacing (feet)**

Street Type	Maximum Through Street	Minimum Intersection Spacing (feet)	
		Signalized	Unsignalized
Major	5,280	2,640	1,320
Collector	2,640	1,320	880
Local	1,320	NA	440
Access or	880	NA	440

- B. On the advice of the municipal engineer, the Joint Planning Board may raise or lower the required intersection spacing standards based on posted or operational speeds in the vicinity of the proposed site, the type and character of the development proposed to be served, and the impact of projected traffic generation on the area street network.

**§ 150-132. Nonconforming access.**

Access connections in place prior to the effective date of these regulations which do not conform to the requirements of these regulations shall be treated as pre-existing nonconforming access features which are allowed to continue subject to the standards of Article VIII, especially §150-70 B. regarding discontinuation and the following.

A. The feasibility of bringing nonconforming access connections into compliance shall be evaluated under the following conditions:

1. When a new driveway access permit is requested.
2. When proposed changes increase the square footage of a building or accessory use by 10 percent or more, or make an investment that substantially increases traffic generation.
3. When the proposed changes increase the peak hour or daily site generated traffic by 50 or more peak hour trips.
4. In conjunction with state or county improvement projects.

B. At the direction of the Joint Planning Board in consultation with the municipal engineer, the evaluation may be required to address the feasibility of the following:

1. Elimination and/or consolidation of access connections.
2. Realignment or relocation of access connections.
3. Provision of shared driveways or cross access.
4. Provision of rear access.
5. Restriction of vehicle turning movements.
6. Changes in the layout of on-site parking and circulation.
7. Traffic demand management.

C. The objective of the feasibility evaluation is to make recommendations to improve operational and safety characteristics of the access connection by bringing the number, location, spacing, and design of access connections into conformance with these regulations.

D. Existing driveway spacing along major and collector streets in developed portions of the Village of Livonia and the hamlets of Hemlock, Lakeville, Livonia Center, South Lima, and South

Livonia is as low as 50 to 100 feet. Such buildings are not expected to accommodate uses that generate more than 150 peak hour trips. Driveway spacing standards for expansion, change of use or intensification of use for buildings in these areas shall target driveway spacing of 125 feet if the posted speed is 35 mph or less and 220 feet if the posted speed limit is more than 35 mph. Peak hour trip generation above 150 may be appropriate if the driveway spacing standards of §150-129 can be met.

- D. The Joint Planning Board may require implementation of access changes that will improve traffic operations, safety, or overall access.

**§ 150-1.33. Design of driveways and internal circulation.**

- A. Driveways and on-site circulation shall be designed so as to provide for the safe and efficient movement of traffic between the roadway and the site, and to eliminate the potential for the queuing of vehicles along the roadway due to congestion in or at the driveway.
- B. Driveway location, width, radii, flare, throat length, and other elements of the circulation system for developments generating more than 150 peak hour trips shall be based upon consultation with qualified traffic, engineering and design professionals. Alternatively, the Joint Planning Board may retain such a professional to review the design at the cost of the applicant.

**§ 150-1.34. Required mitigation of traffic impacts.**

- A. Any proposed residential subdivision or non-residential development projected to generate more than 150 trips during any weekday or weekend peak hour may be required to mitigate the traffic impacts of such new development. Required mitigation shall be recommended by a qualified traffic engineer based on the assumptions and analyses included in a comprehensive traffic study completed in accordance with the procedures of the State Environmental Quality Act.
- B. Required mitigation may include but shall not be limited to the installation of signals, turning lanes, or medians, the

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use of shared driveways, cross access, or the construction of access or development streets, and/or other traffic demand management strategies.

- C. Phased mitigation may be allowed where phased development is proposed.

### § 150-135. Standards for estimating peak hour generation.

- A. The standards and methodologies for estimating Peak Hour Trip Generation shall be as follows:

1. Trip generation rates shall be determined through application of the most recent Institute of Transportation Engineers Trip Generation methods and statistics.
2. Trip generation shall be based on full build-out of the proposed parcel and/or abutting parcels.
3. Peak Hour Trip generation shall be the peak hour of the proposed use or the adjacent street, whichever is greater.

- B. The following are examples of developments which would generate approximately 150 Peak Hour Trips.

Use	Size	Peak Hour Trips Generated
Single Family	157 dwellings	150 Saturday peak hour trips
Low Rise Apartments	268 dwellings	150 Saturday peak hour trips
General Office	75,900 square feet	150 weekday a.m. peak hour trips
Medical Office	34,400 square feet	150 weekday p.m. peak hour trips
Industrial Park	124,000 square feet	150 weekday p.m. peak hour trips
Shopping Center	6,700 square feet	150 Saturday peak hour trips